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IMPACT ASSESSMENT

Accompanying document to the

REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

on the marketing and use of explosives precursors

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1. INTRODUCTION

The Action Plan on Enhancing the Security of Explosives, approved by the Council on 18 April 2008¹, called on the Commission to:

"establish a Standing Committee to consider measures and prepare recommendations concerning the regulation of explosives precursors available on the market taking into account their cost-benefit effects."

Based on the recommendations of the Standing Committee (listed in Annex 1) and an extensive impact assessment study, the Commission intends to adopt measures to deal with the marketing and use of explosives precursors in the 3rd quarter of 2010.

The overall objectives of the measures are to establish harmonised measures for restricting the marketing and use of certain substances, which are frequently used for the illicit manufacture of explosives, with a view to preventing their diversion and misuse.

These measures are intended to constitute a tangible deliverable within the "prevent" strand of the EU Counter-terrorism Strategy adopted by the JHA Council on 1 December 2005.²

2. PROCEDURAL ISSUES AND CONSULTATION OF INTERESTED PARTIES

2.1. Organisation and timing

This impact assessment is based on an extensive "Preparatory Study to Inform an Impact Assessment of Potential Legislative and Non-legislative Restrictions on Chemical Precursors to Explosives" (Preparatory study), prepared by an external contractor, GHK. The study assessed the impacts of the recommendations made by the Standing Committee on Precursors in its Annual Report 2008, as well as a number of other policy options. The work on the study lasted for 9 months, and included an extensive consultation with the Standing Committee on Precursors. The reports submitted in the course of the work on the study were also discussed regularly in the Interservice Group on explosives issues. The group's last meeting was 20 January (note at Annex 2). The IA Board scrutinised the IA on 28 April 2010. In line with the Board's comments, the following changes have been made to this IA:

- strengthening the explanation of how the preferred policy option would make a contribution to the prevention of terrorist attacks;
- strengthening of methodological explanations (in the main body of the Impact Assessment as well as in the relevant annexes), including the explanation of why the EU Standard Cost model could not be used;

¹ 8109/09, ENFOPOL 69

² 15708/03.

- enhanced explanation of the expected costs to public authorities and businesses and linking these to the relevant annexes, which provide background statistical data and methodology;
- enhanced justification of EU action;
- strengthened justification for the selection of the preferred policy option;
- provision of more information about stakeholder views, including an overview of private sector stakeholders consulted;
- adding a table of contents, glossary, and annexes on the recommendations of the Standing Committee on Precursors.

Adoption of the legislative instrument by the European Commission, most likely in the form of a Regulation on the basis of Article 114 of the Treaty on the Functioning of the European Union, is scheduled for the 3rd quarter of 2010.

2.2. Consultation process

2.2.1. Standing Committee on Precursors

The proposed policy builds on the work and the recommendations of the Standing Committee on Precursors (SCP). This Committee is an ad hoc advisory Committee composed of experts from the EU Member State authorities and representatives of the private sector (major EU level chemical and fertiliser producers and distributors associations, listed in Annex 3), and is chaired by the Commission. The objective of the Standing Committee is to make recommendations to the European Commission with regard to possible measures to enhance the security of precursors to explosives with the aim of preventing the fabrication of Improvised Explosive Devices (IEDs) serving criminal or terrorist purposes. The Committee started its work in January 2008.

On 13 February 2009, the SCP adopted its annual report for 2008 which contained concrete recommendations on enhancing the security of precursors. These recommendations served as a basis for the impact assessment study performed by GHK. The SCP was closely involved in the development of this study – its members (both from the public and the private sector) were consulted on a regular basis. Three SCP meetings were devoted to discussing the outputs in the course of the work on the study – on 8 September 2009, 11 January 2010 and 10 March 2010.

In addition to this, the contractor organised a business survey³ and two stakeholder workshops on 3 and 4 December 2009 (with representatives of Member State authorities and with the private sector, respectively) to validate the assessment of the policy options proposed in the draft study.

³ The businesses for the survey were identified through European and national industrial representative bodies, through a "mystery shopping" exercise and through an internet search aimed at identifying businesses in the chemical sector in each Member State, for each precursor addressed by the study. The responses received covered various supply chain stakeholders, ranging from producers and manufacturers to distributors and wholesalers of chemical substances and products. In addition to this, several specialist end sellers and retailers also responded.

The consultations in the course of the development of the Preparatory study also included consultation of some SMEs, which would be most affected by possible measures on precursors, in particular on hexamine.

This broad consultation process, together with the results of the impact assessment study, form the basis for this Impact Assessment. This consultation process resulted in a high level of consensus on the preferred policy option.

2.2.2. Consultation with other stakeholders

Work on the issue of security of explosives has been developed by Directorate General for Justice, Freedom and Security since 2006. Over that period, internal consultations with other Commission Services have focussed on those directorates, which are most directly involved with this issue – Directorate General for Enterprise and Industry, because of its responsibility for regulating chemicals, including commercial explosives and pyrotechnics, and Directorate General for Transport and Energy (now Directorate General for Mobility and Transport) for issues related to transport of dangerous goods. The Secretariat General had been involved in the interservice meetings as well. Other services have been consulted through the normal interservice procedures (including Directorate General for Health and Consumers and Directorate General for Agriculture), and have not raised issue with this in the past.

3. PROBLEM DEFINITION

3.1. Context: home made explosives as the preferred means for perpetrating attacks

The direct and indirect social and economic costs of a terrorist attack are tremendous, especially when such attack takes place in a major centre of economic activity (e.g. financial and commercial centres) or when major transport nodes (public transport networks, airports, seaports, etc) are targeted. Incidents always involve substantial direct costs to handle the crisis, including first responders, specialists to manage the crisis, emergency medical care, forensic investigations, etc. However, the main costs associated with major incidents are usually:

- the value of loss of life and temporary or persistent health conditions leading to lower employability and a lower quality of life;
- effects of the disruption of economic activities and destruction of infrastructure;
- social disruption and an overall public perception of being unsafe, that also has an effect on overall public health and wellbeing.

The arbitrary and apparently irrational nature of terrorism means that its threat and consequences are difficult to predict.

In recent years, the EU and EEA countries have collectively experienced a high number of terrorist and criminal attacks using explosives, homemade explosives (HMEs) and improvised explosive devices (IEDs), as well as an even higher number of attacks which

were prevented or attempts, which failed. The 2009 TE-SAT report⁴ prepared by Europol states that in 2008, a total of 515 failed, foiled or successfully perpetrated terrorist attacks were reported by just seven Member States. The report confirms that HMEs, fabricated from chemical precursors, are the means most frequently used to carry out attacks. To illustrate this point further, Annex 4 provides a more detailed overview of some of the terrorist attacks and intended attacks in Europe since 2004. The table documents that this phenomenon is far from extinct, and affects a variety of Member States, not just a few. Although frequently detailed indication of the explosive involved is not provided for reasons of confidentiality or unavailability, it is clear that the means which are readily available, i.e. also home made explosives produced from chemical precursors, are most popular.

The threats stemming from the misuse of the precursor chemicals used to produce these HMEs were also documented at the meetings of the SCP. Worldwide, the growing threat from fundamentalist terrorism, focusing on causing mass casualties, contributes to the increased lethality of terrorist incidents. The popularity of home made explosives for carrying out terrorist attacks is, besides the availability of chemical precursors, also underpinned by the wide availability of information on how to fabricate HMEs and IEDs on the internet.

Whilst several legislative and non-legislative measures exist at international, EU and national level, these are either not specifically focused on the security risks associated with certain chemicals or do not cover the entire EU. This implies that precursors which may be restricted or controlled in one country can be easily obtained in another. In addition to the consequences for security, it means that there are market distortions which prevent a level EU playing field in this area.

There have been indications that terrorist groups take the different approaches in different Member States into consideration. The clearest cases have related to ETA, which has hidden large quantities of precursors to explosives outside of Spain, in particular in France and Portugal. At the same time, there is no clear evidence to date that terrorists have changed their purchasing behaviour on the basis of differences in regulation in the different Member States. The lack of such indications may also relate to the fact that currently these chemicals are still easily available across most of the Member States.

3.2. The problem

Table 1 provides an overview of the main problems, the key issues and the drivers of the problem identified.

Table 1: Synthesis of the main problems, key issues and drivers

Main problems	Key issues and drivers of the problem
The costs to society, in terms of human lives, social unrest and material damages, caused by	Wide availability and easy access by the general public to precursors on the market At present, a wide variety of precursors is easily available to the

⁴ EU Terrorism Situation and Trend Report, Europol, 2009.

terrorists using explosives are substantial. Terrorists and other criminals have often made use of chemicals to produce homemade explosives and improvised explosive devices. Earlier attacks and prevented attacks show that so far, access to such precursors has been relatively easy. The chemical market in the EU is large and diversified, with multiple end-users. Additionally some of the precursors have substantial markets in their own right (e.g. Nitrate fertilizers and acids)	general public. The internet is an easy channel to buy precursors too. Even greater quantities of precursors can be obtained by or through commercial or otherwise legitimate end users
	High ‘potency’ of precursors The concentration levels of precursors in certain products, available to the general public and to legitimate end users, are in many cases sufficient to produce an explosive.
	Insufficient security and awareness of the supply chain The supply chain for precursors, and in particular the last segment (e.g. end users), is overall insufficiently aware of the risks of terrorists and criminals attempting to obtain precursors. They are also insufficiently aware of their own vulnerabilities. Some supply chain actors, in particular at the end of the chain, have sold precursors to terrorists or other criminals in quantities which should have raised suspicion. In some cases, this is due to insufficient awareness of which transactions in precursors are suspicious and should require increased attention, or to the lack of a ‘consequence’ or ‘repercussion’, when selling precursors to possibly dubious parties without checking.
	No EU level playing field While several legislative and non-legislative measures exist at international, EU and national level, these are either not specifically focused on the security risks associated with certain chemicals or do not cover the entire EU. This means that precursors which may be restricted or controlled in one country can be easily obtained in another.

3.2.1. Chemical precursors to explosives of highest concern

The Standing Committee on Precursors (SCP) discussed and confirmed the five priority groups of precursors shown in Table 2 as those requiring the most urgent attention.

Table 2: SCP identified precursor groups

Precursor group	Chemical	Main associated use
Nitrates / Nitrogenous fertilizers	Ammonium nitrate	Ammonium nitrate (mixed with a fuel e.g. diesel oil (ANFO) or sugar (ANIS) is one of the most common ingredients in large scale IEDs. Other nitrates can also be used as oxidiser ingredients in IEDs.
	Potassium nitrate	
	Sodium nitrate	
	Calcium nitrate	
Hydrogen peroxide and acetone	Hydrogen peroxide	Used by various terrorist groupings to produce Triacetone triperoxide (TATP).
	Acetone (propanone)	
Nitro-methane and hexamine	Nitromethane	Nitromethane: Used by ETA and possibly other groupings. Explosive in combination with ammonium nitrate or nitric acid. Hexamine: Used to produce explosives in combination with hydrogen peroxide.
	Hexamine (methenamine)	
Strong acids	Nitric acid	Nitric acid is used in the synthesis of HME

Precursor group	Chemical	Main associated use
	Hydrochloric acid Sulphuric acid	such as urea nitrate.
Chlorates and perchlorates	Sodium chlorate Sodium perchlorate Potassium chlorate Potassium perchlorate	Used as oxidisers / oxygen generators to produce HMEs. A mixture of chlorates can be an HME in itself without need for a detonator / booster. Chlorates can also serve as a booster.

In many investigated cases, terrorists obtained these chemicals legally or at least without having to resort to any form of physical theft (some form of identity theft or the use of a fake identity may have occurred). The chemical market in the EU is large and diversified, with multiple end-users using the precursors concerned. While they are mostly consumed by industry, household use of the chemicals is, in most cases, also wide and varied. Annex 5 provides an overview of the main household and other downstream use of the precursors discussed in this Impact Assessment.

The concentration levels of precursors in certain products currently available to the general public and to legitimate end users are in many cases sufficient to produce an explosive. There is an overall concern that the concentration levels of many precursors available to the general public for household use are high, even when a lower concentration level might be adequate for the same purposes. This applies in particular to hydrogen peroxide, liquid nitromethane, and most strong acids. Research undertaken (including "mystery shopping" conducted in eight EU Member States⁵) confirms that it is relatively easy to purchase the chemicals themselves or mixtures containing them in high concentration levels. These levels are in many cases sufficient to produce an HME with a relatively low quantity of the chemical.

The "mystery shopping" exercise also demonstrated that in some Member States, it was possible to buy potent chemicals in a quantity which is sufficient to build an HME without any questions asked, while in other Member States, such products are not available to the general public. It is important to take into account that persons intending to produce an HME can easily cross the border when they encounter difficulties in obtaining certain chemicals in one country. Annex 6 provides an overview of the main findings of the "mystery shopping" exercise per precursor.

3.2.2. *Insufficient security and awareness of the supply chain*

The supply chain for precursors, and in particular its last segment (i.e. downstream stakeholders such as retailers and end users), is overall insufficiently aware of the risks of terrorists and criminals attempting to obtain precursors. In some cases, this is due to insufficient awareness of which transactions in precursors are suspicious and should require increased attention. In other cases, the reasons relate to opportunistic sales or to a lack of a consequence or repercussion when selling precursors to possibly dubious parties without checking.

Especially at the end of the supply chain, retailers and other businesses have sold

⁵ Denmark, Belgium, France, Italy, Poland, the Netherlands, Romania and the UK.

precursors to terrorists or other criminals in quantities which should have raised suspicion. Examples include the 21/7 (failed) London bombings, with 400 litres of peroxide purchased from 3-4 retailers, and the discovery of 600 kg of ammonium nitrate fertiliser in a public self-storage facility, purchased by an individual from a single agricultural supplier. Another case worth mentioning is the Sauerland group, which bought huge quantities of hydrogen peroxide of 35% (more than 750 litres were discovered) after they realised that higher concentrations could only be ordered with a specific permit. The results from the "mystery shopping" confirmed relatively low awareness levels of some of the retailers and other downstream sellers that were approached. At least two businesses actually suggested an "alternative" when the potential buyer turned out not to belong to a registered company (e.g. by suggesting to purchase the products through a third, professional party). Others actively encouraged the purchases of very high quantities by offering discounts.

Only a few countries have recording and reporting mechanisms in place for identifying and notifying suspicious transactions of precursors and in most cases, these notification mechanisms are part of voluntary agreements and initiatives set up by industry bodies. This means that there are no consequences for non-compliance. Another limitation of many existing notification/reporting mechanisms is that public authorities often fail to provide adequate feedback to those businesses who notified them. Finally, where legislation or voluntary measures are in place, particularly retailers and other downstream supply chain stakeholders are often not aware of such restrictions, or at least not aware of their "raison d'être", considering them just another administrative burden. Smaller businesses often do not have sufficient means to fully comply with voluntary measures, as these require some investment (e.g. nominating a security officer, attending training, etc). High competition in a period of tremendous financial uncertainty may also lead to some smaller players lowering their security standards in order to keep up their sales figures.

3.2.3. No EU level playing field

While some legislative and non-legislative (voluntary) measures on explosives and chemicals exist at international, EU and national level, these are either not specifically focused on reducing the danger of misuse of these chemicals for the production of home made explosives, do not cover the most high risk chemicals comprehensively or do not cover the entire EU. This implies that precursors which may be restricted or controlled in one country can be easily obtained in another.

Measures adopted at the **international level** mainly focus on the security of explosives or chemicals used for weapons or drugs. Examples include the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction' and The United Nations Single Convention on Narcotic Drugs'. Voluntary programmes set up at international level and dealing with the issue of chemicals include the Responsible Care® programme.

At **EU level**, legislative and non-legislative measures primarily focus on chemical safety, explosives for civilian use, pyrotechnics, fertilisers and drug precursors. Examples

include REACH⁶, the fertiliser regulations⁷, explosives and pyrotechnics directives⁸ and the drug precursors regulations⁹. EU non-legislative measures include the 'Guidance for safe and secure storage of fertilisers on farms' of the European Fertiliser Manufacturers Association (EFMA).

At **national level**, a detailed assessment of existing measures in the impact assessment study¹⁰ has shown that Member States have various approaches to the issue of precursors and their security. While some Member States have encouraged the development of various legislative and/or voluntary measures (e.g. Denmark, Germany, the Netherlands, the UK, Spain), other Member States have set up very few or no measures to deal with the security of precursors (e.g. Slovenia, Austria, the Czech Republic). There is hence a real risk that terrorists and criminals may seek to obtain access to precursors in countries which have relatively lower security standards.

This is a consideration based on logical reasoning and on instances of seizures of bomb-making materials in hide-outs, for example in Spain, Portugal and France. However, in the current system, it is practically impossible to credibly trace the origin of these materials. Where such information does exist, as a result of criminal investigations, it was not available for reasons of confidentiality. What the seizures and the terrorist incidents listed in Annex 4 have shown, though, is that it is possible to obtain these materials, likely at a number of sellers, without raising suspicion or leaving records of the transaction.

The measures set up by Member States to address the security of precursors to explosives vary in nature, coverage and purpose. The main differences are:

- **Nature or type of instruments:** while some countries mainly rely on "soft" measures such as voluntary agreements, industry-backed guidelines and codes of conduct (e.g. the Netherlands, the UK), other Member States (e.g. Germany, Denmark, Ireland) have taken a more regulatory approach. Nevertheless, even in Member States with a regulatory framework, existing legislative measures are often backed up and complemented by voluntary measures;
- **Coverage of measures:** while some countries have adopted far-reaching measures covering a wide array of precursors of interest, other Member States have instead developed measures focusing on a specific group of chemical substances;
- **Purpose of measures:** the purpose of existing measures varies significantly. While existing measures in some Member States specifically aim at restricting or controlling access of the general public to the precursors of interest, other Member States have

⁶ Regulation (EC) No 1907/2006.

⁷ Commission Regulation (EC) No 552/2009 amending Regulation (EC) No 1907/2006, Regulation (EC) No 2003/2003 and Decision 1348/2008/EC, amending Council Directive 76/769/EEC

⁸ Directive 93/15/EEC, Directive 2008/43/EC and Directive 2007/23/EC.

⁹ Regulation (EC) 273/2004, Regulation (EC) 111/2005 and Regulation (EC) 1277/2005.

¹⁰ A detailed overview of these is provided in Annex 5 and 6 to the Preparatory Study to Inform an Impact Assessment of Potential Legislative and Non-legislative Restrictions on Chemical Precursors to Explosives. Given their size, it was not possible to include them into this Impact Assessment, which only contains the main conclusions from these Annexes.

focused on increasing the security of precursors within the wider supply chain (e.g. secure handling, storage, transport).

Several types of non-legislative measures have been identified, including:

- Training measures for staff, law enforcement personnel and first responders. These include the UK 'Know your chemical' booklet, a similar booklet launched in 2008 in Sweden and a training programme targeting police officers in Germany;
- Awareness raising campaigns targeting supply chain actors and notably retailers, including the UK's Self-storage initiative and the UK Code of Conduct on Chemical Trade Controls;
- Notification of suspicious transactions mechanisms for supply chain operators, notably retailers. These include the UK "Know your customer" campaign;
- National plans, strategies and other measures to map precursors of interest, including the Danish Anti-Terrorism Action Plan adopted in 2005 and the Dutch "Handbook on Precursors for Home-made Explosives";
- Research into precursors carried out by Member States (e.g. Denmark, France and Sweden);
- Safety measures also used with a security purpose: as confirmed by several Member States, existing safety legislation and voluntary initiatives, while targeting the safety of consumers and supply chain operators, also take into account security concerns. In the German law on dangerous explosive substances for example, safety aspects are closely linked to security considerations.

Existing national measures covering specific precursors have been identified and mapped for a certain number of Member States: Denmark, France, Germany, Ireland, the Netherlands, Poland, Spain, Sweden and the UK.

Overall, precursor-specific measures cover:

- Measures to restrict access by the general public (e.g. bans or concentration levels): five Member States (e.g. Denmark, Germany, Ireland, the Netherlands, Poland) have adopted legislation or voluntary agreements to implement this type of measures;
- Notification of suspicious transactions: in several Member States, voluntary measures require the notification of suspicious activities/customers to relevant authorities (e.g. the Netherlands, the UK);
- Measures aiming at enhancing the security within supply chain operators: the measures adopted by some Member States (e.g. Denmark, Spain, the UK) are both legislative and voluntary. They focus for example on storage, handling and transport security;
- Awareness campaigns: voluntary measures have been developed by several countries (e.g. Denmark, the UK). Some have a clear focus on end-user professionals;
- Training programmes for police officers in Germany (planned – see generic measures above);

- Security related research: specific research into groups of precursors has been carried out by France, Denmark, Sweden and the UK.

The experience of these Member States with these measures, which are to a large extent, also the measures proposed in the preferred policy options, has been positive according to the research and interviews conducted for the Preparatory study and presentations made in the Standing Committee on Precursors.

Third countries such as the US and Canada have also developed measures dealing with the security of chemicals. These measures range from policy and legislative measures, including strategies, priority lists and specific security programmes, to "soft" measures such as awareness programmes and trainings.

3.3. The baseline scenario

Under the *status quo*, there would continue to be no coherent EU approach towards preventing the misuse of chemical precursors to fabricate home made explosives for terrorist purposes.

It is likely that terrorist attacks would continue, possibly also targeting Member States that so far have little experience with such incidents. Terrorists will continue to make use of chemicals to produce home made explosives and improvised explosive devices. The use of chemicals to produce such devices may further increase, especially when considering that legal or illicit access to civil explosives is likely to become even further restricted and controlled.

In as far as one can speak of a trend, it is likely that the use of chemicals to produce such devices may further increase, especially when considering that legal or illicit access to civil explosives is likely to become even further restricted and controlled. As mentioned earlier, in the past few years a number of attacks were carried out, failed or were prevented from happening.

In the current scenario, the general public will continue to have access to precursors, even in high concentrations. On the other hand, several Member States have indicated their intentions to put measures in place to (further) restrict or control access to chemicals which can be used to fabricate HMEs. In a number of countries access will therefore be reduced. New measures are likely to specifically target products containing high concentrations of the substances. The new measures may thus to some extent have a deterrent effect, by making it more difficult to purchase certain chemicals. In addition, further voluntary action by industry, both at national and international level, may also contribute to reducing the risk of misuse of the chemicals of concern.

Similarly, in the current scenario, the lack of awareness and insufficient security in particular at the level of the downstream supply chain will continue to exist. Retailers and other supply chain actors, such as wholesalers, specialist end user sellers, etc., may still sell to persons purchasing with malicious intent. Again, the fact that several Member States (e.g. Spain, Poland) are intending to develop new legislative or non-legislative measures will contribute to improved awareness and better security standards in a number of countries. Voluntary industrial action will also have some positive effect.

It is equally important to take into account that further developments in EU policy, for example as part of the Action Plan on the Security of Explosives and the recently adopted

EU Action Plan to strengthen Chemical, Biological, Radiological and Nuclear Security in the European Union - both part of the wider EU strategy to combat terrorism - will certainly have an impact on preventing, detecting and responding to terrorist activity.

However, without creating an EU level playing field in terms of specific measures to control and restrict access to precursors, there is a great risk that terrorists and criminals will simply seek to obtain precursors maliciously in those countries in which the security standards are lower. In addition, the current situation and the continuation of the current trends may have adverse effects on the smooth functioning of the Internal Market as a result of the different national measures.

3.4. Why the EU is better placed to take action: subsidiarity and proportionality principles

The current differences among the regimes applied to chemical precursors to explosives not only have a negative effect on security but also distort the functioning of the Internal Market. They negatively affect the cross-border trade and other economic activities of producers and other supply chain stakeholders active in more than one country. Action at EU level would help eliminate these negative effects. The Member States are increasingly accepting the need for EU action to support their efforts in combating terrorism, as especially in an area without borders this has become a problem which requires EU-wide action. With regard to the security of explosives and explosive substances in particular, with the approval of the Action Plan on Enhancing the Security of Explosives by the Justice and Home Affairs Council in April 2008, the Member States have formally signed up to the implementation of a package of actions. These include as a priority the establishment of the SCP to identify "the risks associated with various precursors and recommending appropriate actions to the Commission". Recent attacks and failed or prevented attacks have shown that terrorism is going beyond affecting the Member States which have traditionally suffered from terrorist attacks (e.g., Spain, the UK, France) and is spreading to other EU countries. The nature of these incidents or prevented incidents also shows that terrorists may prepare in one country for an attack in another.

The EU can only be as secure as its weakest link. In this sense, activities at EU level and an EU co-ordinated approach are needed and beneficial to all relevant stakeholders. The subsidiarity principle is thus satisfied as the goals to be achieved through measures on explosives precursors cannot be achieved by any single EU Member State, and must therefore be addressed at EU level.

The Member States, by way of their representatives in the Standing Committee on Precursors, have indicated that they prefer an EU approach to this issue in order to create a level playing field. This approach is also supported by the EU associations of the chemical industry, which have been extensively consulted in the context of the SCP work and the work on the Impact Assessment. Some Member States indicated that they have not yet taken action because they are waiting for the EU initiative.

The Stockholm Programme, adopted by the European Council in December 2009¹¹,

¹¹ The Stockholm Programme – An open and secure Europe serving and protecting the citizens, 17024/09.

indicates that a legislative framework to address the dangers associated with precursors should be developed.

Moreover, EU regulation also has an Internal Market rationale, whereby the current situation, which imposes different regulatory regimes on chemical industry, distorts the market and imposes additional costs of adjustment on the private sector. The chemical industry and retail support the level-playing field argument. For the chemical industry, a divergence of applicable measures would mean that they would have to produce different concentration levels of the different substances for different parts of the EU market. For traders, different security measures and standards also pose certain barriers. It can be assumed that without an EU approach, the divergence among the Member States in the regulation of this area would grow, and these detrimental effects on the Internal Market would be growing too.

In these circumstances EU regulation on the marketing and use of explosives precursors is proportionate. The EU right to act in this area is stipulated by the Treaty of the Functioning of the European Union which in Article 4, paragraph 2 states that shared competence between the Union and the Member States applies with regard to "(b) internal market" and "(j) area of freedom, security and justice". The legal basis for regulating the marketing and use of explosives precursors is likely to be found mainly in the Internal Market article (Article 114 TFEU).

4. POLICY OBJECTIVES

As a reflection of the problems identified, the policy objectives deriving from the problem definition are presented in Table 3 below.

Table 3: General, specific and operational objectives

General objectives	Specific objectives	Operational objectives
To reduce the number and potency of terrorist and other criminal incidents in the EU using explosives, by deterring terrorists and other criminals from using precursors to building explosives and inhibiting their access to precursors.	1.1 To restrict access to certain precursors by the general public	1.1.1 To reduce the availability of certain precursors on the EU consumer market to the general public
		1.1.2 To reduce certain types of supply channels / ways of access to precursors
	1.2 To reduce the reliability and potency of 'home made' explosives or components manufactured for malicious or criminal purposes	1.2.1 To develop suitable additives and promote the use of these additives to prevent their use in explosives
		1.2.2 To reduce concentrations of certain precursors available to the general public
	1.3 To enhance the security and awareness of the entire supply chain of precursors	1.3.1 To increase control and surveillance over transactions and sales of certain precursors
		1.3.2 To increase control and surveillance over transport, distribution, import / export, etc

		1.3.3 To raise the awareness of supply chain actors on the risks in general and on suspicious transactions.
	1.4 To prevent terrorists and other criminals from making use of lower control levels and fewer restrictions on chemicals in some countries.	1.4.1 To establish common measures at EU / international level

The policy objectives are fully in line with the EU counter-terrorism strategy, with the EU Action Plan on Enhancing the Security of Explosives and with the Stockholm programme¹², which stipulates that a *"legislative framework to address the dangers associated with precursors should be developed"*.

5. POLICY OPTIONS AND THEIR ASSESSMENT

The policy options considered are presented in Table 4. Policy options 0 – 4 only concern sales to the general public (definitions used are explained in section 5.1), and will therefore not directly affect any professional use. Those who use the identified precursors professionally may be indirectly affected, because sometimes they make use of general retail channels, which under the policy options may become the subject of certain restrictions. Only policy option 5 covers a wider spectrum of supply chain stakeholders.

Table 4: Overview of policy options

Policy option 0 - Status Quo	No action. This implies that no changes are made to the current situation. All actions included are already underway or are planned to happen in the absence of the Policy options. The baseline is a combination of existing policies, legislative acquis, voluntary measures and other relevant activity.
Policy option 1	A total ban on sales of the substances to members of the general public, irrespective of concentration levels.
Policy option 2	A ban on sales of the substances in all concentrations and quantities over the internet.
Policy option 3	A ban on sales to the general public if the substance is above a specific concentration level.
Policy option 4	Option 3 plus additional measures:
Policy option 4a	A ban on sales to minors.
Policy option 4b	Sales of the substances in higher concentrations than those allowed under option 3 to the general public through a trader or consumer licensing system.
Policy option 4c	Introducing a system of reporting suspicious transactions.
Policy option 4d	A scheme for labelling precursors with a code specifying

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	that the purchase may be subject to registration, developing a system for recording the identity of the buyer (including internet sales). Records should be made available to competent law enforcement authorities.
Policy option 5	Taking measures to enhance the surveillance of legitimate and professional use, including sub-options such as: - Promoting Codes of conduct - Education and training - Raising staff awareness - Addressing in particular medium / small users

5.1. Definitions used

The following definitions apply to the policy options under assessment.

- For the choice of chemicals and chemical products to be covered by the policy options, it is emphasised that these **only include substances and mixtures of the chemicals** and not articles as defined in the REACH regulation ((EC) No 1907/2006):

"Article: means an object which during production is given a special shape, surface or design which determines its function to a greater degree than does its chemical composition."

The above also implies that pyrotechnic articles under the scope of Directive 2007/23/EC on the placing on the market of pyrotechnic articles and SOLAS (Safety Of Life At Sea) articles covered by Directive 96/98/EC on marine equipment are not included in the policy options.

- **General public:** Households/consumers who buy chemicals for household purposes (e.g. cleaning, gardening, beauty care) or hobby activities. In line with the proposed Consumer Rights Directive¹³, the definition of consumer could be used: any natural person who, is acting for purposes which are outside his trade, business or profession.

5.2. Assessment of the policy options

The assessment of the impacts of policy options was performed in two steps. They were assessed in general terms against the following criteria:

- The effects of the policy option on the **achievement of the specific policy objectives**;
- The **economic, social and environmental impacts** of the policy option, including potential effects on fundamental rights. Full details on sources, estimates and calculations made are included in Annex 4;
- Aspects of **feasibility and subsidiarity**, including the **EU added value and rationale**;

¹³ http://ec.europa.eu/consumers/rights/docs/Directive_final_EN.pdf

- Key risks, uncertainties, political and technical feasibility and necessary preconditions;
- The need for changes in Community legislation and;
- Issues raised by stakeholders.

Detailed assessment tables for each policy option are presented in Annex 9. The Preparatory study also contains detailed assessment tables for each option and each precursor, which have not been presented in this Impact Assessment but which are available.

An assessment against the set of criteria was performed for each individual precursor group. This was considered necessary given the different nature, use and market structure of the individual chemical substances to be covered by the policy options. The specific character of the chemicals of concern in the remaining relevant policy options is taken on board in the general assessment tables.¹⁴

For the purpose of clarity and focus, the following **subsections will only include the main conclusions of the assessment of all policy options, including the options, which were discarded at an early stage.** The assessment of the preferred policy option, composed of some of these individual options, is presented separately and in full in section 6.2. The associated costs and the calculation of economic impacts can be found in Annex 7 for the methodology of the calculation of costs to consumers, businesses and administrations, and Annex 8, containing the background statistical data for the assessment of these costs.

5.2.1. *Assessment of policy option 0: Status Quo*

The policy option implies no changes to the current situation. Under the Status Quo, the risk of terrorist attacks using IEDs/HMEs will continue to exist, with the likelihood of such incidents increasing in frequency and/or lethality. The level of awareness and security of the chemical supply chain may slightly increase as a result of current and upcoming international, EU and national measures, but terrorists would continue to make use of lower restrictions and control standards in other countries. The Status Quo will have no economic effects other than those already occurring. Social effects could be negative, as a result of casualties caused by terrorist incidents and an increased perception of insecurity. **The Status Quo was not supported by the stakeholders consulted as part of the study.** In fact, most considered that there was a strong rationale for action at EU level and agreed on the need to control and restrict access to precursors.

5.2.2. *Assessment of policy option 1: A total ban on sales of the substances to members of the general public, irrespective of concentration levels*

This policy option would imply that all selected precursors, either in their pure form or in a mixture, would no longer be available to the general public (i.e. consumers, household users) and their possession would also be forbidden. Manufacturing of certain products

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A more detailed assessment of the different options for each of the separate precursors can be found in the Preparatory study.

for the consumer market and sales of the substances to the general public would no longer be allowed. The policy option has the highest rating on achieving the policy objectives, but **its feasibility and acceptability are among the lowest levels, also because of its disproportionate negative effects on consumers and businesses.** In addition, some negative social effects and potential tension with fundamental rights have been identified; it is questionable, in particular, whether a total ban on sales to members of the general public could be considered compatible with the principle of proportionality.

5.2.3. *Assessment of policy option 2: A ban on sales of the substances in all concentrations and quantities over the internet*

The policy option would ban all sales to the general public made over the internet. Internet sales are relatively common for some chemical products (e.g. fertilisers, hydrogen peroxide, acetone, hexamine fuel tablets, etc). Overall e-commerce statistics show that it is a sales channel which is increasing in volume every year. However, regarding the chemicals concerned, only about 0.5% of the goods in question is sold to the general public online. This share would be banned under this policy option.

The assessment has shown that banning the sales of the precursor groups via one sales channel only does not strongly contribute to the achievement of the policy objectives, as the products would still be available through other sales channels and from third country internet sellers. The implementation of this policy option may face difficulties in terms of feasibility for the wide range of products (given it applies to all concentrations). This option, in its own right, was discarded.

5.2.4. *Assessment of policy option 3: A ban on sales to the general public if the substance is above a specific concentration limit*

Under this policy option the general public would no longer have access to the selected precursors (or mixtures containing these precursors) above a pre-defined concentration level (including sales via the internet). For the purpose of this impact assessment, the following concentration levels were used as a starting point: ammonium nitrate: 16% N (mass); alkali nitrates: 8%N (mass); hydrogen peroxide: 12% (volume); acetone: no threshold; nitromethane: 30% (volume); hexamine: no threshold; nitric acid: 30% (volume); sulphuric acid: 50% (volume); hydrochloric acid: 20% (volume); chlorates and perchlorates: 40% (mass)¹⁵.

The technical and political feasibility of this policy option is overall high, while it achieves a fairly good rating with regard to the achievement of the policy objectives. It may be less feasible for some selected precursors, which are only effective in high concentrations (e.g. hexamine) or which are widely used in high concentrations in some popular products (e.g. hydrogen peroxide in hair-dyeing products). Their ban would possibly cause a high level of inconvenience among the public.

¹⁵ X% by mass refers to the relation of the weight of the precursor substances to the other substances in the mixture (at least on the earth's surface). X% by volume is easier to measure when mixing liquid.

In terms of economic impacts, the ban would result in small overall drop in the market of chemicals as non-professional use only accounts for about 1-5% of total EU consumption for the chemicals concerned. The value of chemicals sold to the general public above the thresholds (for all precursors assessed) is estimated at about €450-1,150 million. The loss of profit overall from this policy option is estimated to be €130-330 million per annum for the whole of the chemical sector within the EU.

More significant consequences might be experienced by manufacturers of consumer products and SMEs. A very small number of producers for whose products reduced concentration levels are not a feasible option might leave the market or would have to diversify. Indirectly, certain manufactured products which use the restricted products (e.g. model steam engines using hexamine fuel tablets) will be rendered useless. However, the overall retail sales of products to general public will not change considerably for most consumer products, as either alternatives will replace the restricted products, or more of diluted chemicals will be bought to compensate for lower concentration levels.

This option would impose additional administrative costs for business (estimated in the order of €6-16 million euro per annum, and a one-off cost of €40-63 million), and for the national authorities.

5.2.5. Assessment of policy option 4a: A ban on sales to the general public if the substance is above a specific concentration limit with a ban on sales to minors

Policy option 4a includes the measures proposed in Policy option 3 (i.e. the introduction of threshold concentration levels) and proposes a ban on sales to minors. The results of the assessment of this option indicated negligible added-value in achieving the policy objectives and the fight against terrorism. Its main benefit is increased safety for minors (and possibly other individuals). This is why the option was discarded.

5.2.6. Assessment of policy option 4b: A ban on sales to the general public if the substance is above a specific concentration limit with sales of higher concentrations through a system of licensing either the retail distribution or the use of the precursors

Policy option 4b includes the measures proposed as part of policy option 3 (i.e. the introduction of threshold concentration levels for sales to the general public) and proposes that sales of higher concentrations are either made through i) a licensing system of retailers or ii) licensing consumers for legitimate use.

i) With a licensing system for retailers, retailers would need to apply for a license, which would involve the checking of their 'reliability' and an obligation to record all sales of higher concentrations. A similar system is currently in place in Germany as a part of the Chemical Ordinance for nine chemical substances.

ii) With a licensing system for consumers, all retailers could still sell higher concentrations, but consumers would need to apply for a license with the competent authorities (the police or local authorities) to purchase these products. A similar system is in place in Denmark and Ireland. The license provided could state the use and the quantity required, and could have a limited duration. Any possession of the respective

chemical substance or a mixture exceeding the stated concentration without a license would be illegal.

The policy option overall received higher scores than policy option 3, given that it still provides access to the entire spectrum of chemical substances and products, however, these sales (above the concentration thresholds) would occur in a controlled environment. The loss of profit for businesses will be lower than under policy option 3, and is estimated at €65-155 million per annum. This option would in particular be effective in meeting the policy objectives for those chemical substances and products which would become harmless in a concentration below the set threshold (i.e. some hydrogen peroxide and acid applications, nitromethane, hexamine and chlorates and perchlorates). It also received high stakeholders support.

The development of a system of licensed consumers seems to be less costly than the licensing system for retailers and also the most effective in preventing terrorists from accessing higher concentrated chemicals.

It is estimated that public authorities maintaining the scheme for licensed consumers will incur an additional cost of only about €1.8 million per annum. The scheme for licensed consumers would strictly limit the sales of higher concentrated chemicals to a marginal number of consumers, who genuinely need those chemicals. It is expected that the monitoring of these consumers by competent authorities would also be easier, given their limited number. Any licensing scheme developed at EU level would need to ensure a harmonised implementation across the EU – although the details of the licensing scheme should be left to the Member States. The requirements for businesses under option 4bi (retailers licence) and the criteria for granting licenses under scenario 4bii (consumers licence) would need to be clearly defined as part of implementation by Member States. One of the caveats is that the licensed consumer system may pose an issue with internet and distance sellers who would need to ensure a proper processing and checking of the licenses displayed by consumers.

As part of the implementation, Member States would be required to pay special attention to ensuring compliance with national and EU data protection law, given that a licensing scheme would require the processing of personal data of the licensees.

The political feasibility of this policy option is high, as several Member States have similar provisions in place. Moreover, this policy option seems desirable and politically acceptable, as an overwhelming majority of Member States experts and industry representatives have expressed their support for such measures.

5.2.7. Assessment of policy option 4c: A ban on sales to the general public if the substance is above a specific concentration limit with introducing a system of reporting suspicious transactions

Policy option 4c includes the measures proposed as part of policy option 3 (i.e. the introduction of threshold concentration levels) and proposes the introduction of a system of reporting suspicious transactions. The policy option will require sellers to assess whether a certain order or transaction is suspicious and to take responsibility for notifying the competent authorities (e.g. their respective retail/sector association or law enforcement agencies). At least 4 Member States have already introduced systems for

reporting suspicious transactions. At EU level, the drug precursor regulation¹⁶ has introduced a requirement to report suspicious transactions, which also covers the explosive precursor substances acetone, sulphuric acid and hydrochloric acid (but this would relate only to larger quantities traded business-to-business).

Estimated total costs to businesses of this option represent an additional €16 million per year. Public authorities will have to maintain a central hotline or decentralised contacts, as well as organise training, awareness raising campaigns, etc. National authorities may incur an additional cost of about €0.34 million per year. Companies selling over the Internet would also need to develop new procedures and possibly buy new software detecting suspicious transactions. As part of implementation, Member States will be required to pay due regard to compliance with the protection of personal data and non-discrimination provisions.

This policy option would be especially useful with respect to precursors that keep their dangerous characteristics even at lower concentrations or could be re-concentrated (notably hydrogen peroxide) or for those precursors where limiting the concentration level is not an option (e.g. acetone, hexamine in fuel tablets).

The policy option received higher scores than policy option 3, given that it adds a higher level of security to the sales of chemical substances and products. The feasibility of the policy option is high as already several Member States have similar measures in place. Stakeholders consulted were overall in favour of this policy option.

5.2.8. Assessment of policy option 4d: A ban on sales to the general public if the substance is above a specific concentration limit with a scheme for labelling precursors with a code specifying that the purchase may be subject to registration and developing a system for recording the identity of the buyer (including internet sales), with records to be made available to competent law enforcement authorities

Policy option 4d includes the measures proposed as part of Policy option 3 (i.e. the introduction of threshold concentration levels for sales to the general public) and proposes the introduction of a labelling scheme and a registration system for recording the identity of the buyer. The labelling scheme would focus on warning household users that the purchase may be subject to registration. The records of the registration system would need to be made available to competent law enforcement authorities.

While this option received high scores on achieving the policy objectives, its evaluation was rather negative from the perspective of economic impacts and feasibility. The majority of Member States and other stakeholders did not consider Policy option 4d a feasible option for such a wide range of precursors, covering a multitude of different products sold by a variety of retailers and other downstream sellers. For some products, given their very small size, labelling will be difficult and the warning may go unnoticed when the indications are too small. Instead of labelling, the barcode on products could be adapted to alert sellers to the need to register. This is also very expensive.

¹⁶ Regulation (EC) No 273/2004 of the European Parliament and of the Council of 11 February 2004 on drug precursors.

The amounts of data that would need to be entered in the registration system at national level would be enormous with a risk of crashes and losses of information. Such a registration system, to be effective, would need to be deemed acceptable by the wider public in terms of proportionality. The registration system would also require a specific mechanism to review whether a product should be subject to labelling and registration requirements or not.

In addition to this, there is a risk that the labelling of products, especially when hinting at the fact that they may pose a security risk, would attract the wrong kind of attention. Finally, using a registration system for preventive purposes will be close to impossible given the amounts of records that will be created every day. Only a highly sophisticated online database may allow for direct identification of transactions which are suspicious of for cross-references (e.g. many small purchases made by the same purpose in different locations). The registration scheme would therefore only be useful for investigative purposes after a terrorist event.

5.2.9. Assessment of policy option 5: Taking measures to enhance the surveillance of professional use, including sub-options such as promoting codes of conduct, education and training, raising staff awareness or addressing in particular medium / small users

This policy option would entail the introduction non-legislative measures aiming at enhancing the control of the precursors market among all supply chain actors. Examples of means to this end include the adoption of Codes of Conduct, education and training measures and campaigns to increase awareness among supply chain operators. Several Member States (e.g. Germany, Denmark, the Netherlands, Sweden and the UK) have developed similar measures with various purposes.

This policy option has a positive contribution to the achievement of the policy objectives and does not cause excessive compliance costs. However, one of the key risks associated with this policy option is the voluntary nature of the measures, meaning that businesses may choose not to comply with the requirements. It can take up to several years before a voluntary measure has a wide coverage and 100% market coverage often remains difficult to achieve.

Overall, there seems to be a clear support for developing some, if not all measures proposed under this policy option. There was a consensus among Member States and industry stakeholders that the proposed measures could be highly beneficial and achievable at relatively low costs. It is expected that all major players (members of the relevant trade associations of producers, chemical distributors, the retail sector) who will voluntarily comply with the relevant codes of conduct, will train their staff accordingly, and will employ other necessary tools and methods to raise awareness amongst staff (and business partners). This will incur a yearly cost of around €64 million. The costs incurred to public authorities (e.g. to offer training and guidance, conduct awareness raising campaigns etc.) are also estimated at around €64 million per year (for all EU Member States in aggregate and for all precursors).

This policy option can help achieve a greater level of awareness and control within the supply chain while its economic costs and impacts are limited. Nonetheless, the effectiveness of this policy option across all EU Member States depends on active

cooperation and commitment of stakeholders in all EU Member States, which is very difficult to achieve in the case of solely voluntary measures.

For companies marketing hexamine fuel tablets a ban on sales to the general public above a certain concentration limit would effectively be a total ban, because a concentration limit is not technically feasible. This could be alleviated by way of the licensing scheme (policy option 4b), although a licensing scheme for products such as fuel tablets for camping or other recreational purposes would be difficult to implement. Therefore, in this case, option 5 linked to a mandatory reporting of suspicious transactions could be a more proportionate measure.

6. THE PREFERRED POLICY OPTION

Based on the general as well as precursor-specific assessment of the individual policy options, the preferred policy option is a combination of **policy option 4b (general ban on sales of precursors to the general public if the substance is above a specific concentration level with the possibility of sales of higher concentrations through a licensing system)**, **4c (reporting on suspicious transactions)** and **5 (different voluntary measures)**.

The preferred policy option can be formulated as follows:

Setting concentration thresholds for the sales of precursors to the general public, with a system to report on suspicious transactions for certain precursors. Developing a licensed consumer system to allow for sales of higher concentrations. Adding voluntary measures to support the reporting of suspicious transactions and the implementation of the licensed consumer system, as well as other relevant action to raise awareness in the supply chain.

The policy option consists of four different elements. First, it sets concentration thresholds on precursors that can be sold freely to the general public. However, through a system of reporting on suspicious transactions it still requires sellers to monitor and notify purchases, which, because of for example the quantity bought, the combination of precursors bought or the frequency of the purchases by the same buyer, are suspicious. Reporting suspicious transactions is essential also for those precursors for which no concentration limit could be set. In addition, purchase of higher concentrations of precursors will only be allowed through a licensed consumer system managed by the competent authorities, which could, for example, be the police, specific departments in local authorities or other agencies. The license will only be provided for legitimate use, possibly including the quantity that can be purchased and the period during which the purchase can be made. Possession of the chemical substances without such a license would be illegal. Finally, a series of voluntary measures will be aimed at further supporting the development and implementation of the policy option, using specific education, training, awareness raising and support to medium and small supply chain stakeholders. The preferred policy option would include elements of measures put in place in Denmark, Ireland, Germany, the Netherlands and the UK.

6.1. The reasons for the regulatory response proposed

The regulatory measures proposed in the preferred policy option fulfil the need to find a realistic balance - for each precursor - between the need to reduce the risk of misuse of the chemical substance, and the effort to minimise the actual impacts on the consumers and businesses of these measures. This logic drove the proposal of the concentration threshold levels. For those precursors where setting a concentration threshold is relevant, the concentration thresholds proposed are based on consultations with the authorities of the Member States, as well as in depth consideration of these precursors by the Standing Committee on Precursors during 2008. This was done on the basis of data related to the substance used in terrorist attacks, recipes for IEDs available over the internet, and (mostly classified) research undertaken by the intelligence services of the Member States.

At the same time, it is acknowledged that no concentration level will ever provide a complete certainty that publicly available chemicals can no longer be used for producing home made explosives or that the control system cannot be circumvented. What the proposed measures aim to achieve is that it will become much more difficult to produce home made explosives, extending the timeframe needed to prepare the improvised explosive devices, and thus making detection and intervention by public authorities more likely.

This is also why the practicality and ensuring the least negative effect on consumers and businesses possible was strongly taken into consideration. For all these chemicals, factors relating to their usage, the size of the market and the associated compliance costs have been presented in the Preparatory study. The concentration thresholds are set at such levels to ensure that there is a very limited use of these substances or mixtures by the general public. Moreover, the wide use or the nature of some precursors excluded setting a concentration limit at all, for example for hexamine fuel tablets¹⁷ or for acetone (which further demonstrates the individual approach taken to the assessment of each precursor). The proposed measures in such case foresee a solution in the form of a regime of reporting suspicious transactions.

In order to further reduce any possible inconvenience to consumers from the general public who have a legitimate use for the given chemical above the stated concentration threshold, and where no other alternative can be used, the preferred option also includes a consumer licensing system. This is also an effective system from the perspective of security since it allows a personal appreciation of the security risks involved. A consumer licensing system limits the administrative costs on businesses as opposed to a licensing system for retail, as the assessment showed. The experience of the Member States, where this system is already in place shows that there are only very few consumers who really need to purchase such products. Therefore, the amount of consumers requesting a license was very low.

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A general restriction of the sale of hexamine fuel tablets to the general public with a license for legitimate use would result in a situation where owners of model steam engines or persons owning a hexamine fuel tablet powered camping stove would have to obtain a license. This would be difficult to implement. It is also technically not possible to set a useful concentration limit for the substance, as hexamine fuel tablets contain more than 90% pure hexamine.

6.2. Main advantages of the preferred policy option

Before listing the individual advantages, it needs to be stressed that assessing the security benefits of any preventive measure, particularly when combating terrorism is concerned, is very difficult. The approach chosen in this Impact Assessment aims to ensure that all relevant elements that could have an impact on security in the EU are considered, also in relation to their economic impact. However, no hard data can be collected which would demonstrate that any particular measure would have prevented (a certain number of) terrorist attacks. The aim is adopt the measures, of which one can reasonably expect that they will make it much more difficult for terrorists to produce home made explosives, giving national authorities a better chance of preventing terrorist attacks. The preferred policy option proposed those measures – based on a long and wide discussion with relevant stakeholders – which are believed to offer the best result set against the associated costs.

More specifically, the preferred policy option presents some important advantages and benefits:

- *Restricting and controlling, but not prohibiting access to precursors by the general public.* The preferred policy option reduces general access to highly concentrated precursors by the general public by setting concentration thresholds for sales through open channels while introducing a licensing system for consumers for legitimate, justified use. This will ensure that such chemical substances and products are not excluded from the market, even though their trade may be reduced;
- *Reducing the reliability and ‘potency’ of homemade explosives.* Precursors in lower concentrations make it more difficult to produce reliable and potent homemade explosives. In most cases, this would require substantial additional processes to increase their purity or concentration level. High concentrations would only be available in a controlled environment, with a deterrent effect on buyers with potential criminal intentions. The system of reporting on suspicious transactions will ensure that even "dubious" purchases of lower concentrations can be identified and notified;
- *Enhancing security, awareness and capacity.* The package of measures included in the preferred policy option will improve overall awareness levels throughout the supply chain. The voluntary action will help to properly implement and ‘operationalise’ the measures, providing guidance, education, training and awareness-raising;
- *Creating an EU level playing field.* The preferred policy option envisages a common EU approach, which will help to both avoid distortion of the Internal Market and prevent terrorists and other criminals from making use of lower standards in other Member States.
- *Maintaining proportionality* By introducing specific measures for ensuring the reporting of suspicious transactions for substances for which no technically useful concentration level can be set, the preferred policy option ensures that the negative consequences of a mandatory substance restriction for the companies concerned can be avoided while it creates a higher level of security at the same time.

6.3. Detailed assessment of the preferred policy option¹⁸

In this section, where appropriate a rating is given which represents the detailed assessment of the anticipated impacts – the scoring is from -3 (very negative) to +3 (very positive). It is stressed that these ratings compare the policy options between each other and against the Status Quo and are primarily used to quickly reflect the full assessment and to facilitate comparisons.

6.3.1. Assessment of achievement of the policy objectives

Objective 1.1. - To restrict access to certain precursors by the general public: +2

Positive impact. Consumers would have open access to chemical substances below a certain concentration level. Access to higher concentrations would not be banned, but restricted and controlled. This would be particularly important to ensure access to chemical substances which in lower concentration levels would be ineffective, such as hydrogen peroxide and acids, as well as nitromethane. In most cases, however, it is anticipated that consumers would use products with lower concentrations, as they may be discouraged from applying for a license. While the chances of "opportunistic sales" are reduced to a minimum, it may still be possible to obtain the chemical substances from third countries, or in EU countries under false pretences or through other illegal approaches such as theft. However, possession of high concentrations would be illegal.

Objective 1.2 To reduce the reliability and potency of 'home made' explosives or components manufactured for malicious or criminal purposes: +1.5

Positive impact. Setting concentration thresholds would as a minimum make it more difficult to produce reliable and potent homemade explosives. The notification of suspicious transactions and licensing system will both have a deterrent effect and improve the chances terrorists and other criminals being caught before they can fabricate homemade explosives. There is a potential displacement effect towards chemicals which would not be covered by the policy option but still represent a security risk. These would remain openly available.

Objective 1.3. To enhance the security and awareness of the entire supply chain of precursors: +3

Very positive impact. The cumulative effects of the different elements included in the policy option would have a strong positive impact on the security and awareness of the entire supply chain handling the precursors. Unlike existing EU and national measures, the preferred option emphasises the connection between control of precursors and the security of the EU.

Objective 1.4 To prevent terrorists and other criminals from making use of lower control levels and fewer restrictions on chemicals in some countries: +2

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An assessment of the main advantages and disadvantages of the preferred policy option for each precursors is included in the for each precursor, as included in the Preparatory Study to Inform an Impact Assessment of Potential Legislative and Non-legislative Restrictions on Chemical Precursors to Explosives. The Impact Assessment presents the main conclusions.

Positive impact. The cumulative effects of lowering concentration levels in open sales channels, combined with a system of reporting suspicious transactions and controlled sales of higher concentration levels will create an EU level playing field, both preventing internal market distortions and preventing persons with malevolent purposes from taking advantage of lower standards in other Member States. There may still be a displacement effect of such persons attempting to make purchases of the precursors in higher concentrations in third countries, although possession within the EU would be illegal under the preferred option.

6.3.2. *Assessment of economic impacts*

Impacts on administrative costs for business: -2¹⁹

The preferred policy option involves a wide range of administrative costs to businesses. Traders are likely – depending on national implementation – to be obliged to provide information for their prospective buyers on the restrictions concerning concentration levels in their standard terms and in additional information material. They might also have to submit reports to public authorities on how they are complying with the legal requirements. Producers, importers and wholesalers will probably have to monitor their distributors/retail partners' compliance with the new rules. All businesses will need to allow public inspection. In aggregate, the administrative costs imposed upon businesses are likely to be around €20-54 million per annum, and a one-off cost of €40-63 million.

The calculation of these costs as well as the compliance costs in the section below is based on a simplified estimation model, and therefore not on the Standard Cost Model – the method chosen was one relating to the turnover to businesses from the turnover of the products concerned. The reason for not using the Standard Cost Model is that the number of traders who will sell substances that can be subject to the new legislation is very difficult to estimate. No useful data was available or found during the work on the Preparatory study. This made the completion of a Standard Cost model close to impossible.

The methodology for the calculation and the background statistical data are presented in Annexes 7 and 8. The estimates are actually rather on the high end of the scale, and could in reality be significantly less than the estimated amount. The total estimated costs also have to be divided over the 27 Member States, and thus over all companies in Europe – the actual impact on the businesses concerned will therefore be marginal.

Compliance costs for business and authorities: -2.5

Generally, no compliance cost will incur to producers of the base chemicals and importers (who are not selling to the general public) under the preferred policy option. Producers of products sold to the general public in places and ways where a verification of licenses is not viable will have to reduce the concentration level. Otherwise, if

¹⁹ Please note that the scores related to the economic impact are based on a comparison between the different policy options, and are therefore not calibrated to be compared within the preferred policy option on the basis of the actual monetary value of the impact.

complying with the requirements of the licensing scheme, they will be able to continue selling higher concentrations. Retail traders will have to verify that products above the thresholds are bought for professional consumption only (checking e.g. company documents, registration number) or for a legitimate purpose by the general public, which may be proven by a license issued by a public authority. They will need to verify which products are concerned. The cost estimate is €9-24 million per year. An additional one-off cost of €80-126 million is also expected. The methodology and the background statistical data are presented in Annexes 7 and 8.

Public authorities will also incur certain implementation costs, including initial guidance and training, as well as inspections. Also, they will have to issue personal licenses. This will involve costs of verification. Some additional compliance costs in connection with developing and adopting procedures and rules with dealing with exemptions of an estimated €10-30 million in total is also expected. Furthermore, public authorities maintaining the licensing scheme will incur an additional cost of about €1.8 million/year.

Reporting suspicious transactions will impose an additional compliance cost for the private sector of about €16 million per year, and public authorities will incur an additional cost of about €0.34 million per year. Those Member States (e.g. United Kingdom, the Netherlands), which have such measures in place on a voluntary basis, reported that these measures did not represent any significant costs to them.

The voluntary measures included in the preferred policy option will be associated with cost to businesses of around €64 million per year, bearing in mind that actions disproportionately increasing the cost of sale are unlikely to be taken by business. An additional annual €64 million is calculated as costs to public authorities.

The total costs of the preferred policy option thus may add up to about €100 – 140 million per year, out of which about €65 million is to be borne by public authorities, and an additional €80 – 126 million one-off cost.

Economic impacts on producers, merchants (importers, wholesalers and retailers), professional users (agriculture and industry), consumers from the general public, SMEs, and on export and import, and intra-Community transport/commerce: -1.5

The value of goods currently sold yearly to the general public above the concentration thresholds set is estimated at about €450-1.150 million. However, about half of these will still be sold and bought through the acquisition of personal licences. As a total ban is not envisaged, and the **overall non-professional consumption of the precursors only accounts to about 1.5% of total EU consumption for the chemicals concerned**, the impact on the producers of base chemicals will be very limited. Consequences on sales volumes might be experienced by manufacturers of consumer products:

- Ammonium nitrate and alkali nitrates: commercial fertilisers, food preservatives;
- Hydrogen peroxide and acetone: hair, tooth and textile bleaches, detergents, disinfectants (incl. pool cleaners), thinners and solvents (incl. nail polish removers);
- Nitromethane and hexamine: fuel for racing cars, boats and amateur rockets, solid fuel tablets (and indirectly: equipment based on this);

- Strong acids: solvents, detergents, pH adjuster;
- Chlorates and perchlorates: amateur rocket propellants.

A number of companies producing consumer products (mixtures, solutions etc.) over the concentration threshold levels may feel inclined to lower the concentration level they offer to the general public, fearing a loss of revenues as a result of the fact that a part of the consumers buying their products may consider it too burdensome to request a license. Producers of retail fertilisers and household solvents may be especially affected. Consequently, they will need to adjust the production processes and packaging of products intended for non-professional use.

Some traders may consider that selling the products containing a substance or its mixture above the respective concentration threshold is too burdensome too, as it requires them to ask for and verify licenses. It is estimated that this will affect about half of the current sales volume above thresholds. This may represent a loss of about €65-155 million per year for all companies EU-wide. This is, however, very likely an overestimation, because the calculation included also substances for which no concentration threshold can be applied and the sales of which will not be subject to these effects. Products for which reduced concentration levels are not a feasible option (e.g. food preservatives or hexamine fuel tablets, will have to comply with the requirement to report suspicious transactions (see compliance costs). However, sales to the general public will not be limited. In addition to that, the assessment of the financial impacts on business did not take into account that consumers will still need to buy alternative products to the ones which might no longer be available (or only available with a license). This further increases the likelihood that the numerical estimates are at the maximum limit of potential negative economic impacts for businesses.

Overall, the detrimental effects will be relatively small for business; but they may be, proportionally, somewhat higher for SMEs, given their smaller sales volumes and relative concentration in retail. The administrative and compliance costs relative to their turnover will be higher and SMEs will be more likely to be affected by loss of business. Yet even taking this consideration into account, the administrative burden for SMEs will be relatively light – limited only to reporting suspicious transactions and verifying that purchases of higher concentration levels are by professional or licensed users only. These have been estimated to be 16 million euro a year for all businesses across the entire EU (see in the section above). In practice this means that the costs will be negligible for SMEs.

Given the scope of the measures proposed there are only very limited options for providing flexibility to SMEs in the implementation of the proposal. There should be no diversity in the concentration limits, nor in the requirements to report suspicious transactions just for SMEs – this would create loopholes.

Any effect on exports is likely to be negligible.

As regards the effect on consumers, they will incur a certain amount of consumer surplus loss as certain products might no longer be (easily) accessible to them. The amount of this loss was calculated for the scenario that all substances of concern in this context

would not be accessible at all to the general public above certain concentration thresholds or in any concentration (where setting such threshold is not possible, e.g. for acetone or hexamine). The substitution effect (availability of alternative products) was incorporated, albeit relatively roughly, into the calculations by way of the price elasticity assumptions. As a result, an estimate of a maximum potential loss to consumers amounts to €115-280 million/year. The methodology for the calculation of consumer surplus loss is explained in Annex 7.

However, this effect will be mitigated by

a) the diversification of the regimes for the precursors of concern. Several chemicals (e.g., notably, the widely used acetone) are not intended to be subject to any sales bans at all (but will be subject to tighter control by means of reporting suspicious transactions).

b) substances (or mixtures thereof), the sales of which would be generally banned above a certain concentration threshold, would still be accessible to the general public if the consumer obtains a license from the respective national authority, and presents it to the seller. The consumer might incur some administrative costs (fees for obtaining the license) in this situation but will be able to continue purchasing the desired products.

Consumers will in general be able to access diluted versions or – if these are not a feasible option – suitable alternatives. The data and background calculations available, however, do not enable to specify convincingly and specifically how far this substitution is possible for each product (the usage of which is mostly already relatively minor).

Overall, the monetised loss is estimated to be around €180-435 million for businesses and consumers per year (sums are aggregated for the whole EU). It has to be added that the calculations were made on rather higher-cost assumptions, and so the figures may be biased upwards (overestimate the costs). The ranges for some of the costs reflect the difficulty to estimate them and the variety of factors, which cannot be assumed at the moment (for example the establishment of the licensing schemes), which will be laid down by the Member States individually. The figure indicated for the ongoing costs for public authorities for reporting suspicious transactions (reacting to calls from sellers) and voluntary measures represents an upper limit of the costs and are likely to be lower.

Table 5: Summary of estimated costs of the preferred option for businesses

	Administrative	Compliance	Reporting suspicious transactions	Voluntary measures	Loss of sales revenue	Total
Set up	40-63m	80-126m				120m-189m
Ongoing (p.a.)	20-54m	35-75m	16m	64m	65-155m	200-364m

Table 6: Summary of estimated costs of the preferred option for public authorities

	Compliance including	Reporting suspicious transactions	Voluntary measures	Total
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	licensing system			
Set up	10-30m			10-30m
Ongoing (p.a.)	1.8m	0.34m	64m	66.12m

6.3.3. *Assessment of fundamental rights impacts*

Article 8 Protection of personal data

The preferred policy option requires the processing of personal data and their further disclosure to third parties (association or law enforcement authorities) in case of suspicious transactions. This implies a potentially serious interference with private life and the right to the protection of personal data. For this interference to be lawful it must comply with the conditions required by the ECHR case law and Article 8 of the European Convention on Human Rights, be "in accordance with the law" and "necessary in a democratic society to protect a legitimate public interest and the law is formulated with sufficient precision and is proportionate". The processing of personal data must always be carried out in accordance with national data protection laws implementing EU data protection law, particularly Directive 95/46/EC. The processing of data is also subject to the requirements set out in the Directive including a clear and strict purpose limitation and security of transmissions, the conditions for the transmission by sellers to law enforcement authorities and precise obligations of controllers with regard to their processing activities, the personal data that law enforcement authorities may retain from reported suspected transactions, clear retention periods for personal data stored, based on necessity to achieve the purpose, and the rights granted to data subjects for the protection of their personal data, including access and rectification rights. The processing of personal data in the EU will always be subject to supervision by public independent data protection authorities. Normally all these safeguards are provided under national data protection legislation. Under these conditions, the processing of data for the purposes of the preferred policy option would be both legitimate and proportionate.

Article 16: Freedom to conduct a business

Businesses would still be able to trade all precursors, even though some limitations may apply as they would need to set up a new reporting system and carry out additional checks of exemption permits. It must be ensured that the additional requirements are designed in a way that will allow all businesses, independent of their size, to implement and apply them.

Article 17 Right to property

The right to property would not be affected, as businesses and members of the general public would continue to be able to use their lawfully acquired possessions.

Article 21 Non-discrimination

Since parts of the preferred policy option are built on a risk assessment of transactions performed by sellers, the proposal will establish guidelines relating to the criteria and elements that sellers should follow in order to assess the suspicious nature of a

transaction. The system of reporting suspicious transactions should not lead to overzealous discriminatory reactions from businesses, for example based on physical features or foreign accents. This would be necessary to avoid a broad interpretation of this concept which would result in a general reporting of transactions and transmissions of personal data to law enforcement authorities and discriminatory practices, which would imply a breach of necessity and proportionality principles. Accompanying measures, including the voluntary actions included in the preferred policy option, could help to avoid such practices through education, training and awareness-raising.

6.3.4. *Assessment of social impacts*

Impacts on labour market: 0

In principle, businesses will still be allowed to trade the chemicals in all concentration levels and producers and other supply chain stakeholders can also continue their activities. It is however anticipated that the sales of higher concentrations will be reduced overall and that the set up and implementation of the reporting and licensing systems will require investments from both businesses and public authorities. No significant impacts on the labour market are expected.

Impacts on public health: +1

Some positive effect. While higher concentrations would still be available, albeit in a controlled environment in the EU, and these may still represent a risk of being misused for making homemade explosives, the possibilities of detection and prevention would greatly improve as result of the package of measures included in the preferred policy option. In addition, as a result of the measures, it is also likely that the general public's perception of security will increase.

Other impacts (e.g. inconvenience, discrimination): -1

Minor negative impact. In relation to inconvenience, consumers would still be able to access precursors in higher concentrations, but the requirement to apply for a license will cause some level of inconvenience. As mentioned earlier, there is also a limited risk that sellers would too quickly consider a transaction as suspicious and refuse the purchase. The latter could be offset by clear guidance, education and training.

In relation to the internal market and the free movement of goods, there is a risk that competent authorities may decide not to accept licenses from persons who are not legally residing in the country in which they would like to make the purchase, as they do not have access to possibly relevant information on the person. In order not to restrict the free movement of goods and services and people, Member States should consider, as part of implementation, a harmonised approach to granting licenses and ensuring that any license issued in any Member State would be valid for purchases in any other Member State.

6.3.5. *Assessment of environmental impacts: 0*

Neutral, with a minor risk of consumers opting for the use of products with lower concentration levels (which require higher quantities to be as effective as the higher

concentrations) and possible increased use of paper / transport, etc to develop and deliver education and training, awareness raising campaigns, etc.

6.3.6. *Considerations on feasibility and subsidiarity*

Key risks, uncertainties, political and technical feasibility and necessary preconditions to achieve impact

There are several preconditions which need to be met to ensure the feasibility of the policy option and to mitigate some of the potential negative effects that have been identified:

- With regard to the licensing system, it will be essential to clearly define "legitimate use", e.g. by providing criteria or guidance on when to grant a license and when to reject a request by a consumer. This could be done both at national and at EU level. In addition, Member States will have to appoint competent authorities to manage the licensing system, ensuring that these have the appropriate expertise and human resources to deal with consumer requests. In order to help sellers in recognising when a chemical substance requires a license, support measures such as a specific indication in the barcode could be considered, even though this may be costly. The policy option should also allow distance sellers (i.e. those who will not "physically" receive the license or certificate) to still process the licenses and sell higher concentrations of precursors. The receipt of licenses by fax or in a scanned version will however heighten the risk of falsification. Finally, options for ensuring a harmonised licensing system across the EU should be carefully studied in order to avoid any distortion of the internal market and discrimination of consumers wishing to purchase chemical products in countries other than their own.
- In general, the preferred policy option takes existing national and EU approaches, which are similar in nature and scope, into consideration. The policy option also needs to be accompanied by measures supporting education, training, awareness raising, operational implementation and enforcement. Research also needs to be continued to find ways of making the precursors less potent and effective for malevolent use.

There are some additional important issues which will require careful consideration during implementation:

- The policy option will be applied to a relatively high number of chemical substances and their mixtures and to a large number of different products. None of the Member State measures have a similar coverage. Its implementation is therefore expected to require investments in terms of financial and human resources, especially in the starting phase, and can meet some resistance from authorities and business representations.
- In addition, some precursors, such as hexamine, remain highly reactive even in small doses. They therefore represent a relatively higher risk.

Ultimately, there are some concerns:

- The policy option could have a displacement effect towards other chemical substances which would still be freely available but which equally present a security risk. It will

therefore be important to ensure a regular review of the policy option, e.g. through a Comitology procedure, to assess whether any precursors need to be added or dropped from the current list.

EU added value and rationale

The EU added value and rationale for introducing concentration threshold and requiring systems for reporting of suspicious transactions and for granting exemptions for access to higher concentrations of chemical substances and products are high. Firstly, the current differences in national approaches may affect the functioning of the internal market and may lead to terrorists and other criminals making use of lower standards in other Member States.

Secondly, the system of reporting suspicious transactions strengthens the EU focus on the security of precursors, as past terrorist attacks and attempts to gain access to chemical substances and products could have been prevented if the seller had realised that the transaction was dubious. In addition, several Member States already have notification systems in place which the policy option should take into account. At EU level, important lessons can be learned from for example notification requirements included in the drug precursors legislation.

Thirdly, there is clear added value in applying higher control levels on highly concentrated chemical substances and products, as historically terrorists and other criminals have most often sought to gain access to the purest forms possible. Three Member States have similar approaches in place.

Fourthly, the voluntary measures, to be developed where possible EU wide, or in a harmonised manner, will help to increase awareness among both supply chain actors and consumers. Education and training will support the implementation and operations of the two systems. Research will help to render precursors less harmful. A common EU approach towards the development and implementation of such measures will allow Member States to exchange experiences and information.

Stakeholder views

Member State experts, even though not expressing any formal political position, were overall in favour of the combination of measures included in the preferred policy option. They considered that the policy option broadly followed measures that were already in place in several Member States, which had proven to be successful or were recently created in response to a perceived need to increase the security of precursors. All agreed that an EU wide approach would favour an EU level playing field.

Some expressed their concerns (reflected above) as to the consumer licensing system and the possible effects on cross-border shopping. Most emphasised the need for clear guidance, education, training and awareness-raising to support the development and implementation of the policy option in all its aspects. Some countries indicated that they would have preferred voluntary measures only, but agreed that ensuring their EU coverage and full participation of all relevant supply chain stakeholders would be very difficult.

Industrial stakeholders, while stressing an overall preference for voluntary measures, also supported the combination of measures included in the policy option. Their concerns

mainly related to the possible burden which would be placed on businesses to implement the various systems and the need to vary carefully consider the concentration thresholds. With regard to the consumer licensing system, they drew attention to the possible disadvantaged position of distance sellers. A list of industrial stakeholders, participating on the Standing Committee on Precursors, is presented in Annex 3.

The overall the effects of the policy under this point was estimated at: +1,5

Table 7 presents an overview of the scores of the options included in the preferred policy option. The scores rank from -3 (very negative impact) to +3 (very positive impact). The ratings in the table compare the policy options between each other and against the Status Quo. The column in grey represents an aggregate assessment of the respective policy option, while the five columns that follow it (e.g. PO4B 1, PO4B 2 etc.) represent the assessment of the effects of the policy option on the individual groups of precursors.²⁰

The scores related to the economic impact are based on a comparison between all the different policy options, and are therefore not calibrated to be compared within the preferred policy option on the basis of the actual monetary value of the impact. The total scores show that for some precursor groups, certain measures within the preferred policy option may be slightly more appropriate and for other slightly less. The latter does not mean, however, that this option should be disregarded but rather that some accompanying measures may need to be put in place to ensure success.

²⁰

1: Nitrate-based fertilisers and nitrates; 2: Hydrogen peroxide and acetone; 3: Nitromethane and hexamine; 4: Strong acids; 5: Chlorates and perchlorates.

Table 7: Scoring of the policy options included in the preferred policy option

Assessment criteria	PO4B	PO4B.1	PO4B.2	PO4B.3	PO4B.4	PO4B.5	PO4C	PO4C.1	PO4C.2	PO4C.3	PO4C.4	PO4C.5	PO5	PO5.1	PO5.2	PO5.3	PO5.4	PO5.5
Assessment of achievement of the policy objectives	6.5	6.5	6.5	6.5	6.5	6.5	7.5	7.5	7	7	7	7	4.5	4	4	5	4	5
1.1 To restrict access to certain precursors by the general public	2	2	2	2	2	2	2	2	2	1.5	2	1.5	1.5	1	1	2	1	2
1.2 To reduce the reliability and potency of 'home made' explosives or components manufactured for malicious or criminal purposes	1	1	1	1	1	1	3	3	3	3	3	3	0	0	0	0	0	0
1.3 To enhance the security and awareness of the entire supply chain of precursors	2	2	2	2	2	2	1.5	1.5	1	1.5	1	1.5	2	2	2	2	2	2
1.4 To prevent terrorists and other criminals from making use of lower control levels and fewer restrictions on chemicals in some countries	1.5	1.5	1.5	1.5	1.5	1.5	1	1	1	1	1	1	1	1	1	1	1	1
Assessment of economic impacts	-5	-4.5	-6	-5.5	-6	-2.5	-6	-6	-6.5	-6	-6.5	-2.5	0	0	0	0	0	0
Impacts on administrative costs for business and authorities	-1.5	-1.5	-2	-1.5	-2	-1	-1.5	-2	-2	-1.5	-2	-1	0	0	0	0	0	0
Compliance costs for business and authorities	-2	-2	-2.5	-2.5	-2.5	-1	-2.5	-2.5	-2.5	-2.5	-2.5	-1	0	0	0	0	0	0
Economic impacts	-1.5	-1	-1.5	-1.5	-1.5	-0.5	-2	-1.5	-2	-2	-2	-0.5	0	0	0	0	0	0
Assessment of social impacts	1	1	0.5	1	1	1	0.5	0.5	0.5	0.5	0.5	0.5	1	1	1	1	1	1
Impacts on labour market	1	1	1	1	1	1	0.5	0.5	0.5	0.5	0.5	0.5	1	1	1	1	1	1
Impacts on public health	0.5	0.5	0.5	0.5	0.5	0.5	1	1	1	1	1	1	1	1	1	1	1	1
Other impacts	-0.5	-0.5	-1	-0.5	-0.5	-0.5	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Assessment of environmental impacts	0	0	0	0	0	0	0	0	0	0	0	0	-1	-1	-1	-1	-1	-1
Considerations on feasibility and subsidiarity	2.5	2.5	2.5	2.5	2.5	2.5	1.5	1.5	1.5	1.5	1.5	1.5	-1	0	-2	-1	-1	0
Key risks, uncertainties, political and technical feasibility and necessary preconditions to achieve impacts.	2.5	2.5	2.5	2.5	2.5	2.5	1.5	1.5	1.5	1.5	1.5	1.5	-1	0	-2	-1	-1	0
Total scores	5	5.5	3.5	4.5	4	7.5	3.5	3.5	2.5	3	2.5	6.5	3.5	4	2	4	3	5

Explanatory notes

PO4B: A ban on sales to the general public if the substance is above a specific concentration limit with sales of higher concentrations through a system of licensing either the retail distribution or the use of the precursors

PO4B 1: Nitrate-based fertilisers and nitrates

PO4B 2: Hydrogen peroxide and acetone

PO4B 3: Nitromethane and hexamine

PO4B 4: Strong acids

PO4B 5: Chlorates and perchlorates

PO4 C: A ban on sales to the general public if the substance is above a specific concentration limit with introducing a system of reporting suspicious transactions

PO4C 1: Nitrate-based fertilisers and nitrates

PO4 C 2: Hydrogen peroxide and acetone

PO4 C 3: Nitromethane and hexamine

PO4 C 4: Strong acids

PO4 C 5: Chlorates and perchlorates

PO5: Taking measures to enhance the surveillance of professional use, including sub-options such as promoting codes of conduct, education and training, raising staff awareness or addressing in particular medium / small users

PO5 1: Nitrate-based fertilisers and nitrates

PO5 2: Hydrogen peroxide and acetone

PO5 3: Nitromethane and hexamine

PO5 4: Strong acids

PO5 5: Chlorates and perchlorates

6.4. Assessment and consideration of proportionality

The preferred policy option consists of a package of measures which will pose, especially during the set-up phase, a relatively high burden on both the supply chain - in particular downstream supply chain sellers but also on some upstream stakeholders - and on public authorities. Most costs incurred will be administrative in nature or relate to the need to comply with the new requirements, e.g. making a clear distinction between chemical substances and products with low and high concentrations, reporting of suspicious transactions, providing exemptions, etc. There is a likelihood of some longer-term negative effects.

In order to mitigate some of these negative effects, the introduction of the regulation will foresee a transitional phase for implementation. This is necessary in order to allow businesses and consumers to still use their old supplies of the targeted chemicals in order to minimise their economic loss, but also to allow national authorities to put in place the licensing scheme which forms part of the preferred policy option. The actual time limit is likely to be in the region of 2 years.

On the other hand, the expected benefits that can be accrued by the preferred policy option are strong, as it would effectively reduce illegitimate access to precursors and place their sales in a controlled environment. This will have a strong deterrent effect on persons with malevolent intentions, but will not fully remove the risks associated with the precursors. Nor will the preferred option reduce the risk of displacement effects towards other chemical substances or towards illegal access/purchases in third countries. Such displacement effects could be countered through creating a flexible system to extend the scope of the measure to other precursors.

As identified in the assessment of the preferred policy option, there are some important conditions to be met and some important issues to be considered before its development and implementation, in order to ensure the full proportionality of the policy package. In particular, the preferred option raises some concerns with regard to the respect of the fundamental rights to private life and the protection of personal data. It will be necessary to ensure that such interference is "in accordance with the law" and demonstrates that it is "necessary in a democratic society and proportionate". This means that the processing of personal data must be always carried out in accordance with national data protection laws implementing EU data protection law.

In conclusion, the potential negative effects of terrorist attacks using (homemade) explosives can be enormous, in terms of direct financial losses, longer-term economic consequences and social disruption. In addition, fear induced by terrorism can result indirectly in damage to wellbeing beyond the direct costs of loss of life, injury or property. It is therefore important to at least make a first step towards the development of a policy which addresses those precursors which have proven to represent the highest security risk, leaving the possibility (and the flexibility) for this policy to be adapted and expanded in the future.

7. MONITORING AND EVALUATION

It is foreseen that the effects of the proposal will be evaluated within three years after the end of the implementation period. Core indicators for possible monitoring and evaluation include:

Impacts:

- Reduced number of terrorist and other criminal incidents using explosives (distinguishing attacks with ‘conventional’ explosives from those with HMEs and IEDs) and related casualties
- Increased EU harmonisation and cooperation between Member States

Outcomes:

- Increased number of suspicious transactions identified
- Increased number of incidents detected and prevented (distinguishing potential attacks with ‘conventional’ explosives from those with HMEs and IEDs)
- Increased number of terrorists and other criminals apprehended
- Increased number of ‘failed’ attacks (due to reduced potency and reliability)

Outputs:

- Reduction of household consumption of precursors in high concentrations (above the threshold), in volume, value and as a percentage of total consumption (below and above threshold).
- Increased household consumption of alternative chemicals (not presenting a security risk or presenting a reduced security risk)
- Increased availability of phlegmatised precursors or precursors with additives for household consumption
- Increased number of retailers and other supply chain stakeholders reached through awareness-raising campaigns, education and training, etc.
- Increased number of Codes of Conduct developed at EU and national levels (and increased numbers of businesses signing up to these Codes of Conduct)

Monitoring and evaluation could make use of:

- National statistics on chemical production
- Reporting by business associations on household consumption of chemical substances, voluntary measures implemented, etc.
- Eurobarometers (scoping perception of security)
- EU and Member State reporting on criminal investigations, prosecution, terrorist incidents (e.g. TE-SAT reports) etc.
- EU and Member State reporting on implementation of the legislative instrument
- Research and studies (e.g. on phlegmatisation).

ANNEX 1: RECOMMENDATIONS OF THE STANDING COMMITTEE ON PRECURSORS IN ITS ANNUAL REPORT FOR 2008

1. The SCP recommends elaboration of a voluntary agreement with private-sector partners at the European level with a view to increasing the security of the supply chain. This agreement would:

- increase awareness and training among the members of the supply-chain for security concerns;
- envisage joint vulnerability assessments within the supply chain and devise measures to address these vulnerabilities;
- increase information-exchange and cooperation of retailers and law-enforcement authorities on suspicious transactions.

2. The SCP recommends that the following EU-wide (regulatory) measures should be considered without delay:

Extend the control of nitrogenous fertilisers to alkali nitrate based fertilisers for sales to the general public by imposing the obligation:

- on the buyer to identify himself and demonstrate a legitimate use (i.e. farming or gardening.)
- on the seller:
 - not to sell to unidentified buyers;
 - to place internet sales under better control;
 - not to sell to minors;
 - to keep records of customers to whom the substance has been sold for traceability purposes;
 - to report suspicious transactions to law enforcement authorities.

3. The SCP recommends:

- holding a meeting of the stakeholders of the supply chain of fertilisers;
- examining the possibility to establish an EU-wide security and registration system for the above-mentioned nitrogenous fertilisers;
- conducting campaigns on raising end-users' awareness about the security implications of transport and storage of the above-mentioned nitrogenous fertilisers by extending on-going efforts by EFMA.

4. The SCP recommends the adoption of the following (regulatory) EU-wide measures as soon as possible:

➔ prohibit the sale of highly concentrated hydrogen-peroxide (>12 %) to the general public, providing for exemptions in case of proof of legitimate use. In the case of exemptions, the following control measures should be examined:

- on the buyer to identify himself and demonstrate a legitimate use (e.g. pool-cleaning etc.);
- on the seller:
 - not to sell to unidentified buyers,
 - to place internet sales under better control,
 - not to sell to minors,

- to keep records about customers to whom the substance has been sold for traceability purposes,
- to report suspicious transactions to law-enforcement authorities.

➔ put professional use under closer surveillance (with a view of enhancing the security of the supply chain).

The SCP also recommends further research into additives that may inhibit the re-concentration and/or use in synthesis of primary explosives of hydrogen peroxide solutions. Research should also be conducted on ways to prevent the misuse of acetone.

5. The SCP recommends adopting the following (regulatory) EU-wide measures as soon as possible:

➔ prohibit the sale of highly concentrated nitromethane to the general public

➔ improve control of sales of diluted nitro-methane (< 30 %) by imposing the obligation

- on the buyer to identify himself and demonstrate a legitimate use (e.g. membership in an aeroplane modelling club etc.);
- on the seller:
 - not to sell to unidentified buyers,
 - to place internet sales under better control,
 - not to sell to minors,
 - to keep records about customers to whom the substance has been sold for traceability purposes,
 - to report suspicious transactions to law-enforcement authorities.

➔ put professional use under closer surveillance (with a view of enhancing the security of the supply chain).

6. After consultation with the affected downstream user industries, the SCP will consider proposing the following short-term (regulatory) measures:

➔ prohibit the sale of highly concentrated hexamine to the general public and place professional use under closer surveillance.

7. The SCP recommends that the Commission considers to propose:

- prohibiting the sale of nitric acid to the general public and placing professional use under closer surveillance;
- further examining the role of other strong acids in producing IEDs as well as the distribution channels of strong acids to the general public; and
- determining concentration limits which can help to make misuse more difficult.

8. The SCP recommends adopting the following short-term measures as soon as possible:

➔ restrict the sale of chlorates and perchlorates as substances or preparations to the general public and place professional use under closer surveillance;

➔ examine the role of pyrotechnics in producing IEDs.

ANNEX 2: NOTE FROM THE LAST MEETING OF THE INTERSERVICE GROUP ON EXPLOSIVES ISSUES

The meeting took place on 20 January 2010 with the presence of representatives of DG JLS, DG ENTR and the contractor, GHK. DG AGRI, SG and the Legal Service were absent on the ground that they did not have any comments to make. The purpose of the meeting was to discuss the draft final report of the "Preparatory Study to Inform an Impact Assessment of Potential Legislative and Non-legislative Restrictions on Chemical Precursors to Explosives", and comments submitted on the draft report from the Member State and private sector stakeholders.

The participants at the meeting raised the following points:

- Methodology and reliability of the numerical estimates in the draft report. This was taken on board by the consultant who provided a more detailed explanation of the methodology and inputs into their calculations in an annex to the report. It was also agreed that intervals are used for the costs, rather than one number as an estimate.
- Scoring of individual options against especially qualitative criteria (fundamental rights, subsidiarity and proportionality). It was agreed that a qualitative assessment instead of numerical scoring for these categories will be provided. Also, consistency of scoring was addressed.
- Regulation of hexamine fuel tablets: DG ENTR underlined that setting concentration limit on hexamine fuel tablets would have considerable negative effects on the SME producing it, as well as on other SMEs producing model steam engines and toys using these tablets as a fuel. It was agreed that a proportional solution needs to be found.
- Issues related to impacts on fundamental rights, esp. considerations and assessments of right to property, correct representation of terrorist attacks, and considerations related to licensing schemes. These comments were taken on board by the contractor for the finalisation of the report.

After the meeting, comments were also received from the Data protection unit of DG JLS and were also incorporated into the final version of the impact assessment report.

Next steps:

- submission of final report by the contractor on 22 February 2010
- preparation of the impact assessment by 25 March 2010
- submission of the impact assessment on 28 March 2010
- IAB 28 April 2010
- Meeting of the Stranding Committee on Precursors on 10 March 2010 (to share research results and discuss concentration limits)

ANNEX 3: LIST OF PRIVATE SECTOR STAKEHOLDERS IN THE STANDING COMMITTEE ON PRECURSORS

Agricultural Industries Confederation (AIC)
ARKEMA
Carrefour
Chemical Business Association
Downstream Users of Chemicals Co-ordination Group (DUCC)
ESBIT Compagnie GmbH
EuroCommerce
Euromines
European Aerosol Federation (FEA)
European Association of Chemical Distributors (FECC)
European Association of Mining Industries (Euromines)
European Chemical Industry Council (CEFIC)
European DIY-Retail Association (EDRA)
European Fertilizer Blenders Association (EFBA)
European Fertilizer Manufacturers Association (EFMA)
Federation of European Explosives Manufacturers (FEEM)
Haifa Chemicals

Verband der Chemischen Industrie (VCI)
Wilhelm Schroeder GmbH + Co. KG
WilmerHale
Yara International

ANNEX 4: OVERVIEW OF RECENT TERRORIST ATTACK AND INTENDED ATTACKS WITH EXPLOSIVES IN EUROPE

Date/ Year	Organisation/ Perpetrators	Country/ Location	Target	Explosives/ Precursors Utilised	Planned/ Attempted / Achieved
2004 Onwards	Revolutionary Struggle-Extreme Left	Greece:	Various, predominantly banks, police stations and Government buildings	Not public	Achieved: Over the years Revolutionary Struggle, or Epanastatikos Agonas, has launched various attacks with IEDs against banks, police stations and Government buildings. These extreme left elements are believed to have emerged from remnants of the N 17 terrorist organisation.
January 2004	AQ-‘Chechen’ Network based around Benchallali Family	France:	Russian Embassy Paris	Not public	Planned: Arrest of Islamist extremists linked to Benchallali Family, who were planning to utilise IED’s and non-conventional weapons to attack the Russian Embassy in Paris.
February 2004	AQ Network	Italy:	Milan Subway & Church in Cremona	Not public	Planned: Arrest of Islamist extremists planning bomb attacks against the Milan Subway and a historic church in Cremona.
February-March 2004	AQ Network (Operation Crevice)	United Kingdom:	Ministry of Sound nightclub, London and Bluewater Shopping Complex, Kent	ANFO: ammonium nitrate and Fuel Oil (ANFO) combined to create a powerful ‘shifting’ explosive.	Planned: A cell of extremists with contacts to the LeT, were arrested in possession of half a ton of ammonium nitrate fertiliser, which they had purchased from an agricultural supplier, and kept in a storage unit in West London. The group were also in possession of aluminium powder to help facilitate an effective explosive, and some had received training in Malakand on the Pakistani-Afghan border.
11 March 2004	GICM – AQ Network	Spain:	Rail trains around Atocha Station, Madrid	Goma 2 Echo commercial quarrying explosive	Achieved: A group of extremists exploded ten bombs, comprising Goma 2 Echo commercial quarrying explosive initiated by mobile phones, on commuter trains coming into Madrid’s Atocha station during the morning rush hour. This killed 191 people and wounding around 1,841, but it is believed the plan was for the bombs to explode simultaneously inside the Station itself, which would have led to far higher losses. The attack was timed days before the Spanish election, and contributed to the withdrawal of Spanish forces from Iraq, following the election of the Socialist Party.
April 2004	ETA- Basque Nationalist	Spain:	Madrid, Campo de Naciones	Not public	Attempted: A lorry bomb was stopped travelling into Madrid, and its drivers arrested. It was believed it was planned by ETA to target the Campo de Naciones to disrupt Spain’s 2012 Olympics bid.
June/ July 2004	Hofstad Group-AQ Network	Netherlands:	Schipol Airport, AIVD HQ, The Hague,	Not public	Planned: The arrest of a group of Islamist extremists, linked to the Hofstad Group, uncovered a conspiracy to target venues in the Netherlands. One of the group’s members, Mohammed Bouyeri, later killed Dutch filmmaker Theo van Gogh. Though later released due to lack of evidence, a number were

Date/ Year	Organisation/ Perpetrators	Country/ Location	Target	Explosives/ Precursors Utilised	Planned/ Attempted / Achieved
					re-arrested in October 2005 for a further conspiracy to bomb targets in Holland.
August 2004	AQ Network (Operation Rhyme)	United Kingdom and United States		Not public	Planned: Following the arrest of an AQ member in Pakistan, information was obtained regarding a conspiracy in the UK to construct and use IEDs and non-conventional attacks. A series of arrests followed in London, Luton and the North of England.
September 2004	AQ Network	Spain: Barcelona, the Mapfre Tower and nearby Hotel Arts		Not public	Planned: Ten extremists from Barcelona were found to be in possession of false papers, drugs, and what appeared to be a reconnaissance video of their potential target.
November 2004	Hofstad Group-AQ Network	Netherlands		Not public	Planned: The arrest of members of the group linked to the murder of Theo van Gogh uncovered preparations for multiple bomb attacks and assassinations across Holland.
July 2005	Hofstad Group-AQ Network	Netherlands		Not public	Planned: A young Anglo-Dutch national linked to the Hofstad Group was arrested in possession of home-made explosives.
7 July 2005	AQ Network (Operation Theseus)	United Kingdom: Three Underground Carriages at Aldgate, Kings Cross, and Edgware Road, and a bus in Tavistock Square		TATP: Triacetone triperoxide created from crystals collected following the evaporation of concentrated hydrogen peroxide, acetone and sulphuric acid	Achieved: A cell of three extremists and another extremist with links to Kashmiri separatist groups, exploded four TATP bombs contained in their rucksacks, three aboard tube trains and the fourth on a bus. The attacks were timed to coincide with the morning rush hour and consequently, 52 people were killed and hundreds injured.
21 July 2005	AQ Network (Operation Vivace)	United Kingdom: London Tube and Bus transport networks		Suspected TATP: Triacetone triperoxide	Attempted: A group of extremists attempted to launch a copycat of the 7/7 attacks, but while their detonators worked, they failed to initiate the main charges, injuring only themselves. All four were convicted and given lengthy sentences.
26 September 2005	GIA-GSPC-AQ Network	France: DST HQ, Orly Airport, Paris Metro		Not public	Planned: Arrest of nine Islamist extremists linked to the GSPC, who were preparing to attacks on the DST headquarters, Orly Airport and the Paris Metro.
October 2005	AQ –‘Bosnian’ Network	Denmark: Various ‘Western’ Targets.		Not public	Planned: Arrest of multi-national group of extremists, with links to Bosnia. At Bosnia end, arrests recovered explosives, a suicide vest and weaponry. Group known to have links with other extremists in Denmark and Bosnia.
November 2005	GSPC-AQ Network	Italy & Abroad		Not public	Planned: Arrest of extremists believed to have been planning attacks in Italy and abroad, possibly against a Synagogue in Oslo, Norway.
April 2006	AQ Network	Italy: Milan Subway & Church in Bologna		Not public	Planned: Islamist extremists were arrested and/or deported as they were believed to be planning attacks near the time of the forthcoming Italian elections.

Date/ Year	Organisation/ Perpetrators	Country/ Location	Target	Explosives/ Precursors Utilised	Planned/ Attempted / Achieved
July 2006	Fatah al Islam	Germany: Dortmund & Koblenz Trains		Propane ²¹ : Use of Propane Gas canister with Primary fragmentation/ Lethality enhanced by nails-shrapnel.	Attempted: Two students associated with Fatah al Islam, an affiliate group of AQ attempted to detonate bombs on passenger trains between Dortmund and Koblenz, which failed to detonate due to poor construction.
August 2006	AQ Network (Operation Overt)	United Kingdom: Multiple trans-Atlantic aircraft		Peroxide based explosive in liquid-gel format, which was to be smuggled on board the targeted jet aircraft disguised as bottles of soft drink.	Planned: Arrests of a number of Islamist extremists for involvement in a conspiracy to bring down ten trans-Atlantic airliners with homemade IEDs. These were to be constructed with explosive gel/ liquid explosives, which they intended to smuggle aboard. Associated searches led to the recovery of bomb making chemicals and martyrdom videos.
September 2006	AQ Network	Denmark		1. ANFO: ammonium nitrate and Fuel Oil (ANFO). 2. TATP: Triacetone triperoxide.	Planned: Subsequent searches following arrests of the cell recovered Home Made Explosive (HME) with both ANFO and TATP.
September 2006	AQ Network	Norway: Oslo Synagogue and US and Israeli Embassies (Not a Member State)		Not public	Planned: Four extremists were arrested while conspiring to launch IED attacks against a synagogue and embassies in Oslo.
30 December 2006	ETA- Basque Nationalist	Spain: Barajas Airport, Madrid		Not public	Achieved: Although formally under a ceasefire, ETA placed a large car bomb in a car park at the airport, killing two Ecuadorian workers and causing significant damage.
2007	PCC – Extreme Left	Italy		Not public	Achieved: Two attacks were completed due to Italy's 'imperialism and contribution to the NATO strategy'.
5 March 2007	Revolutionary Front for Communism-Extreme Left	Italy: Milan Police station		Not public	Attempted: An IED discovered outside a Milan police station, was claimed by the Revolutionary Front due to arrests of fellow activists.
29 -30 June 2007	AQ Network (Operation Segram)	United Kingdom: London nightclubs & Glasgow Airport		Propane ²² : Use of Propane Gas canister with Primary fragmentation/ Lethality enhanced by nails-shrapnel. These were to be triggered by mobile phone/detonators.	Attempted: Seven Islamists arrested, with a further linked arrest in Australia. A group of predominantly Iraqi medically trained extremists (seven doctors and a medical technician), attempted to car bomb 'Tiger-Tiger' nightclub, Haymarket in Central London on 29th June, with another VBIED in Cockspur Street. However, these failed to explode. The following day, as police investigated the attacks and began closing in on the cell, they launched a vehicle borne suicide attack of Glasgow airport, again using propane gas canisters and nails. Although

²¹ Whilst this does not fall within the scope of precursors, it illustrates the use of 'household' substances for terrorist attacks.

²² Ibidem.

Date/ Year	Organisation/ Perpetrators	Country/ Location	Target	Explosives/ Precursors Utilised	Planned/ Attempted / Achieved
					the vehicle caught fire, fatally burning one of the attackers, and causing minor injuries to airport and fire staff, these devices failed to explode.
July 2007	GICM-AQ Network	Italy: Fiumicino Airport, Rome and targets in Milan		TATP: Triacetone triperoxide	Planned: Three Islamist extremists were arrested in Perugia, involved in a 'training school' leading to the recovery of precursors and equipment associated with the construction of IEDs. Reconnaissance material suggested possible targets included Rome airport and locations in Milan.
4 September 2007	AQ Network (Glasvej Case)	Denmark		TATP: Triacetone triperoxide	Planned: Following the arrest of a cell of eight Islamist extremists, a quantity of precursors suitable for the fabrication of TATP were recovered (hydrogen peroxide & Acetone). One of those arrested had previously received training on the Pakistan-Afghan border.
4 September 2007	Uzbeck IJU	Germany: Frankfurt Airport, Ramstein Airbase, and US military venues		TATP: Triacetone triperoxide	Planned: Arrest of three extremists in Oberschledorn, linked to the IJU an affiliate group of AQ. Found in possession of around 750kg of hydrogen peroxide, a key precursor for TATP construction.
October 2007	Extreme Right Wing	United Kingdom: Local Mosques.		Homemade nail bombs, believed black powder: In many such extreme right cases, the individual is acting alone, or as part of a small conspiracy without a coordinated organisation, nevertheless there is increasing concern at the number or extreme right activists involved in construction of home-made explosives/ IEDs.	Planned: Following the arrest and search of the home address of a known right wing extremist, a quantity of nail bombs were recovered. Paperwork at the location indicated that he intended to attack local mosques with these
November 2007	Animal Rights Extremist – Single Issue	United Kingdom: Oxford University		Incendiary bombs: Designed to burn fiercely rather than explode.	Achieved: incendiary devices destroyed the cars of two Oxford University Professors, involved in research using animals, while a third device failed to ignite.
December 2007	AQ Network	Belgium		Not public	Planned: A group of fourteen Islamists were arrested planning to launch a prison jailbreak for Nizar Trabelsi, an AQ member imprisoned for a conspiracy to launch a VBIED attack on the NATO airbase at Kleine Brogel.
2007-8	FLNC-Corsican Nationalist	France: Corsica, predominantly targeted at buildings and property		Not public	Achieved: During the course of the year, around 123 IED explosions occurred on the Island of Corsica, a decrease from the previous year. Most of these consist of small devices aimed at causing damage to buildings symbolic of French authority, such as Gendarmerie bases, town halls, post offices etc. Many are timed to explode in the middle of the night, to minimise the risk of casualties.

Date/ Year	Organisation/ Perpetrators	Country/ Location	Target	Explosives/ Precursors Utilised	Planned/ Attempted / Achieved
2008	Revolutionary Struggle- Extreme Left	Greece: Various		Not public	Achieved: Throughout the course of the year, Revolutionary Struggle committed three terrorist attacks against a police station an international oil company building and a police bus.
January 2008	AQ Network	Spain: Barcelona & International		Not public	Planned: The Spanish authorities arrested fourteen Islamist extremists in Barcelona, who were believed to be planning suicide bomb attacks in both their own city and other cities in Europe.
May 2008	ETA-Basque Nationalist	Spain: Guardia Civil Barracks, Legutiano, Alava Province		Not public	Achieved: ETA activists used a VBIED to attack a barracks, killing one officer and causing serious damage.
May 2008	AQ / Radicalised Individual Convert	United Kingdom: Restaurant in shopping centre, Exeter.		Homemade IED: Caustic soda, drain cleaner and kerosene, with nails added to enhance fragmentation/ lethality	Attempted: While preparing the devices, the individual, a mentally vulnerable convert to Islam, detonated one of his own devices. Consequently only succeeding in injuring himself before being arrested.
2008-9	Criminals/ Dissident Republicans	Ireland: Various cross border incidents (e.g. certain urban drug related crime incidents)		Criminal gangs use improvised pipe bombs both directly and as UVIEDs. These bombs mainly use black powder from fireworks and/or shotgun propellant as filling, and firework fuses for initiators. Dissident Republicans still have the capability to manufacture large scale IEDS such as car bombs and culvert mines using PIRA methods and precursors based mainly on ammonium nitrate fertilisers and sugar	Attempted / achieved: Following the PIRA ceasefire of 1997 and "Good Friday" agreement of 1998, some Dissident Republicans in CIRA, RIRA and INLA may have been involved in selling technical bomb making expertise to increasingly violent city based drug gangs. A small number of Dissident Republican large scale IED attacks have been attempted in Northern Ireland since the ceasefire.
31 July 2009	ETA-Basque Nationalist	Spain: Palma, Mallorca – Guardia Civil Officers		Not public	Achieved: A UVIED placed under their vehicle killed two Guardia Civil officers in the tourist area of Palma, Mallorca.
9 August 2009	ETA- Basque Nationalist	Spain: Palma, Mallorca – Tourist Bars		Not public	Achieved: Three small bombs exploded in tourist café /Bars in Palma, Mallorca, following telephone warnings from ETA. These appear part of the organisation's annual summer campaign to disrupt the Spanish tourist industry.
2 September 2009	Revolutionary Struggle- Extreme Left	Greece: Athens Stock Exchange & Ministry for Macedonia & Thrace		Not public	Achieved: Two bombs exploded on the same day, both preceded by warning phone calls. The first outside the Athens' Stock Exchange injured a woman and caused serious damage, while the second was placed in a telephone kiosk outside the Ministry for Macedonia and Thrace in Thessaloniki, again causing extensive damage.

Date/ Year	Organisation/ Perpetrators	Country/ Location	Target	Explosives/ Precursors Utilised	Planned/ Attempted / Achieved
10 September 2009	Experimental behaviour by an individual, target unknown	Poland: a small town called Zbaszynek		Triacetone triperoxide, Hexamethylenetriperoxi dediamine and others	Achieved: explosion in garden allotments, causing the death of a 50 year old man who produced and tested several explosives in his garden. Forensics discovered about 2 kg HMTD and approximately 5 kg TATP as well as 10 kg of a mixture of TNT, RDX and hexolite.

Abbreviations used:

1. AQ: al-Qaeda terrorist network.
2. CIRA: Continuation Irish Republican Army = Dissident Irish Republican terrorist group which emerged following the 2nd PIRA ceasefire of 1997 and the 1998 'Good Friday' agreement.
3. DST: Direction du Surveillance du Territoire = French Domestic Intelligence agency, now part of DCRI.
4. ETA: Euzkadi Ta Askatasuna. Basque Fatherland and Freedom = Basque separatist terrorist organisation.
5. FLNC: Frontu di Liberazione Naziunalista Corsu. National Front for the Liberation of Corsica = Original Corsican Nationalist separatist terrorist group, from which numerous splinter groups have emerged.
6. GIA: Groupe Islamique Arme. Islamic Army Group = Algerian Islamist terrorist organisation.
7. GICM: Groupe Islamique Combattant Marocain. Moroccan Islamic Combat Group= Moroccan and North African Islamist terrorist organisation with links to the AQ network.
8. GSPC: Groupe Salafiste pour la Predication et le Combat. Salafist Group for Prayer & Combat, now Al-Qaida au Maghreb Islamique (AQMI) = Algerian & North African Islamist terrorist organisation which emerged from the GIA and is part of the AQ network.
9. IED: Improvised Explosive Device.
10. INLA: Irish National Liberation Army = Irish Republican terrorist organisation which emerged from extreme elements within the Official Irish Republican Army (OIRA).
11. IJU: Islamic Jihad Union. Uzbek splinter group from the Islamic Movement of Uzbekistan (IMU), believed an affiliate to the al-Qaeda terrorist network.
12. LeT: Lashkar-e-Tayyaba. Army of the Righteous = Kashmiri Islamist terrorist group linked to the AQ network.
13. NATO: North Atlantic Treaty Organisation.
14. PIRA: Provisional Republican Army = Mainstream Irish Republican terrorist organisation.
15. PCC: Partito Comunista Combatente (PCC). Communist Combatant Party = Extreme Left Italian organisation.
16. RIRA: Real Irish Republican Army = Dissident Irish Republican terrorist group which emerged following the 2nd PIRA ceasefire of 1997 and the 1998 'Good Friday' agreement.
17. UVIED: Under-Vehicle Improvised Explosive Device.
18. VBIED: Vehicle Borne Improvised Explosive Device.

ANNEX 5: OVERVIEW OF THE MAIN HOUSEHOLD AND OTHER DOWNSTREAM USE OF PRECURSORS

Precursor group	Chemical	Main household use low concentrations	Main household use high concentrations
Nitrates / Nitrogenous fertilizers	Ammonium nitrate	Fertiliser mixtures Biological testing kits Printing ink cartridges	Fertiliser mixtures
	Potassium nitrate	Fertiliser mixtures Toothpastes Herbicides Disinfectants Corrosion inhibitors	Fertiliser mixtures Food preservation Tree stump remover, component of rodenticides Gun powder Fireworks Signal flares Photographic printing
	Sodium nitrate	Fertiliser mixtures	Fertiliser mixtures Food preservation Tree stump remover, component of rodenticides Signal flares
	Calcium nitrate	Fertiliser mixtures	Fertiliser mixtures Food preservation Tree stump remover, component of rodenticides
Hydrogen peroxide and acetone	Hydrogen peroxide	Hair bleaching, dying or fixing of hair perm Tooth bleaching Cleaning (toilet cleaners and dishwashing detergents) Textile bleaching (an additive for washing) Disinfection of wounds, mouth and eye contact lenses Dermatological treatments Hydroponics gardening	Hair bleaching, dying or fixing of hair perm Disinfection of wounds, mouth and eye contact lenses Propellant for amateur rockets
	Acetone (propanone)	Domestic solvent (superglue remover, nail polish remover, household cleaner) Thinning fibreglass resins, epoxies, polyester resins, vinyl & adhesives Degreaser Surface aging product	Domestic solvent (superglue remover, nail polish remover, household cleaner)
Nitro-methane and hexamine	Nitromethane	Building and construction products Carpet cleaner	Fuel and fuel additive for racing cars, boats, amateur rockets and models Superglue remover Special solvent
	Hexamine (methenamine)	Fungicides Turbidity standard Shampoo / hair product	Solid fuel tablets for camping stoves, toys and models
Strong acids	Nitric acid	Hobby metalworking Nitrating agent for home pyrotechnics, cleaning, etc.	Tin stripper Disinfectant Pool cleaning Specialist cleaning

Precursor group	Chemical	Main household use low concentrations	Main household use high concentrations
	Hydrochloric acid	Brick, drain & toilet cleaners Building and construction products	Brick, drain & toilet cleaners Specialist cleaning Swimming pool and fish tank pH adjuster Cleaning products / descalants
	Sulphuric acid	Cleaner for drains, toilets, bricks & metals	Cleaner for drains, toilets, bricks & metals Battery acid Car and other lead acid batteries Rust remover Swimming pool and fish tank pH adjuster
Chlorates and perchlorates	Sodium chlorate	Bleacher Cleaning products	Pesticide / herbicide Metal treatment
	Sodium perchlorate	Bleacher	Fireworks Signal flares Smoke flares Gun powder
	Potassium chlorate	Insecticide smoke	
	Potassium perchlorate		Bird chaser

**ANNEX 6: OVERVIEW OF THE MAIN FINDINGS OF THE "MYSTERY SHOPPING" EXERCISE
CONDUCTED IN THE COURSE OF THE PREPARATORY STUDY INFORMING THE
IMPACT ASSESSMENT (PER PRECURSOR)**

Precursor group	Chemical	
Nitrates / Nitrogenous fertilizers	Ammonium nitrate	In nearly all Member States, purchases of high concentration levels can only be made by a non-household or professional user. Only in Romania, Poland and Belgium it was possible to purchase nitrates with a high concentration level as a household user. In one additional case it was possible to purchase as a consumer by providing the details of a third party's company (this was openly mentioned and accepted). When placing the order, it was in all cases compulsory to provide details of the company / individual purchasing the product. The level of detail to be provided however varied, from the requirement to formally prove the company's registration with a professional business registrar to simply providing the company's tax (VAT) code.
	Potassium nitrate	
	Sodium nitrate	
	Calcium nitrate Urea	
Hydrogen peroxide and acetone	Hydrogen peroxide	In most Member States, hydrogen peroxide can be purchased in an unlimited quantity up to a concentration level of 35% through retail channels. In a number of cases, it was sold in units containing a high quantity, i.e. from 1 to 5 litres. Other downstream sellers often required some form of identification, even though this could be circumvented.
	Acetone (propanone)	Acetone is also widely available from retail channels in nearly all countries. The average unit quantity available varies but seems to go up to 1 litre. In some Member States, some proof of identification is required for purchasing high quantities, While in at least two others it was possible to order up to 100% concentration level in unlimited quantities.
Nitro-methane and hexamine	Nitromethane	High concentration levels of nitromethane were not easy to find on retail. In one Member State it was possible to order an unlimited quantity of superglue breaker and in another country it was possible to obtain an unlimited quantity of model engine fuel.
	Hexamine (methenamine)	Hexamine fuel tablets could be ordered in a practically unlimited quantity, upon provision of contact details. Pure hexamine was only sold upon provision of company details / tax code.
Strong acids	Nitric acid	Access to high concentration levels of strong acids was possible in all countries from retailers, as well as from wholesalers and specialist end user sellers. Strong acids with high concentrations are openly on sale in garden centres and hardware / DIY shops, as drain cleaner, metal treatment product, etc While in some Member States, non-retail sellers asked for contact details and tax codes, it was relatively easy to circumvent these or negotiate the use of the details of a third professional party.
	Hydrochloric acid	
	Sulphuric acid	
Chlorates and perchlorates	Sodium chlorate	Chlorates and perchlorates are far less available to the general public in retail. Wholesalers, distributors and specialist end user sellers in the countries addressed only sold to registered companies and not to individuals. In one country, it was possible to purchase an unlimited quantity of weed killer in one garden centre with 60% sodium chlorate, While several other shops had indicated that such product was banned. In another Member State it was possible to order an unlimited quantity of pure potassium perchlorate, upon the provision of contact details.
	Sodium perchlorate	
	Potassium chlorate	
	Potassium perchlorate	

ANNEX 7: CALCULATION OF THE LOSS TO CONSUMERS, BUSINESSES AND OF THE ADMINISTRATIVE COSTS - METHODOLOGY

Introductory comment on the assumptions underlying the cost estimates

The assumptions for the theoretical model to calculate the loss to consumers are based on standard economic theory. In order to be able to dimension the problem, certain simplifications were necessary, notably an assumption of a linear demand curve. The baseline data concerning the quantity bought assumed that the price elasticity was related to that specific quantity and assumed a linear demand curve.

The estimation models for the calculation of the loss to consumers, businesses and administrative costs had to take into account that the data needed for the calculation in an ideal case (e.g. reliable, up-to-date and comprehensive on the number of traders selling the substances of concern in the respective concentrations, or data on the basis of which administrative costs would be more precisely specified), are not available or even do not exist. Notwithstanding this fact, the estimations followed existing approaches taken from comparable assessments (e.g. in the case of the estimate of administrative costs) and worked with the best available data, collected from respected databases (notably Prodcom) or obtained directly from relevant private sector stakeholders and associations. The empirical assumptions and calculations were available for review and discussions to the public authority- as well as private sector stakeholders (as explained in the main body of the impact assessment), and corrections suggested by these were incorporated. No objections or critique were raised to the final version of the calculations.

Annex 7 explains the steps undertaken to estimate the respective costs.

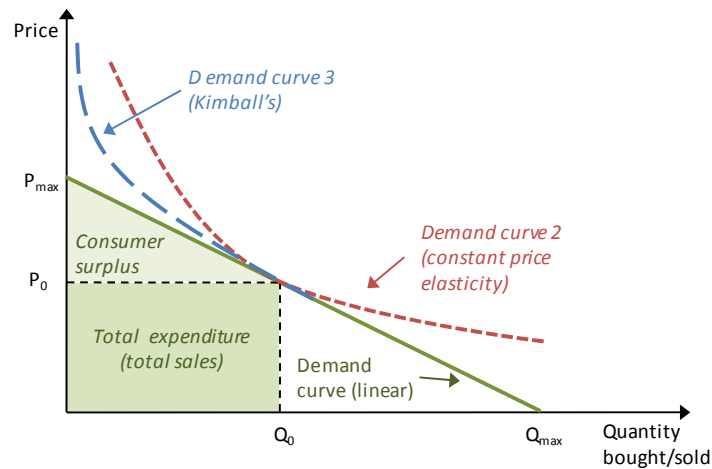
Annex 8 provides yet more details on the numerical assumptions and inputs into the estimation models.

Calculation of the loss to consumers (consumer surplus)

To monetise the costs to consumers from the general public from not being able to buy anymore the products they preferred, we first need to outline the total 'consumer surplus' associated with the products in question. Total consumer surplus is the aggregate of individual consumer surpluses, i.e. the difference between the maximum price a consumer who has bought a specific product would have been willing to pay for the given quantity and the actual price he had to pay. If this difference were small, the loss to the consumer in case the product were not available anymore – being about indifferent whether to spend the given amount on money on the product in question or on others – would be similarly small. If the difference were big, a huge consumer surplus would be lost in case of a full or partial ban.

In graphical representation, the total consumer surplus equals the area below the demand curve between zero and actual consumption (Q_0) minus the area of the rectangle between the origin and the intersection of actual consumption and price (Q_0, P_0), which equals the total consumption expenditure spent on the product (see **Error! Reference source not found.**).

Figure 4.1 The demand curve and consumer surplus



However, market data only provides historic consumer expenditure, and not the shape of the demand function. By the purchasing decision they have taken consumers were 'revealing' their preference for a given quantity of the product at the given price, but not what they would have been willing to pay otherwise.

Therefore, we have constructed simple linear demand curves for the product categories in question for certain groups of consumer products. Our choice of a linear demand curve is arbitrary. **Error! Reference source not found.** also depicts two alternative demand curves. The first is a constant price elasticity demand curve ($\varepsilon = \text{const.}$). The second, proposed by *Kimball* (1995) is one with a price elasticity which is a function of the relative price level itself. The ratio of current and baseline actual demand is expressed in the two models as follows:

$$\frac{Q_1}{Q_0} = \left(\frac{P_1}{P_0}\right)^{-\varepsilon}; \quad \text{Constant elasticity model: } \varepsilon = \bar{\varepsilon}. \quad \text{Kimball: } \varepsilon = \bar{\varepsilon} \left(\frac{P_1}{P_0}\right)^{\varepsilon} \quad (1)$$

These demand curves are often used and analysed in economic literature, but they – rather counter-intuitively – do not intersect with the Y-axis, i.e. demand will not sink to zero at any given price. Because of this, and for reasons of simplicity, we opted for the use of a linear demand curve.

The estimations of the demand curve are based on a typical price elasticity ranges, obtained from economic studies, taking into account the ease of substituting them with alternatives (e.g. strong acids as household detergents can be relatively easily replaced) and their eventual 'complementary product' nature (e.g. relatively cheap hexamine solid fuel tablets complement more valuable model steam engines or tracking kits, the price sensitivity of consumers is assumed therefore to be relatively low). For a practical example, when the price elasticity is assumed to be 2, this means in simple terms that a 1% increase in price would yield a 2% decrease in sales. Correspondingly, for a 100% decrease of sales (the intersection point with the Y-axis), a 50% price increase would be necessary. The total consumer surplus (the area of the triangle) would in this case be

simply calculated by multiplying the total sales volume of the chemical (in the baseline period) by 50%, and dividing this result by two.

Typical price elasticity ranges for consumer products vary widely between products, depending on the nature of the product. Generally, products which do not have satisfactory alternatives concerning the specific use they are bought for, and they are relatively important for the consumer, tend to have a low price elasticity. Such products – for example – may be subject to habitual consumption with high brand loyalty (specialty food), have an addictive character (cigarettes), may be complementary products of something more valuable (fuel, batteries), or be otherwise high-involvement products (healthcare, personal care products).

Tellis (1988), analysing market studies on 220 different branded consumer products, found a typical range of about 1 to 3, with slight variations across product categories.²³ In *Dossche et al* (2006) macroeconomic study estimates ranging from 3 to 20 are collected. For cigarettes, an addictive and habitual product, the World Bank in its meta-analysis has reported price elasticities of between 0.4 and 1.²⁴ For gasoline, a fully complementary product (of motor vehicles, that is) with barely any good alternative, the average estimate for long-run price elasticity is 0.64, as assessed by Goodwin et al (2004).

Our assumptions for the price elasticity ranges concerning the most frequent uses of the precursors by the general public are summarised in the following table.

Table 7.1 Price elasticity assumptions (most significant product categories)

Product category	Assumed price elasticity	Comments
Nitrate-based retail fertilisers and other consumer products		
Ammonium nitrate based fertilisers	2 – 4	Alternatives generally exist (e.g. urea, other straight-nitrogen fertilisers).
Alkali nitrate fertilisers	2 – 4	Widely available alternatives.
Alkali nitrate food preservatives	1 – 2	Alternatives are available.
Hydrogen peroxide products		
Hair and tooth bleaching products	0.5 – 1.5	Some alternatives exist to hydrogen peroxide but are not yet widely used. Personal care products are normally high-involvement goods.
Household cleaning products (drain cleaner, dishwashing detergents)	2 – 4	Widely available alternatives.
Textile bleaching products	2 – 4	Widely available alternatives.
Pool and fish tank disinfectants	0.5 – 1.5	Alternatives (chlorine-based products) exist but are not traditionally used in certain countries (France).

²³ The main product categories and their typical price elasticity were: pharmaceuticals (1.12), toiletries (1.38), food (1.65), durable goods (2.03), detergents (2.77).

²⁴ <http://www1.worldbank.org/tobacco/book/html/chapter4.htm>

Product category	Assumed price elasticity	Comments
Pharmaceutical products, creams and antiseptic solutions	0.5 – 1.5	Suitable alternatives are less available.
Acetone products		
Nail polish removers, cosmetic solvents	0.5 – 1.5	Limited number of alternatives. Personal care products are normally high-involvement goods.
Household cleaning products, superglue remover	1 – 2	Alternatives are available (e.g. ethyl acetate).
Nitromethane		
Fuel and fuel additive for racing cars, boats, amateur rockets and models	0.3 – 0.7	Complementary product ('top fuel' for nitro-engines). No alternatives can produce similar combustion characteristics. Any alternative need to be a nitrogen-based fuel of an explosive nature.
Hexamine		
Hexamine fuel tablets	0.3 – 0.7	Complementary product. Some imperfect alternatives exists for use in camping gear but not for use in toy models.
Strong acids		
Domestic solvents, household detergents (included in drain cleaners etc.)	1 – 2	Available alternatives, even though some of these could be less effective.
Battery acid (sulphuric acid)	N/A	Price elasticity is virtually infinite as it is an essential component in car and other motor vehicles batteries.
Chlorates and perchlorates		
Specialty products	N/A	Only a very limited market exists for the products in question.

Table 7.2 Estimated loss to consumers (consumer surplus lost) if products were not available any more (by thresholds)

The baseline data, i.e. concerning the quantity bought, assume that the price elasticity was related to that specific quantity and assumed a linear demand curve. On that basis the consumer surplus was calculated. It is potentially contestable, as it is perhaps simplistic, but it was the only way to dimension this problem. The particular approach taken is based on standard macro-economic theory.

Precursor (threshold %) Most significant consumer products	Estimated value of consumer products (€ million)			Estimated consumer surplus (lost) (€ million)		
	Total	Above threshold	Below threshold	Total	Above threshold	Below threshold
Ammonium nitrate (fertiliser) (16% N from AN)	380-530	26-59	350-480	63-89	4-10	58-80

Precursor (threshold %) Most significant consumer products	Estimated value of consumer products (€ million)			Estimated consumer surplus (lost) (€ million)		
	Total	Above threshold	Below threshold	Total	Above threshold	Below threshold
High-concentration AN-fertilisers	13-26	13-26	-	2-4	2-4	-
Component in mixtures	52-160	10-33	38-132	9-27	2-6	6-22
Component in retail fertilisers: tablets or similar	310-350	-	310-350	52-58	-	52-58
Sodium nitrate (8% N from nitrate)	6-18	2-5.5	4-12	1-4	0.5-1.5	1-2
Component in mixtures	5-14	0.9-2	4-12	0.8-2.3	0.2-0.3	0.7-2
Food preservative (100%)	1-3.5	1-3.5	-	0.3-1.2	0.3-1.2	-
Potassium nitrate (8% N from nitrate)	30-83	6-15	23-70	5-14	1-3	4-12
Component in mixtures	29-79	5-11	23-70	5-13	0.8-1.8	4-12
Food preservative (100%)	1-3.5	1-3.5	-	0.3-1.2	0.3-1.2	-
Calcium nitrate (8% N from nitrate)	31-85	5-12	25-75	5-14	1-2	4-13
Component in mixtures and CN AN double salt	31-85	5-12	25-75	5-14	0.8-2	4.2-12.5
Hydrogen peroxide (12% H₂O₂)	1,750-2,900	130-250	1,650-2,700	710-1,170	29-70	680-1,100
Hair and tooth bleaching products	1,085-1,720	13-53	1,070-1,680	543-860	7-27	535-840
Household textile bleaching products	86-114	86-114	-	14-19	14-19	-
Household cleaning products (drain cleaner, dishwashing detergents etc.)	442-743	17-58	400-720	74-124	3-10	67-120
Pool and fish tank disinfectants	10-30	10-30	-	5-15	5-15	-
Pharmaceutical products, creams and antiseptic solutions	150-300	-	150-300	75-150	-	75-150
Acetone	Multiple billion euros	Multiple billion euros	Multiple billion euros	Multiple billion euros	Multiple billion euros	Multiple billion euros
Nail polish removers, cosmetic solvents, household cleaning products, solvents (superglue remover) and other consumer products	Multiple billion euros	Multiple billion euros	Multiple billion euros	Multiple billion euros	Multiple billion euros	Multiple billion euros
Nitromethane (30%)	55-110	33-88	22-55	55-110	33-88	22-55

Precursor (threshold %) Most significant consumer products	Estimated value of consumer products (€ million)			Estimated consumer surplus (lost) (€ million)		
	Total	Above threshold	Below threshold	Total	Above threshold	Below threshold
Racing car fuel ('top fuel' for nitro-engines)	55-110	33-88	22-55	55-110	33-88	22-55
Hexamine	3-9 (110-220)	3-9 (110-220)	-	3-9 (110-220)	3-9 (110-220)	-
Solid fuel tablets (consumer market), with linked products	3-9 (110-220)	3-9 (110-220)	-	3-9 (110-220)	3-9 (110-220)	-
Nitric acid (30%)	550-800	38-130	500-730	183-267	13-43	167-243
Domestic solvents, household detergents (included in drain cleaners etc.), pH adjusters for fish tanks	550-800	38-130	500-730	183-267	13-43	167-243
Sulphuric acid (50%)	1,680-2,570	90-330	1,580-2,320	550-833	30-110	517-750
Domestic solvents, household detergents (included in drain cleaners etc.), pH adjusters for fish tanks	1,650-2,500	90-330	1,550-2,250	550-833	30-110	517-750
Lead-acid batteries	35-70	-	35-70	-	-	-
Hydrochloric acid (20%)	350-520	16-37	330-500	117-173	5-12	110-167
Domestic solvents, household detergents (included in drain cleaners etc.), pH adjusters for fish tanks	350-520	16-37	330-500	117-173	5-12	110-167
Chlorates and perchlorates (40%)	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Specialty products	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
TOTAL	5,000-7,800	450-1,150	4,500-7,000	1,800-2,900	230-560	1,600-2,400

* A minor overlap is possible between different precursors (fertilisers, household cleaning products, personal care products etc.)

Calculation of the loss to businesses (profit foregone)

Looking at 'producer surplus' to establish what the potential loss for businesses would be in case of a restriction of the products in question would not fully grasp the aggregate losses accruing to a multi-tiered system of suppliers along the value chain. Rather, one should best estimate the aggregate profit on the product accruing to EU businesses in the entire supply chain.

Eurostat in its Structural Business Statistics section provides EU-wide data on average profit margins. The ‘gross operating surplus / turnover’ indicator is 12.9% for manufacturers of chemicals and chemical products (DG24), 5.2% for wholesale (G51) and 7.0% for retail trade (G52). The products generally sold to the general public usually have a value chain comprising of more than more than one producer (producer of base chemical, producer of formulated product or mixture), and eventually more wholesalers/repackagers or distributors.

For the sake of simplicity, we assume that on average, the extra-EU import share for the end-user products (i.e. not the base chemicals) vary between 10 and 90%. We also assume that European business combined loses profits corresponding to 33% of the consumer price for products fully manufactured in the EU (wholesale 5.2%, retail 6.6%, producers 21.2% in total) and wholesalers²⁵ and retailers lose profit corresponding to 11.8% of the consumer price for the imported share (wholesale 5.2%, retail 6.6%).

Table 7.3 Estimated loss to businesses if products were not available any more (by thresholds)

Precursor (threshold %) Most significant cons. products	Estimated volume of consumer products (€ million)			Assumed import share (end-user products)	Estimated volume of losses to business (profit foregone) (€ million)		
	Total	Above thresh.	Below thresh.		Total	Above thresh.	Below thresh.
Ammonium nitrate (fertiliser) (16% N)	380-530	26-59	350-480		116-166	7-18	107-149
High-concentration AN-fertilisers	13-26	13-26	-	10%	4-8	4-8	-
Component in mixtures	52-160	10-33	38-132	10%	16-49	3-10	12-41
Component in retail fertilisers: tablets or similar	310-350	-	310-350	10%	96-108	-	96-108
Sodium nitrate (5% N)	6-18	2-5.5	4-12		1.2-4	0.4-1.1	0.8-2.4
Component in mixtures	5-14	0.9-2	4-12	60%	1-3	0.2-0.4	0.8-2.4
Food preservative (100%)	1-3.5	1-3.5	-	60%	0.2-0.7	0.2-0.7	-
Potassium nitrate (5% N)	30-83	6-15	23-70		4-11	1-2	3-10
Component in mixtures	29-79	5-11	23-70	90%	4-11	0.7-1.5	3-10
Food preservative (100%)	1-3.5	1-3.5	-	90%	0.1-0.5	0.1-0.5	-
Calcium nitrate (5% N)	31-85	5-12	25-75		6-17	1-2.4	5-15
Component in mixtures and CN AN double salt	31-85	5-12	25-75	60%	6-17	1-2.4	5-15
Hydrogen peroxide (12% H₂O₂)	1,750-2,900	130-250	1,650-2,700		550-900	39-79	500-834
Hair and tooth bleaching products	1,085-1,720	13-53	1,070-1,680	10%	335-531	4-16	330-519

²⁵

These might be producers.

Precursor (threshold %) Most significant cons. products	Estimated volume of consumer products (€ million)			Assumed import share (end-user products)	Estimated volume of losses to business (profit foregone) (€ million)		
	Total	Above thresh.	Below thresh.		Total	Above thresh.	Below thresh.
Household textile bleaching products	86-114	86-114	-	10%	27-35	27-35	-
Household cleaning products (drain cleaner, dishwashing detergents etc.)	442-743	17-58	400-720	10%	136-229	5-18	124-222
Pool and fish tank disinfectants	10-30	10-30	-		3-10	3-10	-
Pharmaceutical products, creams and antiseptic solutions	150-300	-	150-300	10%	46-93	-	46-93
Acetone	Multiple billion euros	Multiple billion euros	Multiple billion euros		Multiple billion euros	Multiple billion euros	Multiple billion euros
Nail polish removers, cosmetic solvents, household cleaning products, solvents (superglue remover) and other consumer products	Multiple billion euros	Multiple billion euros	Multiple billion euros	10%	Multiple billion euros	Multiple billion euros	Multiple billion euros
Nitromethane (30%)	55-110	33-88	22-55		11-22	7-18	4-11
Racing car fuel ('top fuel' for nitro-engines)	55-110	33-88	22-55	60%	11-22	7-18	4-11
Hexamine	3-9	3-9	-		0.8-2.4	0.8-2.4	-
	(110-220)	(110-220)			(4-12 per annum)	(4-12)	
Solid fuel tablets (consumer market)	3-9 (110-220)	3-9 (110-220)	-	30%	0.8-2.4 (4-12)	0.8-2.4 (4-12)	-
Nitric acid (30%)	550-800	38-130	500-730		170-247	12-40	154-225
Domestic solvents, household detergents (included in drain cleaners etc.), pH adjusters for fish tanks	550-800	38-130	500-730	10%	170-247	12-40	154-225
Sulphuric acid (50%)	1,680-2,570	90-330	1,580-2,320		521-795	28-102	490-718
Domestic solvents, household detergents (included in drain cleaners etc.), pH adjusters for fish tanks	1,650-2,500	90-330	1,550-2,250	10%	510-772	28-102	479-695
Lead-acid batteries	35-70	-	35-70	30%	12-23	-	12-23

Precursor (threshold %) Most significant cons. products	Estimated volume of consumer products (€ million)			Assumed import share (end- user products)	Estimated volume of losses to business (profit foregone) (€ million)		
	Total	Above thresh.	Below thresh.		Total	Above thresh.	Below thresh.
Hydrochloric acid (20%)	350-520	16-37	330-500		108-161	5-11	102-154
Domestic solvents, household detergents (included in drain cleaners etc.), pH adjusters for fish tanks	350-520	16-37	330-500	10%	108-161	5-11	102-154
Chlorates and perchlorates (40%)	Minimal	Minimal	Minimal		Minimal	Minimal	Minimal
Specialty products	Minimal	Minimal	Minimal	90%	Minimal	Minimal	Minimal
Grand total*	5,000-7,800	450-1,150	4,500-7,000		1,500-2,400	130-330	1,400-2,100

* A minor overlap is possible between different precursors (fertilisers, household cleaning products, personal care products etc.)

Administrative and substantive compliance costs

Cost to businesses

Given the complexity of the topic, the variety of products, sales channels and traders covered (as well as unavailability of data), calculations were based on a simplified estimation model. This simple method of approximating the administrative and substantive compliance costs occurring to businesses relates it to the turnover from the products concerned (i.e. not following the Standard Cost Model for assessing administrative costs).

As it is mostly retail that is directly concerned by the preferred policy option, we focus on the costs of retail businesses. Eurostat reports a cost share for the retail sector for 2006 of about 26% relative to its turnover. The profit margin was 6.6%. The share of personnel cost (which is normally affected by any administrative task) was 32% of the total production value of the sector (this roughly equates to the cost of sales figure above).

We estimate that the additional administrative cost to businesses will range between 5-20% percentage of the personnel cost of the totality of traders who sell the products in question, depending on the policy option (i.e. 0.42-1.67% of the total sales volume of the products). This is to be understood as an ongoing cost, although a one-off cost in connection with studying legislation, preparing for implementation and informing customers and business partners will also be involved (assumed to equal to about 10% of the relevant labour cost value).

We also assume that annual compliance costs (checking inventories etc.) will be proportionate to the turnover of traders. These will for most policy options also include a

significance one-off part and could be in the range of 10-30% of the sales-related personnel cost (i.e. 0.84-2.5% of the total sales volume of the products) for the traders of the product categories concerned (note that most obligations – maintaining control over inventories, checks of customers etc. – will need to be done for most of the options). A one-off cost of ca. 20% of the related staff cost will additionally occur: this involves initial checking of inventories, clients and procedures.

Cost to public authorities

As for the upkeep (compliance) costs of licensing and registration schemes incurred by public authorities, the figures are based on the estimates provided in the “Ad Hoc Study to be used in the Evaluation of the Community Legislation on Drug Precursors” prepared by RPA for the Commission in February 2009. The key cost element in this regard was staffing cost. Data has been obtained from five Member States.

Table 7.4 Staffing costs of the national Competent Authority associated with licensing and registration (annually, in euro)

Belgium	Ireland	Hungary	Slovakia	Sweden	Average
130,810	28,852	54,518	38,315	80,360	66,571

Source: RPA Ad Hoc Study

It is assumed for the purpose of this draft estimate that the remuneration of the public administration staff and the overall staffing costs in the public administrations (as the implementation of the measures will be by existing staff within existing national structures) is independent from the size of the national market. It may be also largely independent from the exact number of substances to steward (the drug precursors legislation covers 23 "scheduled" substances and a further 17 "non-scheduled" ones). Consequently, the total cost to EU national authorities are approximated as 27 times the average value of the five national estimates above, i.e. about €1.80 million annually.

The same report provides some estimates for the cost incurring to public authorities processing notifications of suspicious transactions. The number of notifications in the case of drug precursors was relatively low, about 300 annually, Total costs (staff and non-staff included) to national Competent Authorities was estimated to be around €340,000 only.

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ANNEX 8: ESTIMATES AND BACKGROUND CALCULATIONS FOR THE ECONOMIC ASSESSMENT

Table 8.1: Estimated EU market size of the chemical precursors (base chemicals)

The table was prepared by the company GHK, contractor of the preparatory study for the impact assessment.

Precursor	PRODCOM code	PRODCOM data (2008)				Other sources, comments
		Production volume	Sold volume	Value of sold volume	Unit price	
Ammonium nitrate (excluding in tablets or similar forms or in packages of a weight of <= 10 kg)	20153300	4,253 kt N	2,496 kt N	€1,629 million	653 €/t N	Around 2,000-2,200 kt N of ammonium nitrate is sold (more is produced for own consumption) and used annually in European agriculture as a straight nitrogen fertiliser, according to EFMA estimates. In 2006, this corresponded to about 19% of the total estimated consumption of 10,636 kt N of nitrogenous fertilisers. A small fraction of sales of AN goes to the mining and construction industries to be used as an explosive.
Fertiliser mixtures including ammonium nitrate	20153400 20153930 20153960	1,753 kt N	1,652 kt N	€ 1,169 million	708 €/t N	AN is also often a component in fertiliser mixtures; overall, about 50-60% of the N content in these categories is estimated to come from ammonium nitrate. (CAN has been excluded from the analysis due to the desensitising effect of calcium carbonate. Total annual estimated consumption of AN as straight nitrogen fertiliser is 2,020 kt N (€1,320 million), and an additional 1,000-1,200 kt N (€2,310 million) is estimated to be used in commercial fertiliser mixtures, including an estimated 10% (around 20 kt; 6.7 kt N; €16 million) of the category 'Fertilizers in tablets or similar forms or in packages of a gross weight of <= 10 kg' (20157930), most easily available to the general public. In total, annual consumption of AN as fertiliser is estimated at 3,020-3,220 kt N (€1,970-2,100 million).
Sodium nitrate	20156000	12 kt N	38.6 kt N	€ 23 million	601 €/t	Based on ComExt export and import data, net

Precursor	PRODCOM code	PRODCOM data (2008)				Other sources, comments
		Production volume	Sold volume	Value of sold volume	Unit price	
Potassium nitrate	20157600	1.4 kt N	1.8 kt N*	€ 6 million*	3,399 €/t N* [†]	import amounted to about 21.86 kt N in 2008, in a value of about €8.5 million euro. EFMA, in its submission to the SCP estimates the annual consumption of sodium nitrate as solid product (not only as fertiliser) in the EU at 30 kt N, PNA at 94 kt N (the average of estimates is 62 kt N, corresponding to ca. 37 million euro). Net import (ComExt) is about 345 kt N in a value of 231.9 million euro. EFMA estimates consumption at 355 kt N, PNA at 346 kt N (average: 350 kt N; 245 million euro).
Calcium nitrate	20153400	44 kt N	39.9 kt N	€ 32 million	802 €/t N	This PRODCOM code also includes the physical blend of calcium nitrate and ammonium nitrate, which is not known to be used as solid fertiliser. The net import in this product category was about 115.28 kt N in a value of 24.0 million euro. The double salt of calcium nitrate and ammonium nitrate usually contains about 90% calcium nitrate and 10% ammonium nitrate. EFMA estimates the annual use of calcium nitrate at 290 kt N, PNA at min. 274 kt N (average: 282 kt N, 226 million euro).
Hydrogen peroxide	20136300	1,185 kt H ₂ O ₂	1,182 kt H ₂ O ₂	€490 million	414 €/t H ₂ O ₂	ComExt reports a net export of about 110 kt H ₂ O ₂ (27.1 million euro). The H ₂ O ₂ sector group of CEFIC counts with about 1,000 kt H ₂ O ₂ . The SCP annual report sets the market volume in the EU27 at 930 kt H ₂ O ₂ (JRC estimates based on CEFIC figures set the consumption level at 670 kt for 1995 for the EU15). The unit price in 2009 varies between 510-980 €/t H ₂ O ₂ , according to Harriman Chemconsult. We use the sector group's volume estimate and an average price of 700 €/t H ₂ O ₂ , which corresponds to a value of about 700 million euro.

Precursor	PRODCOM code	PRODCOM data (2008)				Other sources, comments
		Production volume	Sold volume	Value of sold volume	Unit price	
Acetone	20146211	1,581 kt	1,529 kt	€1,093 million	715 €/t	Europe was a net exporter of acetone in 2008, in the magnitude of cca. 186 kt, in a value of 111.8 million euro. We estimate on the basis of these data that the annual consumption is around 1,350 kt, in a value of 965 million euro.
Nitromethane	-	-	-	-	-	In the US, production of nitromethane was estimated to be around 7.3 kt in 2001, which was supplemented by strong imports. ²⁶ We assume an annual EU consumption in the magnitude of 100 kt. The price for bulk racing fuel nitromethane currently moves around 3-4,000 €/t (can go up to 10,000 €/t for retail products). Correspondingly, the total market size is estimated to be at around 350 million euro.
Hexamine	-	-	-	-	-	A JRC report estimated EU production for 2005 to be around 30 kt. ²⁷ The Scientific Committee on Health and Environmental Risks of DG SANCO set production at about 39 kt. ²⁸ The net import of hexamine is estimated on the basis of ComExt data at about 3-4 kt. We estimate total consumption in Europe to be around 40 kt per annum. Chinese suppliers offer hexamine (FOB China) over the Internet for 1,000-1,500 USD per ton (ca. 700-1,100 €/ton). While the ComExt database signal unit prices of €835 and €1,038 per ton for 2008. Based on the above, we set the market size at 36 million euro.

²⁶ Report on Carcinogens, Eleventh Edition, U.S. Department of Health and Human Services, Public Health Service, National Toxicology Program January 31, 2005. Available at: <http://ntp.niehs.nih.gov/ntp/roc/eleventh/profiles/s123zntm.pdf>

²⁷ http://ecb.jrc.it/classlab/1705a3_D_methenamine_RAR.doc

²⁸ http://ec.europa.eu/health/ph_risk/committees/04_scher/docs/scher_o_054.pdf

Precursor	PRODCOM code	PRODCOM data (2008)				Other sources, comments
		Production volume	Sold volume	Value of sold volume	Unit price	
Nitric acid	20151050	6,074 kt N	917 kt N	€330 million	360 €/t N	PRODCOM data includes sulphonitric acids. Net export of nitric acid amounted to 109 kt N (5.9 m euro) in 2008. Total consumption, excluding own consumption, is estimated at 800 kt N in a value of 288 million euro.
Sulphuric acid	28070010	17,818 kt SO ₂	9,580 kt SO ₂	€687 million	72 €/t SO ₂	According to ComExt, the European net export of sulphuric acid in 2008 was 2,416 kt SO ₂ , corresponding to 106.3 million euro. The European market size (excluding own consumption) is assumed to amount to ca. 7,150 kt SO ₂ , in a value of 515 million euro.
Hydrochloric acid	20132413	6,014 kt HCl	3,051 kt HCl	€253 million	83 €/t HCl	Net export of hydrochloric acid was about 301 kt HCl in 2008, in a value of 12.9 million euro. EU consumption (excl. own consumption) is estimated at 2,750 kt HCl (228 million euro).
Chlorates and perchlorates	-	-	-	-	-	The broader category 'Chlorates and perchlorates; bromates and perbromates; iodates and periodates' (PRODCOM code: 20133250), also including apart from sodium and potassium chlorates and perchlorates e.g. ammonium and barium perchlorate (these are also produced in significant amounts), added up to a quantity 555 kt in 2008. The total value of production was 266.7 million euro. Total use of potassium chlorate and perchlorate is estimated in total at 30 kt per annum, consumption of sodium chlorate at 100 kt and of sodium perchlorate at 5 kt. The combined value of these four precursors may amount to about 65 million euro (at a unit price of ca. 480 €/t).

* Data for 2007. [†] Unreliable estimate; ComExt data suggests a unit price of about 700 €/t N

Table 8.2: Assumptions to calculate the volume and value of products sold to the general public

Precursor Most significant consumer products	Estimated market size of base chemical		Estimated proportion sold to general public	Estimated volume of consumer products	Estimated value of consumer products ²⁹	Comments
	Volume	Value (producer price)				
Ammonium nitrate (fertiliser), excl. CAN	3,030- 3,230 kt N	€1,970- 2,100 million		44-100 kt N	€380-530 million	
High-concentration AN- fertilisers ($\geq 16\%$ N from nitrates, see REACH regulation)	2,020 kt N	€1,320 million	1-2%	20-40 kt N	€13-26 million	Estimated market size of base chemical based on EFMA data. The general public includes small subsistence and second-income farmers and garden owners (used e.g. to fertilise lawns). The concentration levels they access are all above 16% but below or at around 28% (higher concentrations are not available to non-professional users). EFMA has confirmed the estimate given in the SCP annual report. The proportion is higher in some Member States and almost zero in others.
Component in mixtures (e.g. UAN)	1,000- 1,200 kt N	€650-780 million		19-54 kt N	€52-160 million	The overall estimate is based on Prodcum and EFMA data (on mixtures containing AN). The mixtures may contain 50% and up to 80% AN.
<i>Fertiliser blends $\geq 16\%$ N (from AN)</i>	<i>500-840 kt N</i>	<i>€325-546 million</i>	<i>1-2%</i>	<i>5-17 kt N</i>	<i>€10-33 million</i>	<i>We assume products above the 16% threshold account for 50-70% of the total market of AN in fertiliser mixtures (in N-equivalent weight).</i>
<i>Fertiliser blends $< 16\%$ N</i>	<i>300-600 kt</i>	<i>€195-390</i>	<i>4-7%</i>	<i>12-42 kt N</i>	<i>€38-132</i>	

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Average wholesale and retail margins are both assumed to be in the 30-40% range, so the retail price will be 2-2.8x the producer price.

Precursor Most significant consumer products	Estimated market size of base chemical		Estimated proportion sold to general public	Estimated volume of consumer products	Estimated value of consumer products ²⁹	Comments
	Volume	Value (producer price)				
Component in retail fertilisers: tablets or similar ($<16\%$ N)	N 6.7 kt N	million €16 million	80%	164-185 kt (5.4-6 kt N from AN)	million €310-350 million	Total volume of various commercial fertilisers containing AN sold was 205 kt in 2008, in a value of 161 million euro, according to the Procom database. It is assumed that ca. 80-90% of this is purchased by the general public.
Sodium nitrate	62 kt N	€37.3 million		1.5-4 kt N	€6-18 million	
Component in mixtures	53 kt N	€31 million		1.5-4 kt N	€5-14 million	About 85% of the alkali nitrates are used as fertilisers, according to PNA. Ceramic, metal and photovoltaic industries together account for cca. 10% of total consumption.
<i>Fertiliser blends $\geq 8\%$ N</i>	37-42 kt N	€22-25 million	1-2%	0.4-0.8 kt N	€0.9-2 million	<i>We assume that about 70-80% of SN fertiliser blends sold are above the threshold. The remaining ingredients in the mix are assumed to have the same unit value by weight. Blends above the threshold are assumed to have an average concentration level of 10% N (about 61% SN), blends below the threshold 6% N (about 36% SN).</i>
<i>Fertiliser blends $<8\%$ N</i>	11-16 kt N	€6-9 million	10-20%	1-3 kt N	€4-12 million	
Food preservative (100%)	0.5 kt N	€0.3 million	3-5%	0.015-0.025 kt N	€1-3.5 million	Maximum 1 kt N of SN and PN combined is used as food preservative (PNA data). It is assumed that SN counts for half of it and that 3% or maximum 5% is sold to the general public. Retail prices may vary from €10 to 25 per kg of 100% SN (0.165 kg N).
Potassium nitrate	350 kt N	€245 million		8-22 kt N	€30-83 million	Net import (ComExt) is about 345 kt N in a value of 231.9 million euro. EFMA estimates consumption at 355 kt N, PNA at 346 kt N.
Component in mixtures	298 kt N	€208 million		8-22 kt N	€29-79 million	About 85% of the PN is used as fertiliser (PNA estimate). Ceramic, metal and photovoltaic

Precursor Most significant consumer products	Estimated market size of base chemical		Estimated proportion sold to general public	Estimated volume of consumer products	Estimated value of consumer products ²⁹	Comments
	Volume	Value (producer price)				
<i>Fertiliser blends >=8% N</i>	238 kt N	€166 million	1-2%	2-5 kt N	€5-11 million	industries together account for cca. 10% of total consumption. We assume that ca. 70-80% of PN fertiliser blends sold are above the threshold. The remaining ingredients in the mix are assumed to have the same unit value by weight. Blends above the threshold are assumed to have an average concentration level of 10% N (about 72% PN), blends below the threshold 6% N (about 43% PN).
<i>Fertiliser blends <8% N</i>	60 kt N	€42 million	10-20%	6-18 kt N	€23-70 million	
Food preservative (100%)	0.5 kt N	€0.4 million	3-5%	0.015-0.025 kt N	€1-3.5 million	Maximum 1 kt N of SN and PN combined is used as food preservative (PNA data). It is assumed that PN counts for half of it and that 3% or maximum 5% is sold to the general public. Retail prices may vary from €10 to 25 per kg of 100% PN (0.139 kg N).
Calcium nitrate	282 kt N	€ 226 million		6-17 kt N	€31-85 million	
Component in mixtures	225 kt N	€181 million		6-17 kt N	€31-85 million	Based on Prodcorn data. We assume that 80% of calcium nitrate is used as fertiliser. This does not contain the double salt of calcium nitrate and ammonium nitrate.
<i>Fertiliser blends >=8% N</i>	158-180 kt N	€127-145 million	1-2%	2-4 kt N	€5-12 million	We assume that about 70-80% of CN fertiliser blends sold are above the threshold. The remaining ingredients in the mix are assumed to have the same unit value by weight. Blends above the threshold are assumed to have an average concentration level of 10% N (about 59% CN), blends below the threshold 6% N (about 35% CN).
<i>Fertiliser blends <8% N</i>	45-68 kt N	€36-54 million	10-20%	4-14 kt N	€25-75 million	
Hydrogen peroxide	1,000 kt	€700		11-18 kt	€1,750-2,900	Volume based on SCP report estimate and

Precursor Most significant consumer products	Estimated market size of base chemical		Estimated proportion sold to general public	Estimated volume of consumer products	Estimated value of consumer products ²⁹	Comments
	Volume	Value (producer price)				
	H ₂ O ₂	million		H ₂ O ₂	million	PRODCOM unit value data. This figure includes about 30% captive use (i.e. own consumption in chemical industry). The H ₂ O ₂ sector group estimates that from the remaining 70% of consumption, 50% go to pulp bleaching, 10% to manufacturing of chemical products. 2.5% is used in professional textile bleaching, 2.5% in waste water treatment and similar, and 5% miscellaneous (bleaching in food industry, manufacture of pharmaceuticals, personal and household disinfectants, cleaning and bleaching products, drain and greenhouse pipe cleaners, aseptic packaging).
Hair and tooth bleaching products	10 kt H ₂ O ₂	€7 million		55-85 kt (4-7 kt H ₂ O ₂)	€1,085-1,720 million	According to information from the sector group, hair bleaching product constitute a significant part of the miscellaneous category. We estimate it to be around 1% of total use.
>=12% H ₂ O ₂	1-2 kt H ₂ O ₂	€0.7-1.4 million	10-20%	0.7-2.7 kt (0.1-0.4 kt H ₂ O ₂)	€13-53 million	<i>Hair dying consumer products are normally sold in concentrations of 5-10% but there are some which are above this threshold. We estimate 80-90% are below threshold, with average concentration level of 7.5% and 10-20% above with average concentration level of 15%.</i>
<12% H ₂ O ₂	8-9 kt H ₂ O ₂	€5.6-6.3 million	50-70%	53-84 kt (4-6 kt H ₂ O ₂)	€1,070-1,680 million	<i>We assume the majority (80-90%) of the higher concentration products are bought by professional hairdressers and 30-50% of the lower concentration products. The "mystery shopping" exercise identified unit prices of €10-40/kg (not conditional to concentration level). We calculate with an average of €20/kg.</i> <i>For comparison, under PRODCOM code 20421700, sales from domestic production of 'Hair</i>

Precursor Most significant consumer products	Estimated market size of base chemical		Estimated proportion sold to general public	Estimated volume of consumer products	Estimated value of consumer products ²⁹	Comments
	Volume	Value (producer price)				
						<i>preparations (excluding shampoos, permanent waving and hair straightening preparations, lacquers)' sum up to €2,385 million (wider group and at producer price).</i>
Household textile bleaching products ($\geq 12\%$ H_2O_2)	5 kt H_2O_2	€3.5 million	60-80%	9-11 kt (3-4 kt H_2O_2)	€86-114 million	These concern products intended for household (or small-scale professional) use and are normally strong, up to 35% concentration level. Estimated at 0.5% of total H_2O_2 consumption. We assume households consume 60-80% of it. The unit price is estimated at €10/kg.
Household cleaning products (drain cleaner, dishwashing detergents etc.) $\geq 12\%$ H_2O_2 $< 12\%$ H_2O_2	5 kt H_2O_2	€3.5 million	50-70%	44-74 kt (3-4 kt H_2O_2)	€442-743 million	We estimate use to be around 0.5% of total H_2O_2 consumption.
	1-2.5 kt H_2O_2	€0.7-1.8 million		2-6 kt (0.5-2 kt H_2O_2)	€17-58 million	<i>Many of these strong detergents (ca. 20-50%) are above the 12% threshold. Average concentration level is estimated to be ca. 30% above and 5% below threshold. We assume 50-70% of above- and 80-90% of the below-threshold products is bought by households (the rest by caterers etc.). We assume an average product price of €10/kg, based on "mystery shopping".</i>
	2.5-4 kt H_2O_2	€1.8-2.8 million	80-90%	40-72 kt (2-4 kt H_2O_2)	€400-720 million	
Pool and fish tank disinfectants ($\geq 12\%$ H_2O_2)	5 kt H_2O_2	€3.5 million	10-30%	1.5-4 kt (0.5-1.5 kt H_2O_2)	€10-30 million	Estimated at 0.5% of total H_2O_2 consumption. These products are normally sold in concentrations of 35% (but can be more). It is not widely used in the EU by households (but popular e.g. in France). We estimate use by general public at 10-30% and unit price (based on "mystery shopping" results) at 7 €/kg.
Pharmaceutical products, creams and antiseptic solutions ($< 12\%$ H_2O_2)	10 kt H_2O_2	€7 million	5-10%	10-20 kt (0.5-1 kt H_2O_2)	€150-300 million	Antiseptic solutions include mouth, wound, contact lens disinfectants. Estimated at 1% of total H_2O_2 consumption. Concentrations are low, usually around 3-7% (assumed average 5%). Most

Precursor Most significant consumer products	Estimated market size of base chemical		Estimated proportion sold to general public	Estimated volume of consumer products	Estimated value of consumer products ²⁹	Comments
	Volume	Value (producer price)				
						pharma products are formulated but the general public can have access to diluted HP as wound, mouth or contact lens disinfectant. This may account to one tenth of use in this category. Based on our price review the estimated average price is set at €15/kg.
Acetone	1,350 kt	€965 million			Multiple billion euros	A notable proportion (5-10%) of acetone consumed in the EU is available to household users through a wide variety of products (although only low concentrations in some). Most significant of these are probably nail polish removers and other cosmetic solvents, as well as household cleaning products and solvents.
Nail polish removers, cosmetic solvents, household cleaning products, solvents (superglue remover) and other consumer products	101 kt	€72 million				It is not possible to dimension the volume and value of consumer products that contain acetone. The products in question have huge, multi-billion markets and the concentration level of acetone contained in them strongly varies. We assume 5-10% of all acetone in the EU is sold to general households directly or used to produce consumer products.
Nitromethane	100 kt	€350 million		5-10 kt	€ 55-110 million	It is estimated that only about 5-10 kt nitromethane is consumed by the general public, predominantly as racing fuel (another, more restricted use is as amateur rocket propellant). Some of the fuel is sold as additive (e.g. to add to methanol), some already in a ready-to-use mixture. Internet search pointed to price ranges for retail nitromethane fuel between 7-12 €/kg (in the "mystery shopping" exercise, we identified a
Racing car fuel ('top fuel' for nitro-engines)				5-10 kt	€ 55-110 million	

Precursor Most significant consumer products	Estimated market size of base chemical		Estimated proportion sold to general public	Estimated volume of consumer products	Estimated value of consumer products ²⁹	Comments
	Volume	Value (producer price)				
>=30%				3-8 kt	€33-88 million	product for 11 €/kg – taken as an average price). <i>No information is available on the breakdown by concentration level. We assume 50-80% nitromethane is sold above the proposed 30/40% threshold (we have found products in 50-70% concentration, and often the pure form as an additive).</i>
<30%				1.5-5 kt	€22-55 million	
Hexamine	40 kt	€36 million		0.1-0.3 kt	€3-9 million (€110-220 mn)	
Solid fuel tablets	0.4-0.8 kt	€0.36-0.72 million	25-40%	0.1-0.3 kt	€3-9 million (with linked products: €110-220 mn)	Around 1-2% of hexamine is sold as solid fuel tablets (measured in volume), the majority of which is sold to military and international organisations as field ration. Less than 1% of hexamine is available to the general public, nearly exclusively in the form of solid fuel tablets (Esbit is the market leader in Europe with an estimated sales of 0.03-0.04 kt to the general public). The overall volume was estimated at 0.1-0.3 kt. Our "mystery shopping" exercise has identified cheaper products for about €10/kg and more expensive ones for €30-50/kg. We calculate with an average retail price of €30/kg. A range of consumer products depend on hexamine fuel tablets which can not or not easily substituted with other fuels (e.g. paraffin). Annual sales of stoves, coffee-makers and other outdoor equipment may account for an additional €3-9 million. The value of model engines at households and schools rendered useless may reach the range of ca. €100-200 mn.

Precursor Most significant consumer products	Estimated market size of base chemical		Estimated proportion sold to general public	Estimated volume of consumer products	Estimated value of consumer products ²⁹	Comments
	Volume	Value (producer price)				
Nitric acid	800 kt N	€288 million		110-150 kt (3.5-3.7 kt N)	€550-800 million	
Domestic solvents, household detergents (included in drain cleaners etc.), pH adjusters for fish tanks	4 kt N	€1.4 million		110-150 kt (3.5-3.7 kt N)	€550-800 million	Nitric acid is very widely used in industry, household use in comparison is very low, below 1%. We assume a share of 0.5%. <i>In the "mystery shopping" exercise we found that household cleaning products above the proposed 30% concentration threshold – some in near pure form – are widely available (average concentration level: 50%). We assume they account for ca. 10- 30% of all household sale of nitric acid. In the majority of consumer and hobby goods NA is only a less significant component and has an average concentration of about 10%. The conversion factor between kt and kt N is 0.2233.</i> <i>We assume that 70-80-90% of these products is bought by the general public.</i> <i>We identified a price range of about 6-22 €/kg (average: 15 €/kg) for the concentrated products. General domestic cleaning products may cost less, about €5/kg.</i>
>=30%	0.4-1.2 kt N	€0.1-0.4 million	70-80%	2.5-9 kt (0.3-1 kt N)	€38-130 million	
<30%	2.8-3.6 kt N	€1-1.3 million	80-90%	100-146 kt (2-3 kt N)	€500-730 million	
Sulphuric acid	7,150 kt SO₂	€ 515 million		30 kt SO₂	€1,680-2,570 million	We estimate that about 0.5% of sulphuric acid is used in households as strong solvents/detergents.
Domestic solvents, household detergents (included in drain cleaners etc.), pH adjusters for fish tanks	36 kt N	€2.63 million		330-460 kt (28-32 kt SO ₂)	€1,650-2,500 million	Household use of SA is estimated to be below 1%. We assume a share of 0.5%.

Precursor Most significant consumer products	Estimated market size of base chemical		Estimated proportion sold to general public	Estimated volume of consumer products	Estimated value of consumer products ²⁹	Comments
	Volume	Value (producer price)				
>=50%	4-11 kt N	€0.3-0.8 million	70-80%	6-22 kt (2.5-9 kt SO ₂)	€90-330 million	The mystery shoppers found many products above the proposed 50% concentration threshold (average concentration level set at 60%). These are estimated to account to ca. 10-30% of sales to the general public. SA below the threshold (cleaning products) has an average concentration level of ca. 10%. The conversion factor between kt and kt N is 0.6532. We assume that 70-80-90% of these products is bought by the general public. We identified a price range of about 5-25 €/kg (average: 15 €/kg) for the concentrated products. General domestic cleaning products may cost less, about €5/kg.
<50%	25-32 kt N	€1.8-2.4 million	80-90%	310-450 kt (20-29 kt SO ₂)	€1,550-2,250 million	
Lead-acid batteries	-	-	-	5-10 kt (1.2-2.4 kt SO ₂)	€35-70 million	Lead-acid batteries are widely used in vehicles and industrial facilities. The general public uses them mostly in private cars and other motor vehicles (there are other rare household applications as well). These batteries normally contain somewhere around 2 to 4 litres (average: 3) of electrolyte solution (often a mix of 33.5% sulphuric acid and distilled water, about 4 kg). Eurostat reports that the number of cars in the EU27 was 466 per 1,000 in 2006 (about 233 million in total). If all of these cars were private and all had SA-containing batteries, this would effect an existing stock of about 930 kt electrolyte, and 325 kt SA (corresponding to ca. 231 kt SO₂ (conversion factor 0.6532). However, this has to be rarely replaced and if so, then in a car mechanic workshop by professionals.

Precursor Most significant consumer products	Estimated market size of base chemical		Estimated proportion sold to general public	Estimated volume of consumer products	Estimated value of consumer products ²⁹	Comments
	Volume	Value (producer price)				
						We calculate with an annual general public consumption of 5-10 kt of electrolyte. Prices for refill battery acid are in the magnitude of 5-10 €/kg (assumption: 7 €/kg).
Hydrochloric acid	2,750 kt HCl	€ 228 million		79-107 kt (10-12 kt HCl)	€350-520 million	
Domestic solvents, household detergents (included in drain cleaners etc.), pH adjusters for fish tanks	13.8 kt HCl	€ 1.14 million		79-107 kt (10-12 kt HCl)	€350-520 million	The use of hydrochloric acid in households has been estimated to be around 0.5% of total EU consumption.
>=20%	2.8-5.5 kt HCl	€0.2-0.5 million	70-80%	6-15 kt (2-4 kt HCl)	€16-37 million	A wide range of products above the proposed 20% concentration threshold – or in pure form – are available for the general public (average concentration level: 30%). They may account for ca. 20-40% of all household sale of HCl acid. Below the threshold, the average concentration is set at 10%. We assume that 70-80-90% of these products is bought by the general public. The normal price range for HCl acid is between 1-4 €/kg (average: 2.5 €/kg) for concentrated products. General domestic cleaning products may cost on average about €5/kg.
<20%	8-11 kt HCl	€0.7-0.9 million	80-90%	66-99 kt (7-10 kt HCl)	€330-500 million	
Chlorates and perchlorates	PC+PPC 30 kt SC 100 kt SPC 5 kt	€65 million		Minimal	Minimal	Pyrotechnics have been identified as the only significant household use for chlorates and perchlorates (sodium chlorate is now banned as a pesticide). This product group has however been omitted from the scope of the measures envisaged

Precursor Most significant consumer products	Estimated market size of base chemical		Estimated proportion sold to general public	Estimated volume of consumer products	Estimated value of consumer products ²⁹	Comments
	Volume	Value (producer price)				
Specialty products	Minimal	Minimal		Minimal	Minimal	as access by the general public is already regulated. Only a very little market seems to exist for specialty products, such as home-made model rocket propellants.

Table 8.3 Estimated volume and value of products sold to the general public (by thresholds)

Precursor (threshold %)	Estimated volume of consumer products			Estimated value of consumer products		
	Total	Above threshold	Below threshold	Total	Above threshold	Below threshold
Ammonium nitrate (fertiliser) (16% N from AN)	44-100 kt N	25-57 kt N	17-48 kt N	€380-530 million	€26-59 million	€350-480 million
High-concentration AN-fertilisers	20-40 kt N	20-40 kt N	-	€13-26 million	€13-26 million	-
Component in mixtures	19-54 kt N	5-17 kt N	12-42 kt N	€52-160 million	€10-33 million	€38-132 million
Component in retail fertilisers: tablets or similar	164-185 kt (5.4-6 kt N from AN)	-	164-185 kt (5.4-6 kt N from AN)	€310-350 million	-	€310-350 million
Sodium nitrate (8% N from nitrate)	1.5-4 kt N	0.4-0.8 kt N	1-3 kt N	€6-18 million	€2-5.5 million	€4-12 million
Component in mixtures	1.5-4 kt N	0.4-0.8 kt N	1-3 kt N	€5-14 million	€0.9-2 million	€4-12 million
Food preservative (100%)	0.015-0.025 kt N	0.015-0.025 kt N		€1-3.5 million	€1-3.5 million	
Potassium nitrate (8% N from nitrate)	8-22 kt N	2-5 kt N	6-18 kt N	€30-83 million	€6-15 million	€23-70 million
Component in mixtures	8-22 kt N	2-5 kt N	6-18 kt N	€29-79 million	€5-11 million	€23-70 million
Food preservative (100%)	0.015-0.025 kt N	0.015-0.025 kt N		€1-3.5 million	€1-3.5 million	
Calcium nitrate (8% N from nitrate)	6-17 kt N	2-4 kt N	4-14 kt N	€31-85 million	€5-12 million	€25-75 million
Component in mixtures and CN AN double salt	6-17 kt N	2-4 kt N	4-14 kt N	€31-85 million	€5-12 million	€25-75 million
Hydrogen peroxide (12% H₂O₂)	11-18 kt H₂O₂	4-8 kt H₂O₂	6-11 kt H₂O₂	€1,750-2,900 million	€130-250 million	€1,650-2,700 million
Hair and tooth bleaching products	55-85 kt (4-7 kt H ₂ O ₂)	0.7-2.7 kt (0.1-0.4 kt H ₂ O ₂)	53-84 kt (4-6 kt H ₂ O ₂)	€1,085-1,720 million	€13-53 million	€1,070-1,680 million
Household textile bleaching products	9-11 kt (3-4 kt	9-11 kt (3-4 kt	-	€86-114 million	€86-114 million	-

Precursor (threshold %)	Estimated volume of consumer products			Estimated value of consumer products		
	Total	Above threshold	Below threshold	Total	Above threshold	Below threshold
	H ₂ O ₂)	H ₂ O ₂)				
Household cleaning products (drain cleaner, dishwashing detergents etc.)	44-74 kt (3-4 kt H ₂ O ₂)	2-6 kt (0.5-2 kt H ₂ O ₂)	40-72 kt (2-4 kt H ₂ O ₂)	€442-743 million	€17-58 million	€400-720 million
Pool and fish tank disinfectants	1.5-4 kt (0.5-1.5 kt H ₂ O ₂)	1.5-4 kt (0.5-1.5 kt H ₂ O ₂)	-	€10-30 million	€10-30 million	-
Pharmaceutical products, creams and antiseptic solutions	10-20 kt (0.5-1 kt H ₂ O ₂)	-	10-20 kt (0.5-1 kt H ₂ O ₂)	€150-300 million	-	€150-300 million
Acetone	N/A	N/A	N/A	Multiple billion euros	Multiple billion euros	Multiple billion euros
Nail polish removers, cosmetic solvents, household cleaning products, solvents (superglue remover) and other consumer products	N/A	N/A	N/A	Multiple billion euros	Multiple billion euros	Multiple billion euros
Nitromethane (30%)	5-10 kt	3-8 kt	1.5-5 kt	€ 55-110 million	€33-88 million	€22-55 million
Racing car fuel ('top fuel' for nitro-engines)	5-10 kt	3-8 kt	1.5-5 kt	€ 55-110 million	€33-88 million	€22-55 million
Hexamine	0.1-0.3 kt	0.1-0.3 kt	-	€3-9 million (with linked products: €110-220 mn)	€3-9 million (€110-220 mn)	-
Solid fuel tablets (consumer market)	0.1-0.3 kt	0.1-0.3 kt	-	€3-9 million (with linked products: €110-220 mn)	€3-9 million (€110-220 mn)	-
Nitric acid (30%)	110-150 kt (3.5-3.7 kt N)	2.5-9 kt (0.3-1 kt N)	100-146 kt (2-3 kt N)	€550-800 million	€38-130 million	€500-730 million
Domestic solvents,	110-150 kt	2.5-9 kt	100-146 kt	€550-800	€38-130	€500-730

Precursor (threshold %)	Estimated volume of consumer products			Estimated value of consumer products		
	Total	Above threshold	Below threshold	Total	Above threshold	Below threshold
household detergents (included in drain cleaners etc.), pH adjusters for fish tanks	(3.5-3.7 kt N)	(0.3-1 kt N)	(2-3 kt N)	million	million	million
Sulphuric acid (50%)	30 kt SO₂	6-22 kt (2.5-9 kt SO₂)	315-460 kt (21-31 kt SO₂)	€1,680-2,570 million	€90-330 million	€1,580-2,320 million
Domestic solvents, household detergents (included in drain cleaners etc.), pH adjusters for fish tanks	330-460 kt (28-32 kt SO ₂)	6-22 kt (2.5-9 kt SO ₂)	310-450 kt (20-29 kt SO ₂)	€1,650-2,500 million	€90-330 million	€1,550-2,250 million
Lead-acid batteries	5-10 kt (1.2-2.4 kt SO ₂)	-	5-10 kt (1.2-2.4 kt SO ₂)	€35-70 million	-	€35-70 million
Hydrochloric acid (20%)	79-107 kt (10-12 kt HCl)	6-15 kt (2-4 kt HCl)	66-99 kt (7-10 kt HCl)	€350-520 million	€16-37 million	€330-500 million
Domestic solvents, household detergents (included in drain cleaners etc.), pH adjusters for fish tanks	79-107 kt (10-12 kt HCl)	6-15 kt (2-4 kt HCl)	66-99 kt (7-10 kt HCl)	€350-520 million	€16-37 million	€330-500 million
Chlorates and perchlorates (40%)	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
Specialty products	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
TOTAL	-	-	-	€5,000-7,800 million	€450-1,150 million	€4,500-7,000 million

ANNEX 9: DETAILED ASSESSMENT TABLES FOR EACH POLICY OPTION: GENERAL ASSESSMENT

In the tables below, several of the assessment criteria are accompanied by a ‘rating’, which ‘scores’ the policy options from -3 (very negative impact) to +3 (very positive impact). The explanations for the ratings are elaborated in the respective assessment of each criterion. These ratings compare the policy options with the status quo option.

POLICY OPTION 0 – STATUS QUO	Rating of Anticipated impact effectiveness	General assessment <i>Explanation of rating and aspects of the policy option necessary to achieve positive impacts</i>
Overall considerations to dimension the Policy option		
No changes to the current situation will be made. All effects have been rated as ‘0’. The problems that have been identified in section 2 will continue to exist. Given that the effects identified are highly similar for all precursor groups, no precursor-specific assessments have been provided.		
Assessment of achievement of the policy objectives		
1.1 To restrict access to certain precursors by the general public	0	The general public will continue to have access to precursors. In at least five Member States such access is either restricted or controlled through legislative measures (DK, DE, IE, NL, UK). Voluntary industrial action will also continue
1.2 To reduce the reliability and potency of ‘home made’ explosives or components manufactured for malicious or criminal purposes	0	The general public will continue to have access to high concentrations of precursors. Terrorists will continue to make use of chemicals to produce homemade explosives and improvised explosive devices. In the past few years nearly 50 attacks were carried out, failed or were prevented from happening.
1.3 To enhance the security and awareness of the entire supply chain of precursors	0	Little changes will occur. Existing EU and national measures will make a further contribution to awareness and security levels. However, such measures will by no means cover all precursors or all industrial stakeholders.
1.4 To prevent terrorists and other criminals from making use of lower control levels and fewer restrictions on chemicals in some countries	0	Under the Status Quo, all current differences in the restriction and control levels in the EU will continue to exist. This means that terrorists, to obtain higher quantities or higher concentrations of a certain precursors, can ‘select’ the countries in which such purchases are least likely to raise any suspicions.
Assessment of economic impacts		
Impacts on administrative costs for business and authorities	0	No impacts on administrative costs for businesses and authorities other than those already occurring.
Compliance costs for business and authorities	0	No compliance costs for businesses and authorities other than those in Member State which already have, in particular legislative, measures in place.
Economic impacts	0	No additional economic impacts. The current economic crisis is likely to negative affect the entire chemical supply chain.
Article 16 Freedom to	No change to the existing situation.	

conduct a business		
Article 17 Right to property	No change to the existing situation.	
Assessment of social impacts		
Impacts on labour market	0	No effects, other than those already occurring as a result of relevant measures in place in some Member States and those generated by the economic crisis overall.
Impacts on public health	0	Terrorist attacks will contribute to casualties and to the perception of insecurity by the general public. Other EU developments may help to prevent, detect and respond to terrorist attacks.
Other impacts	0	No change to the existing situation.
Article 8 Protection of personal data	No change to the existing situation.	
Article 21 Non-discrimination	No change to the existing situation.	
Assessment of environmental impacts		
	0	No change to the existing situation.
Considerations on feasibility and subsidiarity		
Key risks, uncertainties, political and technical feasibility and necessary preconditions to achieve impacts.	0	No change to the existing situation.
EU added value	Further developments in EU policy, for example as part of the Action Plan on the Security of Explosives, both part of the wider EU strategy to combat terrorism will be taken forward.	
Need for changes in Community legislation	No need for changes to Community legislation.	
Issues raised by Member States and stakeholders	Stakeholder consultation has shown that there is overall consensus on the need to restrict and control access to precursors. Most were hence not in favour of the Status Quo.	
Summary of main strengths and weaknesses		
Under the Status Quo, the risk of terrorist attacks using IEDs / HMEs will continue to exist, with the likelihood of such incidents increasing in frequency and / or lethality. The level of awareness and security of the chemical supply chain may slightly increase as a result of current and upcoming international, EU and national measures, but terrorists would continue to make use of lower restrictions and control standards in other countries. The Status Quo will have no economic effects other than those already occurring. Social effects could be negative, as a result of casualties caused by terrorist incidents and an increased perception of insecurity. The Status Quo was not supported by the stakeholders consulted as part of the study. In fact, most considered that there was a strong rationale for action at EU level and agreed on the need to control and restrict access to precursors.		

POLICY OPTION 1 – A total ban on sales of the substances to members of the general public, irrespective of concentration levels.	Rating of Anticipated impact effectiveness	General assessment <i>Explanation of rating and aspects of the policy option necessary to achieve positive impacts</i>
Overall considerations to dimension the Policy option		
The policy option would imply that all selected precursors, either in their pure form or in any products, would		

POLICY OPTION 1 – A total ban on sales of the substances to members of the general public, irrespective of concentration levels.	Rating of Anticipated impact effectiveness	General assessment <i>Explanation of rating and aspects of the policy option necessary to achieve positive impacts</i>
no longer be available to the general public (i.e. consumers, household users). Manufacturing of certain products for the consumer market and sales of the substances to the general public will no longer be allowed. Possibly the possession of the substances by the general public could also be forbidden. It would require a judgement as to when a product should be banned.		
Assessment of achievement of the policy objectives		
1.1 To restrict access to certain precursors by the general public	+3	It will be impossible for the general public to purchase certain precursors through retail (and other downstream) channels in the EU. It may still be possible to obtain the chemical substances through downstream seller channels (e.g. under false pretences as a company or “opportunistic” sales by the latter) or through other illegal approaches (e.g. theft).
1.2 To reduce the reliability and potency of ‘home made’ explosives or components manufactured for malicious or criminal purposes	+2	The policy option would make it very difficult for persons to access the precursors most often used for making HMEs or IEDs. There is a potential displacement effect (e.g. greater attention to other chemicals that can also serve to produce improvised explosive devices and which are still available on the consumer market).
1.3 To enhance the security and awareness of the entire supply chain of precursors	+1	The ban, which will raise a high level of attention, is likely to make other supply chain stakeholders also aware of the potential risks when trading such chemicals between professional users.
1.4 To prevent terrorists and other criminals from making use of lower control levels and fewer restrictions on chemicals in some countries	+2	The ban would be EU wide, meaning that terrorist and other criminals would no longer be able to purchase the chemical substances through retail and other downstream channels in the EU. If possession of the substance is not rendered illegal, then precursors could also be purchased from sellers in third countries (also through the internet).
Assessment of economic impacts		
Impacts on administrative costs for business and authorities	-3	Given the importance of compliance, implementation of the restrictions will involve administrative costs to businesses. These are estimated to range from €80-126 million per annum; and a one-off cost of €40-63. They cover providing information for their prospective buyers, providing proof of legitimate professional use, registry keeping, collecting and checking reports.
Compliance costs for business and authorities	-3	Compliance costs to business are estimated to be between 120-189 million euro per annum, and a one-off cost of 80-126 million euro. A ban would involve a sophisticated mechanism identifying the products to be restricted, exemptions, the circle of economic actors affected, control of imports and related market surveillance activities etc.
Economic impacts	-3	Overall, consumer products with an estimated total value ranging from 5,000 to 7,800 million euros (not counting acetone-containing products, themselves worth an additional several billion euros) will be banned from the market. Businesses selling to the general public will have to withdraw products intended for

POLICY OPTION 1 – A total ban on sales of the substances to members of the general public, irrespective of concentration levels.	Rating of Anticipated impact effectiveness	General assessment
		Explanation of rating and aspects of the policy option necessary to achieve positive impacts
		non-professional consumers from the market (restricting their business), replacing the precursors with alternatives It is estimated that the consumer surplus lost will amount to some €1,800-2,900 million per year and businesses will lose profit of about €1,500-2,400 million per year.
Article 16 Freedom to conduct a business	Businesses which highly depend on the production and sale of the precursors to the general public will suffer and may need to cease activities or downscale. The ban therefore could therefore, to some extent, restrict the freedom to conduct a business. In order to alleviate these effects, a ‘phasing out’ period could be established.	
Article 17 Right to property	As highlighted above, the policy option would leave companies with a large stock of produced goods which would need to be destroyed, dependant on possible transitional measures.	
Assessment of social impacts		
Impacts on labour market	-1	The ban would effectively remove a myriad of products from the consumer market. This may lead to some businesses, e.g. retailers having to cease their activities and the related loss of jobs. Some (mainly short-term) new employment opportunities within public authorities, control and enforcement agencies, etc.
Impacts on public health	+1	Some increased perception of safety and possibly a reduction in loss of lives.
Other impacts	-2	A high level of inconvenience and some social unrest, as consumers would no longer have access to a range of products.
Article 8 Protection of personal data	No effect	
Article 21 Non-discrimination	No effect	
Assessment of environmental impacts		
	0	Neutral effect.
Considerations on feasibility and subsidiarity		
Key risks, uncertainties, political and technical feasibility and necessary preconditions to achieve impacts.	-2	While a ban on the precursors is technically feasible for all chemicals, for most of them such measure would have serious negative consequences, both in terms of economic and social effects, as most chemicals are widely used and many cannot be fully replaced.
EU added value and rationale	The introduction of a ban in one or more Member States would only lead to distortion of the internal market and persons still purchasing the chemicals in other countries. The political feasibility of this Policy option is very low. None of the Member States have similar measures in place at present and most were strongly against any kind of ban.	
Need for changes in Community legislation	A ban would require a legislative instrument, as well as a mechanism or and process, similar to what already happens in the health and environmental safety areas (for example, the authorisation system part of REACH and its annexes), to select those products that should be banned and those which should be exempted from such restrictions.	
Issues raised by Member States and stakeholders	None of the Member States and industrial stakeholders consulted as part of the study considered this an acceptable Policy option. The businesses which took part in the survey considered policy option 1 the most ‘negative’ measure.	

POLICY OPTION 1 – A total ban on sales of the substances to members of the general public, irrespective of concentration levels.	Rating of Anticipated impact effectiveness	General assessment <i>Explanation of rating and aspects of the policy option necessary to achieve positive impacts</i>
Summary of main strengths and weaknesses		
The Policy option has the highest score on achieving the policy objectives, but its feasibility and acceptability are among the lowest levels. In addition, some negative social effects and potential tension with fundamental rights have been identified; it is questionable, in particular, whether a total ban on sales to members of the general public could be considered compatible with the principle of proportionality		

POLICY OPTION 2 – A ban on sales of the substances in all concentrations and quantities over the internet	Rating of Anticipated impact effectiveness	General assessment <i>Explanation of rating and aspects of the policy option necessary to achieve positive impacts</i>
Overall considerations to dimension the Policy option		
The Policy option would ban all sales to the general public made over the internet. The share of internet sales (against sales on business premises, i.e. physical shops) of the precursor groups is relatively common for some chemical products (e.g. fertilisers, hydrogen peroxide, acetone, hexamine fuel tablets, etc); While internet sales of others are less frequent (e.g. chlorates and perchlorates). Overall e-commerce statistics show that it is a sales channel which is increasing in volume every year. From 2006 to 2008, the share of all EU consumers who have bought at least one item over the internet has increased significantly (from 27% to 33%) While cross border e-commerce is stable (6% to 7%) ³⁰ . The share of internet sales in the retail sector varies greatly by type of seller. DIY shops, for example, who sell large shares of the precursor groups addressed by the Policy option, are still behind other types of sellers when it comes to offering products online (even though this sales channel is on the rise). Overall, It is assumed that on average, only about 0.5% of the goods in question is sold online when sales to the general public is concerned. This share would be banned under this policy option. As for Policy option 1 which proposes a ban on all sales, Policy option 2 also entails a judgement as to when a product should be banned from internet sales.		
Assessment of achievement of the policy objectives		
1.1 To restrict access to certain precursors by the general public	+1	One sales channel would be restricted to the general public, but all other sales channels would still be open. For some chemical substances, the ban on internet sales would hamper access more (e.g. beauty products including hydrogen peroxide or acetone) than for others.
1.2 To reduce the reliability and potency of ‘home made’ explosives or components manufactured for malicious or criminal purposes	0	While the ban on internet sales may have a slightly deterrent effect, terrorists and other criminals determined to by the chemical substances will simply turn to other sales channels.
1.3 To enhance the security and awareness of the	+1	A total ban of internet sales would at least raise awareness of online retailers and other downstream sellers on security issues in relation to the products they trade in.

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Special Eurobarometer 298, October 2008

POLICY OPTION 2 – A ban on sales of the substances in all concentrations and quantities over the internet	Rating of Anticipated impact effectiveness	General assessment
		Explanation of rating and aspects of the policy option necessary to achieve positive impacts
entire supply chain of precursors		
1.4 To prevent terrorists and other criminals from making use of lower control levels and fewer restrictions on chemicals in some countries	0 to +1	An EU level playing field would be created for internet sales of the precursor groups, while leaving business premise and other distance sales unaffected. This means that terrorists and other criminals can still benefit from lower control levels and fewer restrictions in some countries.
Assessment of economic impacts		
Impacts on administrative costs for business and authorities	-1	Internet retailers will face a range of administrative costs. Depending on national implementation, they will be most probably obliged to provide information for visitors/prospective buyers on the restrictions in their standard terms and elsewhere on the website. Estimated cost to business: €20-32 million per annum and an additional €40-63 million one-off cost. Public authorities might have to keep a register of specialised Internet sellers and collect and compile reports from vendors.
Compliance costs for business and authorities	-1	Businesses with Internet retail activities (including producers, general and specialist retailers) will have to cease selling all restricted products B2C. This might affect a huge range of products. Estimated cost to business: €40-63 million per annum, and an additional €40-63 million one-off cost.
Economic impacts	-1	It is estimated that about 24-38 million euro million euro worth of consumer products currently sold online will be affected. Merchants (and eventually producers) engaged in Internet sales to the general public will lose part of their revenues. Businesses might expect a loss of profit of only about €12-38 million altogether. Consumer surplus of about €8-13 million.
Article 16 Freedom to conduct a business	Those who exclusively sell online or those who depend to a high extent on internet sales are significantly affected. Their specific freedom to conduct that type of business / to use that type of sales channel would be affected. This effect could be partly remediated by a ‘phasing out’ period.	
Article 17 Right to property	The policy option would close one sales channel. Companies depending on this channel will have to deal with their stock.	
Assessment of social impacts		
Impacts on labour market	-1	The ban would effectively remove a myriad of products from the online consumer market. This may lead to some online retailers having to cease their activities and the related loss of jobs. Public authorities may need, initially, need more human resources to prepare for the internet ban, but this would be a short-term effect.
Impacts on public health	0	No effect.
Other impacts	-1	Some negative impact as for a range of products, consumers will have to travel to business premises. This causes high inconvenience for less mobile consumers and those living in remote areas.
Article 8 Protection of personal data	Enforcement agencies will need to control transactions (as well as the details of buyers and sellers) in order to enforce the internet ban. This would necessarily imply the collection and processing of personal data. To be lawful, this processing shall comply with national data protection laws implementing EU data protection law. (e.g.	

POLICY OPTION 2 – A ban on sales of the substances in all concentrations and quantities over the internet	Rating of Anticipated impact effectiveness	General assessment
		Explanation of rating and aspects of the policy option necessary to achieve positive impacts
	Directive 95/46/EC).	
Article 21 Non-discrimination	Less mobile consumers and those living in remote locations would suffer higher levels of inconvenience.	
Assessment of environmental impacts		
	0	Neutral effect.
Considerations on feasibility and subsidiarity		
Key risks, uncertainties, political and technical feasibility and necessary preconditions to achieve impacts.	-3	The implementation of a ban on internet sales would be technically unfeasible, especially because the products could still be purchased through other sales channels or in third countries.
EU added value and rationale	The Policy option only bans a very specific sales channel, leaving it up to the Member States to regulate all other sales channels in line with existing EU legislation and their own priorities. This could still lead to internal market issues. Measures restricting internet transactions are impossible to implement without continuous monitoring and control. There is also a potential grey zone as to what constitutes an internet sales transaction.	
Need for changes in Community legislation	A ban would require a legislative decision, for example in the form of a regulation or directive. More importantly, a ban will require the creation of a mechanism and (continuous) process to select those products which would need to be banned and those which should be exempted from such restrictions. In addition, the ban on online sales would also require changes to existing EU legislation.	
Issues raised by Member States and stakeholders	While the majority of Member States considered a ban on internet sales desirable or at least potentially useful and effective, all countries consulted agreed that such a ban was technically unfeasible, would entail very high costs and would potentially have negative social consequences. Stakeholders during the workshop considered that if such a ban was applied, it would need to cover all forms of distance selling (e.g. mail orders) and not just the internet. Several mentioned that the internet was the only channel with a minimum form of control and hence far less likely to be used by terrorists to purchase precursors. Nearly a quarter (24%) of the respondents to the business survey considered that the policy option would lead to a reduction of sales.	
Summary of main strengths and weaknesses		
Banning the sales of the precursor groups via one sales channel only does not strongly contribute to the achievement of the policy objectives, as the products would still be available through other sales channels and from third country internet sellers. The ban on internet sales would overall have negative economic and social effects. The EU rationale for this type of measure is not very high. The Policy option is also deemed technically unfeasible, with many preconditions.		

POLICY OPTION 3 – A ban on sales to the general public if the substance is above a specific concentration level.	Rating of Anticipated impact effectiveness	General assessment <i>Explanation of rating and aspects of the policy option necessary to achieve positive impacts</i>
Overall considerations to dimension the Policy option		

POLICY OPTION 3 – A ban on sales to the general public if the substance is above a specific concentration level.	Rating of Anticipated impact effectiveness	General assessment <i>Explanation of rating and aspects of the policy option necessary to achieve positive impacts</i>
This Policy option would imply that the general public would not have access any longer to the selected precursors (or mixtures containing these precursors) above a pre-defined concentration level. ammonium nitrate: 16% N; alkali nitrates: 8%N; hydrogen peroxide: 12%; acetone: no threshold; nitromethane: 30%; hexamine: no threshold; nitric acid: 30%; sulphuric acid: 50%; hydrochloric acid: 20%; chlorates and perchlorates: 40%. ³¹		
Assessment of achievement of the policy objectives		
1.1 To restrict access to certain precursors by the general public	+2	The Policy option entail that the general public would still be able to buy the selected precursors (or products) with a lower concentration or at very similar but slightly lower concentration. However, an important number of products which are widely used and popular among consumers will no longer be accessible. While several of them can be replaced by alternatives, others require a high concentration of the selected precursors in order to keep their essential properties.
1.2 To reduce the reliability and potency of ‘home made’ explosives or components manufactured for malicious or criminal purposes	+1.5	The risk of terrorists accessing the selected precursors in high concentrations would be reduced, thus lowering the potency and reliability of HMEs and IEDs. It would not make it impossible, as some lower concentrated precursors (e.g. ammonium nitrate) can still be used for bomb-making.
1.3 To enhance the security and awareness of the entire supply chain of precursors	+1	The policy option could increase the awareness and control level among supply chain actors. While some of the precursors are covered by the EU drug-precursor legislation, others are covered by health and safety legislation and/or other national measures set up at Member State level. It may cause some confusion among some supply chain actors (e.g. retailers) which sell a variety of chemical products simultaneously.
1.4 To prevent	+1.5	As the ban above certain thresholds would be EU-wide, terrorists

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The thresholds selected for the individual precursors were the following:

- ammonium nitrate: 16% N from ammonium nitrate (the sale to the general public is already banned by Commission Regulation 552/2009, effective from 27 June 2010)
- alkali nitrates: 8% N from nitrate (this is the concentration level more or less corresponding to the 16% N threshold for ammonium nitrate)
- hydrogen peroxide: 12% (recommended by the SCP in its 2008 Annual Report, examples for national restrictions: DK, DE)
- acetone: no threshold
- nitromethane: 30% (recommended by SCP in its 2008 Annual Report, existing threshold in the Netherlands)
- hexamine: no threshold
- nitric acid: 30% (recommendation emerged from meetings with SCP members in 2009, existing threshold in Denmark)
- sulphuric acid: 50% (recommendation emerged from meetings with SCP members in 2009, existing threshold in Denmark)
- hydrochloric acid: 20% (recommendation emerged from meetings with SCP members in 2009)
- chlorates and perchlorates: 40% (recommendation emerged from meetings with SCP members in 2009, existing threshold in Denmark).

POLICY OPTION 3 – A ban on sales to the general public if the substance is above a specific concentration level.	Rating of Anticipated impact effectiveness	General assessment <i>Explanation of rating and aspects of the policy option necessary to achieve positive impacts</i>
terrorists and other criminals from making use of lower control levels and fewer restrictions on chemicals in some countries		would no longer be able to purchase highly concentrated precursors in the EU.
Assessment of economic impacts		
Impacts on administrative costs for business and authorities	-1	Traders will be likely – depending on national implementation – to be obliged to provide information to their prospective buyers on the restrictions concerning concentration levels in their standard terms and in additional information material. They might also have to submit reports to public authorities on how they are complying with the legal requirements. It is estimated that the administrative burden would be in the order of €6-16 million euro per annum, and a one-off cost of €40-63 million. Administrative costs will be imposed also on public authorities.
Compliance costs for business and authorities	-2	Producers of products sold to the general public will have to reduce the concentration level. This may not be viable in certain cases (e.g. hexamine fuel tablets, car battery acid) and alternatives will have to be used. Retail traders will have to verify that products above threshold are bought for professional consumption only. Public authorities will also incur certain implementation costs. The cost estimate is 9-24 million euro. An additional one-off cost of €80-126 million is also expected.
Economic impacts	-2	The value of goods sold to the general public above the thresholds is estimated at about €450-1,150 million. The overall consumption of the precursors may not change dramatically; non-professional use only accounts to about 1-5% of total EU consumption for the chemicals concerned. More significant consequences might be experienced by manufacturers of consumer products, as they will need to adjust the production processes and packaging of products intended for non-professional use. Some producers where reduced concentration levels are not a feasible option might leave the market or have to diversify. Indirectly, certain manufactured products which use the restricted products (e.g. model steam engines using Hexamine fuel tablets) will be rendered useless. The overall retail sales of products to general public will not change considerably for most consumer products, as either alternatives will replace the restricted products, or more of diluted chemicals will be bought to compensate for lower concentration levels. The detrimental effects will be relatively higher for SMEs. The loss of profit overall is estimated to be €130-330 million per year. Consumers will in general be able to access diluted versions or – if these are not a feasible option – suitable alternatives (save for a few products such as Hexamine fuel tablets), however, these might be less effective or more expensive.

POLICY OPTION 3 – A ban on sales to the general public if the substance is above a specific concentration level.	Rating of Anticipated impact effectiveness	General assessment
		Explanation of rating and aspects of the policy option necessary to achieve positive impacts
		Overall, the consumer surplus lost will amount to an estimated €230-560 million per year.
Article 16 Freedom to conduct a business	While some businesses could still trade in products with lower concentrations, other businesses would not be able to produce or trade in alternative lower concentrated products with the same desired qualities. In order to alleviate these effects, a ‘phasing out’ period could be established.	
Article 17 Right to property	The policy option would leave companies with a stock of produced goods with high concentration levels which would need to be destroyed or sold to professional users. Certain production processes would have to be stopped – this would render certain machinery and related infrastructure useless. Setting concentration levels would also mean that certain products would no longer be available on the market, which would make it difficult for the general public to access certain consumer goods and thus properly use their possessions. Measures to mitigate these negative effects should be considered, such as a ‘phasing out’ period.	
Assessment of social impacts		
Impacts on labour market	-0.5	The ban on precursors above pre-defined thresholds would remove a certain number of widely used products from the consumer market. Some manufacturers producing for the general public as well as distributors and retailers may have to reduce their activity and downsize their staff. The preparation of the ban would require public authorities to allocate additional staff, however this would be only in the short-term.
Impacts on public health	+1	A ban according to pre-defined thresholds would reduce the potency of HMEs and IEDs, as the latter would be less powerful or become much more difficult to make. Consumer safety would also be improved.
Other impacts	-1	A ban above certain thresholds would lead to some inconvenience for consumers.
Article 8 Protection of personal data	No effect.	
Article 21 Non-discrimination	No effect.	
Assessment of environmental impacts		
	0	In some cases, consumers would have to use greater quantities of the same product in lower concentration in order to obtain the desired effect. However, this would be mitigated by decreased consumption (and pollution) of highly concentrated precursors.
Considerations on feasibility and subsidiarity		
Key risks, uncertainties, political and technical feasibility and necessary preconditions to achieve impacts.	+2	The proposed ban is technically feasible for an important number of precursors. It may be less feasible for some selected precursors, which are only effective in high concentrations (e.g. hexamine) or which are widely used in high concentrations in some popular products (e.g. hydrogen peroxide in hair-dyeing products). Their ban would possibly cause a high level of inconvenience among the public. This policy option achieves a fair score with regard to its political feasibility of, as several Member States have similar provisions in place or have expressed their interest in such measures. However none of the Member States consulted have measures covering all the selected precursors
EU added value and rationale	The rationale for applying a ban above certain thresholds is strong. Indeed, the effectiveness of the ban (i.e. preventing terrorists from taking advantage of lower	

POLICY OPTION 3 – A ban on sales to the general public if the substance is above a specific concentration level.	Rating of Anticipated impact effectiveness	General assessment
		Explanation of rating and aspects of the policy option necessary to achieve positive impacts
	control levels) can only be achieved if the latter is applied across all Member States and in a uniform fashion (i.e. same thresholds).	
Need for changes in Community legislation	The ban above certain thresholds would require a legislative initiative (e.g. Regulation, Directive). This would also require a mechanism for selecting the products that should be banned and those that can be marketed for consumers.	
Issues raised by Member States and stakeholders	This policy option was deemed overall acceptable by most Member States and stakeholders. Although its deterrent effect was acknowledged, some Member States (notably with an important history of terrorist attacks) noted that concentration thresholds would only raise the bar for terrorists but would not prevent the making of HMEs and IEDs. Some niche industries/businesses would be severely impacted though, as some products cannot offer the same properties and effectiveness based on lower concentrations.	
Summary of main strengths and weaknesses		
The technical and political feasibility of this policy option is overall high, while it achieves a fairly good rating with regard to the achievement of the policy objectives. It should be noted that this policy option only lowers the risk of terrorists accessing highly concentrated precursors and devising HMEs and IEDs, however it does not address the issue of HMEs and IEDs made with low-concentrated precursors (or precursors which have been re-concentrated).		

POLICY OPTION 4a – Option 3 plus additional measures: A ban on sales to minors	Rating of Anticipated impact effectiveness	General assessment <i>Explanation of rating and aspects of the policy option necessary to achieve positive impacts</i>
Overall considerations to dimension the Policy option		
Policy option 4a includes the measures proposed in Policy option 3 (i.e. the introduction of threshold concentration levels) and proposes a ban on sales to minors. More specifically, the SCP has recommended that nitrates/nitrogenous fertilisers and nitromethane should not be sold to minors. Several Member States have adopted measures banning the sales of certain precursors to minors (e.g. DE). Policy option 4a makes sense in a safety rather than a security perspective. It should be noted that all assessments start with the rating and assessment of Policy option 3 as a minimum and assess whether the cumulative effect of Policy option 4a further improves or deteriorates the situation. Policy options 4a - d should therefore be read in conjunction with Policy option 3. Given that the effects of Policy option 4a are identical for all precursor groups, only the general assessment sheet has been completed for this Policy option.		
Assessment of achievement of the policy objectives		
1.1 To restrict access to certain precursors by the general public	+2	The policy option would completely ban access to the selected precursors by minors. Existing legislation in some Member States already bans the sale of some precursors (e.g. chlorates and perchlorates) to minors from a safety perspective. Adults (who account for a larger share of the EU population) would still be able to access the precursors below the defined threshold.
1.2 To reduce the reliability and potency of ‘home made’ explosives or	+1.5	As minors would not be able to access these precursors, unless via illicit means, there is a reduced risk of minors making highly potent and reliable IEDs. However, this policy option does not adequately address the issue of “terrorist” purpose.

POLICY OPTION 4a – Option 3 plus additional measures:	Rating of Anticipated impact effectiveness	General assessment
A ban on sales to minors		Explanation of rating and aspects of the policy option necessary to achieve positive impacts
components manufactured for malicious or criminal purposes		
1.3 To enhance the security and awareness of the entire supply chain of precursors	+1	This policy option would increase the level of awareness among supply chain actors and notably retailers with regard to minors using precursors with a criminal purpose.
1.4 To prevent terrorists and other criminals from making use of lower control levels and fewer restrictions on chemicals in some countries	+1.5	The policy option would potentially prevent minors having criminal intentions from smuggling the selected precursors from other Member States where restrictions may be laxer. However, minors with criminal or ‘experimental’ intentions often operate in the domestic market.
Assessment of economic impacts		
Impacts on administrative costs for business and authorities	-2	Slightly higher administrative costs than under Policy option 3. Young buyers will have to provide identification of their age.
Compliance costs for business and authorities	-2	Retailers will have to ask for identification of young buyers of the products of question (irrespective of concentration level). This may be very onerous in most retail outlets and not feasible for certain product categories (e.g. cosmetics containing acetone or HP). Shops might de-list most of the products concerned to avoid compliance requirements. Internet retailers also need to verify the buyers’ age, which will be a complex process.
Economic impacts	-2	Producers and retailers of certain products that are often bought by minors (e.g. cosmetics containing acetone or HP) may lose a share of their business. Minors as consumers will not have access to products such as cosmetics.
Article 16 Freedom to conduct a business	Little effect, as the share of sales to minors is estimated to be small, thus not affecting businesses in their activities.	
Article 17 Right to property	No effect.	
Assessment of social impacts		
Impacts on labour market	-0.5	Public authorities carry out information campaigns and other information activities vis-à-vis retailers and sellers and would need to categorise those products which should be banned for minors. This could potentially require some additional resources.
Impacts on public health	+1	Positive effect. Each year, Member States record cases of minors attempting to make IEDs and other pyrotechnics, which often result in serious injuries or even life losses. By banning access to the selected precursors, this policy option would increase the safety of minors (and possibly other individuals). Nonetheless, this policy option will not decrease the potency and reliability of HMEs and IEDs made by terrorists with the intention to carry out deadly attacks.
Other impacts	-1	The negative impact under this policy option would mainly relate to the fact that minors would no longer access the selected

POLICY OPTION 4a – Option 3 plus additional measures:	Rating of Anticipated impact effectiveness	General assessment
A ban on sales to minors		Explanation of rating and aspects of the policy option necessary to achieve positive impacts
		precursors. The inconvenience could be somehow important among farmers’ families, where the division of labour assigns young people with the task of picking up fertilisers on their parents’ behalf. However, in many Member States, the sale of some of the precursors is already banned for minors (e.g. strong acids are considered as poisonous substances under the health and safety legislation), therefore the impact will remain limited.
Article 8 Protection of personal data	No effect.	
Article 21 Non- discrimination	This policy ban would de facto provide for a difference of treatment between adults and minors. However, many legislative measures often make such a distinction based on valid grounds (e.g. safety perspective for individuals who are not yet fully responsible).	
Assessment of environmental impacts		
	0	No effect.
Considerations on feasibility and subsidiarity		
Key risks, uncertainties, political and technical feasibility and necessary preconditions to achieve impacts.	+2	Member States such as the Netherlands and France have highlighted that accidents involving minors using precursors to make IEDs and other pyrotechnics are an important safety issue. However, this problem does not seem to bear a link with terrorism as such..
EU added value	There is a rationale for introducing an EU-wide ban as some countries have introduced bans on selected precursors	
Need for changes in Community legislation	New Community legislation would need to include a special provision related to the sale to minors.	
Issues raised by Member States and stakeholders	There is a consensus among Member States and industry stakeholders that this policy option is out of the scope of this impact assessment. Member States have already implemented various awareness campaigns to prevent the sale to minors, and this policy option addresses safety concerns but not security concerns. Moreover, Member States have varying definitions and age limits for defining minors, and this policy option may prove impossible to implement.	
Summary of main strengths and weaknesses		
This policy option does not provide any added-value to the achievement of the policy objectives. Its main benefit is increased safety for minors (and possibly other individuals), but it has no impact on the policy objectives and the issue of terrorism.		

POLICY OPTION 4b – Option 3 plus additional measures: Sales of higher concentrations than those allowed under option 3, through either a system which licences retailers, or through a system which licences consumers.	Rating of Anticipated impact effectiveness	General assessment <i>Explanation of rating and aspects of the policy option necessary to achieve positive impacts</i>
Overall considerations to dimension the Policy option Policy option 4b includes the measures proposed as part of Policy option 3 (i.e. the introduction of threshold concentration levels) and proposes that sales of higher concentrations are either made through a system which either licenses retailers, or through a system which licenses consumers for ‘justified’ use. Under scenario 1, i.e. the licensing system for retailers, retailers would need to apply for a license, which would involve the checking of their ‘reliability’ and an obligation to record all sales of higher concentrations. The general public needs therefore would not need to register and the seller should ascertain that there appear to be no grounds for suspecting unauthorised use or resale. A similar system is currently in place in DE as part of the Chemical Ordinance for nine chemical substances. Under scenario 2, all retailers could still sell higher concentrations, but consumers would need to apply for an license with the competent authorities (the police or local authorities), similar to what is in place in DK and IE. The license provided states the use, the quantity required and has a limited duration. Any possession without a license would be illegal. It is noted that all assessments start with the rating and assessment of Policy option 3 as a minimum and subsequently determine whether the cumulative effect of Policy option 4b further improves or deteriorates the situation. It is therefore important that Policy options 4a-d are read in conjunction with Policy option 3.		
Assessment of achievement of the policy objectives		
1.1 To restrict access to certain precursors by the general public	+1.5 / +2	Under this policy option, consumers would not be deprived from obtaining chemicals in higher concentrations for legitimate use. As a result, there is a higher probability that consumers will access these precursors, notably those in higher concentrations. The Policy option would therefore be particularly relevant for the precursor groups containing chemical substances which, in low concentration levels, would be ineffective in products, such as some hydrogen peroxide and acid applications, nitromethane, hexamine and chlorates and perchlorates, Restrictions under scenario 1 would still provide easier access than under scenario 2. Under scenario 1, retailers selling the concentrations would be better monitored but it would be up to the seller to determine whether a buyer has legitimate reasons. Under scenario 2, the legitimacy of access for each single consumer would be checked by competent authorities. This may have a deterrent and thus more restrictive effect.
1.2 To reduce the reliability and potency of ‘home made’ explosives or components manufactured for malicious or criminal purposes	+0.5 / +1	The impacts are the same as described under Policy option 3. However, as higher concentrations would still be available, there is a slightly higher chance that terrorists and other criminals will access these. The licensing system for retailers under scenario 1 will act as a deterrent, but it will not be fully fraud-proof. The licensing system for consumers under scenario 2 will exercise a higher level of control and may be more difficult to circumvent.
1.3 To enhance the	+2 / +2	Under both scenarios, the level of awareness and security among

POLICY OPTION 4b – Option 3 plus additional measures:	Rating of Anticipated impact effectiveness	General assessment
Sales of higher concentrations than those allowed under option 3, through either a system which licences retailers, or through a system which licences consumers.		<i>Explanation of rating and aspects of the policy option necessary to achieve positive impacts</i>
security and awareness of the entire supply chain of precursors		all supply chain operators will be increased. Sellers and their staff would pay increased attention to their customers, and could even ‘voluntary’ notify the police in case of suspicious transactions, as they would be more informed of the potential risks.
1.4 To prevent terrorists and other criminals from making use of lower control levels and fewer restrictions on chemicals in some countries	+1.5 / +1.5	The lowering of concentration levels in open sales channels and controlled sales of higher concentration levels will create an EU level playing field, both preventing internal market distortion and avoiding that persons can make use of lower standards in other EU Member States. A necessary pre-condition for ensuring a level playing field within the EU is that the licensing system implemented in the EU for higher concentrations be harmonised across all EU Member States.
Assessment of economic impacts		
Impacts on administrative costs for business and authorities	-1.5	Additional administrative cost for businesses and government authorities (applying for permits and keeping registers under scenario 1 or verifying consumer licences under scenario 2) of about €10-30 million above Policy option 3.
Compliance costs for business and authorities	-2	Additional compliance costs in connection with developing and adopting procedures and rules with dealing with licences of an estimated €10-30 million in total. Public authorities maintaining the licensing and reporting scheme will incur an additional cost of about €1.80 million per year.
Economic impacts	-1.5	Loss of profit for businesses – on the assumption that half of the goods previously sold above threshold will continue to be sold to registered/legitimate buyers from the general public - will be lower than under option 3, estimated to be at €65-155 million per year. Consumer surplus lost will amount to only an estimated €115-280 million annually. Scenario 2 requires a common EU-wide scheme, setting down common requirements for obtaining such licenses and ensuring that any license issued in any Member State would be valid for purchases in any other Member State.
Article 16 Freedom to conduct a business	The requirements linked to the licensing system might possibly restrict the possibilities to conduct a business, as they may exclude those with insufficient means to run a similar system. The requirements would therefore need to be designed in a way to allow that any business, independent of its size, to be able to obtain a public license. Under scenario 2, the freedom to conduct a business will not be affected.	
Article 17 Right to property	No effect.	
Assessment of social impacts		
Impacts on labour market	+0.5 / +1	The potential negative effects described as part of Policy option 3 would be in part offset by allowing businesses to still trade higher concentrated chemical substances. Producers and other supply chain stakeholders manufacturing highly concentrated products (and related items) can continue their activities, albeit to a lesser

POLICY OPTION 4b – Option 3 plus additional measures: Sales of higher concentrations than those allowed under option 3, through either a system which licences retailers, or through a system which licences consumers.	Rating of Anticipated impact effectiveness	General assessment <i>Explanation of rating and aspects of the policy option necessary to achieve positive impacts</i>
		extent. Scenario 1 could potentially have a more negative effect on the labour market, as the burden related to obtaining a license and recording sales may be considered too high (e.g. staff training, IT resources for recording sales, processing costs). Under scenario 2, no significant impact on the labour market is expected. Under both scenarios, competent authorities would need more human resources for setting up, running and enforcing the licensing system.
Impacts on public health	+0.5 / +0.5	While the Policy option would reduce the possibility of terrorist attacks involving HMEs and IEDs based on the precursors, the fact that higher concentrations would still be available in a controlled environment could somewhat increase the chances of them being used.
Other impacts	0 / -0.5	Neutral to minor negative impact. The inconvenience experienced by some consumers due to the unavailability of chemical products with higher concentrations would to a large extent be addressed by making these available through the licensing system. This would be particularly useful for products which would be ineffective in lower concentrations. Under both scenario 1 and 2, the licensing system would need to ensure the proper protection of personal data, thus avoiding the mishandling by sellers (e.g. sale to third parties, loss of data) or public authorities (e.g. use of personal data for other purposes). Under scenario 2, consumers would face a certain level of inconvenience, as they would have to apply and obtain a license from the competent authorities. It is particularly important that the criteria for granting licenses be explicit and non-discriminatory (e.g. not based on ethnicity or other similar considerations). In addition, scenario 2 requires a common EU-wide scheme.
Article 8 Protection of personal data		This licensing systems imply processing of personal data and have to comply with national DP law implementing EU DP law. Any instrument proposing either two of these systems should therefore provide with specific rules setting out the specific and explicit purpose for the processing, the retention periods or the personal data to be processed so as to comply with the necessity and proportionality, and other data protection principles.
Article 21 Non-discrimination		Both systems considered could potentially give rise to discriminatory practices, when determining whether a consumer should be allowed to make a purchase.
Assessment of environmental impacts		
	0	The potential negative consequences outlined under Policy option 3 would in part be reduced by the availability of higher concentrations of the chemical products. However, it is still expected that consumers would, for the sake of simplicity, make more use of products with lower concentrations (as they are available through all sales channels).

POLICY OPTION 4b – Option 3 plus additional measures:	Rating of Anticipated impact effectiveness	General assessment
Sales of higher concentrations than those allowed under option 3, through either a system which licences retailers, or through a system which licences consumers.		Explanation of rating and aspects of the policy option necessary to achieve positive impacts
Considerations on feasibility and subsidiarity		
Key risks, uncertainties, political and technical feasibility and necessary preconditions to achieve impacts.	+3	The political feasibility of this policy option is high, as several Member States have similar provisions in place. Moreover, this policy option seems desirable and politically acceptable, as an overwhelming majority of Member States and industry representatives have expressed their interest in such measures. Any licensing scheme developed at EU level would need to ensure even implementation across the EU. The requirements for businesses under scenario 1 and the criteria for granting licenses to consumers under scenario 2 would need to be clearly defined. One of the caveats is that the licensing system for consumers may pose an issue with internet and distance sellers, which would need to ensure a proper processing and checking of the licenses displayed by consumers.
EU added value	The EU rationale for introducing thresholds on concentration levels for open sales and restricting and controlling sales on higher concentrations is high, as differences in national approaches would lead to market distortion and displacement effects. Scenario 2 may be problematic with regard to cross-border sales, unless Member States authorities issue EU-wide recognised licenses.	
Need for changes in Community legislation	The policy option would require a legislative decision (a directive or regulation) and a mechanism for selecting the products that can be openly sold and those subject to restrictions. The policy option would also require the creation of an EU-wide licensing system.	
Issues raised by Member States and stakeholders	The overwhelming majority of Member States as well as a substantial share of industry representatives expressed their support for this policy option. Industry representatives emphasised that scenario 1 (i.e. licensing system for retailers) may be more cumbersome for businesses than a system which licenses consumers. Under scenario 2, Member States raised the question of background checks for consumers applying for a license.	
Summary of main strengths and weaknesses		
The Policy option overall receives higher scores than Policy option 3, given that it still provides access to the entire spectrum of chemical substances and products by proposing a controlled environment for the sales of those with high concentration levels. For some precursor groups, the Policy option is certainly more attractive than for others. It would in particular be effective for those chemical substances and products which would become ineffective as a result of the thresholds on concentration levels set as part of Policy option 3. It also received high stakeholders support. Ultimately, the development of an licensing system for consumers seems to be less costly than the licensing system for retailers, and also the most effective in preventing terrorists from accessing higher concentrated chemicals. The licensing system for consumers would strictly limit the sales of higher concentrated chemicals to a marginal number of consumers, who genuinely need those chemicals. It is expected that the monitoring of these consumers by competent authorities would also be easier, given their limited number.		

POLICY OPTION 4c – Option 3 plus additional measures: Introducing a system of reporting suspicious transactions	Rating of Anticipated impact effectiveness	General assessment <i>Explanation of rating and aspects of the policy option necessary to achieve positive impacts</i>
Overall considerations to dimension the Policy option		
Policy option 4C includes the measures proposed as part of Policy option 3 (i.e. the introduction of threshold concentration levels) and proposes the introduction of a system of reporting transactions. The Policy option will require sellers to assess whether a certain order or transaction is suspicious and to take responsibility for notifying the competent authorities (e.g. their respective retail / sector association or law enforcement agencies). At least 4 Member States have introduced systems for reporting suspicious transactions. At EU level, the drug precursor regulation has introduced a requirement to report suspicious transactions in acetone, sulphuric and hydrochloric acid (but the parameters are different). It is noted that all assessments start with the rating and assessment of Policy option 3 as a minimum and subsequently determine whether the cumulative effect of Policy option 4c further improves or deteriorates the situation. It is therefore important that Policy options 4a-d are read in conjunction with Policy option 3.		
Assessment of achievement of the policy objectives		
1.1 To restrict access to certain precursors by the general public	+2	There is a chance that sellers of chemical substances and products may refuse orders / transactions which they consider suspicious, for ‘fear’ of possible repercussions, but this is not within the scope of the Policy option
1.2 To reduce the reliability and potency of ‘home made’ explosives or components manufactured for malicious or criminal purposes	+3	Very positive impact. In addition to placing thresholds on concentration levels, this Policy option would in addition request sellers to notify suspicious transactions. This will have both a deterrent effect and improve the chances that terrorists and other criminals are caught before they can fabricate HMEs and IEDs.
1.3 To enhance the security and awareness of the entire supply chain of precursors	+1.5	The positive impact already accrued as part of Policy option 3 will be further strengthened, as a result of the notification system. Retailers and other downstream sellers will be informed of the need to report on suspicious transactions and hence their awareness levels and security will improve.
1.4 To prevent terrorists and other criminals from making use of lower control levels and fewer restrictions on chemicals in some countries	+1	The lowering of concentration levels in open sales channels in combination with a system of reporting suspicious transactions will create an EU level playing field, both preventing internal market distortion and avoiding that persons can make use of lower standards in other EU Member States.
Assessment of economic impacts		
Impacts on administrative costs for business and authorities	-1.5	In addition to policy option 3, businesses will also have provide information on the new legal provisions to the general public (see “non labelling information for third parties”. The number of expected notifications is however likely to be low. The magnitude of costs is estimated to amount to about an additional 4-8 million euro for businesses.
Compliance costs for business and authorities	-2.5	Especially larger retailers and producers also selling to consumers will need to adopt new policies and tools to identify suspicious transactions (including automated Internet sales), train their staff and survey correct implementation. It will need considerable effort in both time and money to achieve a level of satisfactory

POLICY OPTION 4c – Option 3 plus additional measures: Introducing a system of reporting suspicious transactions	Rating of Anticipated impact effectiveness	General assessment <i>Explanation of rating and aspects of the policy option necessary to achieve positive impacts</i>
		compliance. Small shops will probably not invest in training, and they normally don't have codified business practices which they needed to amend. Companies selling over the Internet also need to develop new procedures and possibly buying new software detecting suspicious transactions. Estimated total costs to businesses represent an additional €16 million per year . Public authorities will have to maintain a central hotline or decentralised contacts, as well as organise training, awareness raising campaigns, etc. National authorities may incur an additional cost of about €0.34 million per year.
Economic impacts	-2	Wider economic impacts (additional to policy option 3) on retail traders are likely to remain very low: some retailers, especially those from whom the products in question only represent a negligible share of sales, might opt for de-listing the products in question rather than complying with the burdensome provisions.
Article 16 Freedom to conduct a business		Some minor additional limitations may apply as businesses would have to implement the system, which may pose a burden on their capacity. It must, therefore, be ensured that the system is designed in order to allow all businesses, independent of their size, to implement and apply it.
Article 17 Right to property		No additional effects other those identified under policy option 3.
Assessment of social impacts		
Impacts on labour market	+0.5	The potential negative effects on the labour market as described as part of Policy option 3 may be in part offset by employment created as a result of the requirement to report on suspicious transactions and the need for national authorities to prepare for the new measure.
Impacts on public health	+1	In addition to the positive effects identified under Policy option 3, the system for reporting suspicious transactions would further increase the possibility of detecting and preventing terrorist attacks involving HMEs and IEDs.
Other impacts	0	Some inconvenience given that some products will no longer be available on the EU market (as they will be ineffective with low concentration levels).
Article 8 Protection of personal data		Setting up a system of reporting suspicious transactions requires the processing of personal data by sellers and to carry on an assessment of customers for the disclosure of data to third parties who will also process. The assessment carried out by sellers risks to be inappropriate if customers personal data will be disclosed to third parties, e.g. associations or law enforcement authorities (risk of blacklisting). This may imply a serious interference with private life. If this option is to be followed it will be necessary to demonstrate the necessity and proportionality of this processing and provide particular rules relating to the specific and explicit purpose of the processing.
Article 21 Non-discrimination		The system of reporting suspicious transactions should not lead to overzealous, discriminatory reactions from businesses when identifying persons who in their view have the 'physiognomy' of a terrorist, rather than identifying persons buying extraordinary quantities or showing clearly suspicious behaviour.
Assessment of environmental impacts		

POLICY OPTION 4c – Option 3 plus additional measures:	Rating of Anticipated impact effectiveness	General assessment
Introducing a system of reporting suspicious transactions		Explanation of rating and aspects of the policy option necessary to achieve positive impacts
	0	The impacts on the environment would be the same as under policy option 3.
Considerations on feasibility and subsidiarity		
Key risks, uncertainties, political and technical feasibility and necessary preconditions to achieve impacts.	+1.5	Important feasibility issues to be addressed relate to the potential overload of the system due to very high numbers of notifications and the operational setup. In order to ensure that the system would not affect privacy or trigger discrimination, it should be important for it to be ‘passive’, hence not requiring any level of investigation, surveillance or monitoring of customers.
EU added value and rationale	The EU rationale for introducing thresholds on concentration levels and a system for reporting suspicious transactions is high. The addition of the system strengthens the EU focus on security, as in some cases terrorist attacks or attempts to gain access to chemical substances and products could have been prevented if the seller had realised that the transaction was suspicious. As at least four Member States have similar measures in place. The policy option may be more difficult for those products for which only relatively small quantities are needed to build an HME or IED.	
Need for changes in Community legislation	The Policy option would require a legislative decision, for example in the form of a regulation or directive, which would as a minimum set out the minimum operational requirements and suggestions for criteria to determine whether a transaction is suspicious.	
Issues raised by Member States and stakeholders	The majority of Member States and other stakeholders consulted were in favour of this Policy option. Many however were perhaps more in favour of a non-legislative measure, for example a programme either led by the State or based on self-regulation by industry, but were also willing to consider a legislative instrument.	
Summary of main strengths and weaknesses		
The Policy option overall receives higher scores than Policy option 3, given that it adds a higher level of security to the sales of chemical substances and products. The feasibility of the Policy option is high as already several Member States have similar measures in place. Stakeholders consulted were indeed overall in favour of the Policy option. For some precursor groups, the Policy option is more useful than for others. With the reduced concentration levels, some chemical substances, such as strong acids, will have become less ‘reliable’ for making HMEs and IEDs. For these, establishing a system of reporting suspicious transactions may not be necessary. Others keep their dangerous characteristics or could be re-concentrated. For these, the proposed system is useful.		

POLICY OPTION 4d – A scheme for labelling precursors with a code specifying that the purchase may be subject to registration, developing a system for recording the identity of the buyer (including internet sales). Records should be made available to competent law enforcement authorities	Rating of Anticipated impact effectiveness	General assessment <i>Explanation of rating and aspects of the policy option necessary to achieve positive impacts</i>
Overall considerations to dimension the Policy option		
Policy option 4d includes the measures proposed as part of Policy option 3 (i.e. the introduction of threshold concentration levels) and proposes the introduction of a labelling scheme and a registration system for recording the identity of the buyer. The labelling scheme would focus on warning household users that the purchase may be subject to registration. The records of the registration system would need to be made available to competent law enforcement authorities. A labelling scheme is passive. It should not draw attention to the reasons why registration may occur, in order to avoid ‘experimenting’ by for example young curious people. A registration system for low chemical substances and products with low concentrations does not seem to be fully justified. It may make more sense to register sales of high concentrations (as already happens in Member States such as Germany). This assessment however focuses on registering low concentrations, as Policy option 4d is an ‘add-on’ to Policy option 3. Finally, using a registration system for preventive purposes will be close to impossible given the amounts of records that will be created every day. Only a highly sophisticated online database may allow for direct identification of transactions which are suspicious of for cross-references (e.g. many small purchases made by the same purpose in different locations). The registration scheme will therefore be mainly useful for investigative purposes after a terrorist event. It is noted that all assessments start with the rating and assessment of Policy option 3 as a minimum and subsequently determine whether the cumulative effect of Policy option 4d further improves or deteriorates the situation. It is therefore important that Policy options 4a-d are read in conjunction with Policy option 3.		
Assessment of achievement of the policy objectives		
1.1 To restrict access to certain precursors by the general public	+3	The policy option would put in place accompanying measures to control access. There is a chance that, for chemical substances and products for which good alternatives are available, consumers will not want to register, as they consider it too much effort, but rather purchase the alternative.
1.2 To reduce the reliability and potency of ‘home made’ explosives or components manufactured for malicious or criminal purposes	+3	In addition to placing thresholds on concentration levels, this Policy option would in addition label the chemical substances and products and request sellers to record all sales. The registration system will have a strong deterrent effect and improve the chances that terrorists and other criminals are caught when having undertaken an attack with HMEs and IEDs. The benefits of the labelling scheme are less evident.
1.3 To enhance the security and awareness of the entire supply chain of precursors	+2	The entire supply chain is likely to become aware, as manufacturers will need to place the labels and retailer and other downstream sellers will need to record their sales. Hence awareness levels and security will improve. Awareness levels of other supply chain stakeholders are already reasonable as a result of other EU legislation.
1.4 To prevent	+1	The lowering of concentration levels in open sales channels in

POLICY OPTION 4d – A scheme for labelling precursors with a code specifying that the purchase may be subject to registration, developing a system for recording the identity of the buyer (including internet sales). Records should be made available to competent law enforcement authorities	Rating of Anticipated impact effectiveness	General assessment <i>Explanation of rating and aspects of the policy option necessary to achieve positive impacts</i>
terrorists and other criminals from making use of lower control levels and fewer restrictions on chemicals in some countries		combination with a labelling scheme and registration system will create a strong EU level playing field both preventing market distortion and avoiding that persons can make use of lower standards in other EU Member States.
Assessment of economic impacts		
Impacts on administrative costs for business and authorities	-3	Significant administrative costs. Retail will have to keep records of the identity of all clients of the products in question and submit them on request to public administration. Recording the identity of clients may qualify as normal business practice in chemical wholesale/specialised distribution, but not in retail. The public labelling provisions will need to be monitored by public authorities at a relatively large cost.
Compliance costs for business and authorities	- 3	Producers / packagers of consumer products will need to change the labels. Retailers will need to amend their procedures accordingly to accommodate the labelling and registry scheme for both online and business premises transactions. They also will have to procure appropriate IT tools (covering their automated Internet sales as well) and train their staff.
Economic impacts	-3	Integrating a procedure of checking buyers' identity and the validity of their registration will require considerable time and financial investment. A large proportion of retailers might find the registry system too onerous and will not sell the relevant substances to the general public. Consumers might be able to access certain high-concentration chemicals after registration. Also, the time and effort needed to join the registration scheme will be substantial and could discourage them from buying the preferred chemicals.
Article 16 Freedom to conduct a business		For some businesses, the implementation and management of the registration system would pose an additional burden which may make it difficult for them to conduct their business. It must, therefore, be ensured that the system is designed in order to allow all businesses, independent of their size, to implement and apply.
Article 17 Right to property		No additional effects.
Assessment of social impacts		
Impacts on labour	-1	Policy option 4d would worsen the negative effects of policy

POLICY OPTION 4d – A scheme for labelling precursors with a code specifying that the purchase may be subject to registration, developing a system for recording the identity of the buyer (including internet sales). Records should be made available to competent law enforcement authorities	Rating of Anticipated impact effectiveness	General assessment <i>Explanation of rating and aspects of the policy option necessary to achieve positive impacts</i>
market		option3, as some retailers and other downstream sellers would not be able to afford running the registration system. If their business highly depended on the sales of the precursors, they would suffer economic losses and possibly redundancies as a result. On the other hand, the development of a labelling scheme may create some new employment at the level of producers. Some retailers and downstream sellers could hire new staff to manage the system. Public authorities may need, initially, need more human resources to prepare for the new measure. Control and enforcement agencies will also require additional human resources to check and follow up entries in the registration system.
Impacts on public health	+1	The labelling scheme and registration system would have a deterrent effect, thus reducing the possibility of detecting and preventing terrorist attacks involving HMEs and IEDs based on the precursors.
Other impacts	-2	Consumers may experience higher inconvenience levels when having to register for every (small) purchase of chemical substances or products. They may consider this very burdensome, especially as the system would apply to low concentration levels.
Article 8 Protection of personal data		This option will imply a processing of personal data for the further transmission to law enforcement authorities. This processing shall be in compliance with national DP laws implementing EU DP law. This requires clear rules relating to the conditions for law enforcement authorities to access personal data, strict requirements on the specific and explicit purpose for the processing by buyers and law enforcement authorities, retention periods and other safeguards..
Article 21 Non-discrimination		The registration system should only serve to record personal details, without any assessment or investigative action from the side of the seller as to whether the transaction is valid or justified.
Assessment of environmental impacts		
	0	Neutral impact. The impacts on the environment would be the same as under Policy 3.
Considerations on feasibility and subsidiarity		
Key risks, uncertainties, political and technical feasibility and necessary preconditions to achieve impacts.	-1	There is a risk that the labelling of products especially when hinting at the fact that they may pose a security risk, would attract the wrong attention from young ‘experimenters’, for example. For some products, given their very small size, labelling will be difficult and the warning may go unnoticed when the indications are too small. The true effectiveness of adding a notice or warning that the purchase of the product could be subject to registration is somewhat questionable. Instead of labelling, the barcode on

POLICY OPTION 4d – A scheme for labelling precursors with a code specifying that the purchase may be subject to registration, developing a system for recording the identity of the buyer (including internet sales). Records should be made available to competent law enforcement authorities	Rating of Anticipated impact effectiveness	General assessment
		<i>Explanation of rating and aspects of the policy option necessary to achieve positive impacts</i>
		products could be adapt to alert sellers to the need to register. This is also very expensive. with regard to the registration system, there are several risks, uncertainties and preconditions. Firstly, the usefulness of a registration system for chemical substances and products in low concentrations may pose a too heavy burden on both businesses and household users. The amounts of data that will be entered in the system at national level will be enormous with a risk of crashes and losses of information. It will be important to consider whether the registration system would be deemed acceptable by the wider public, and whether it is proportional. The registration system would also require a specific mechanism to review whether a product should be subject to labelling and registration requirements or not.
EU added value and rationale	Differences in national approaches would lead to market distortion and displacement effects. In addition, the registration system strengthens the EU focus on security, increasing the chances to identify and catch terrorists and other criminals. With regard to proportionality, the EU rationale is considered to be low.	
Need for changes in Community legislation	The Policy option would require a legislative decision, for example in the form of a regulation or directive. This would also need to cover the labelling. A more operational framework or guidance would need to be developed on the minimum requirements of the registration system, what should be recorded, how this should be controlled, etc.	
Issues raised by Member States and stakeholders	The majority of Member States and other stakeholders did not consider Policy option 4d a feasible option for such a wide range of precursors, covering a multitude of different products sold by a variety of retailers and other downstream sellers. Labelling could attract the wrong attention. A barcode was considered possibly more appropriate. Most were concerned that it would be very expensive to apply to all products available on the market. Possibly it should only apply to products with concentration levels above the thresholds set. Business stakeholders considered that the option would add a significant burden.	
Summary of main strengths and weaknesses		
The policy option would help in achieving the policy objectives, but is scores low in terms of feasibility and stakeholder support. The main weaknesses relate to its costs, the burden posed on businesses and consumers and its effectiveness. Such a ‘heavy’ system would not be justified, especially in the eyes of the general public, if its main purpose was limited to facilitating investigations only once an attack has taken place. It is therefore questionable whether the policy option is proportional. For some precursor groups, the Policy option is potentially more useful than for others. With the reduced concentration levels, some chemical substances, such as strong acids, will have become much less ‘reliable’ for making HMEs and IEDs. For these, establishing a labelling scheme and registration system would not be		

POLICY OPTION 4d – A scheme for labelling precursors with a code specifying that the purchase may be subject to registration, developing a system for recording the identity of the buyer (including internet sales). Records should be made available to competent law enforcement authorities	Rating of Anticipated impact effectiveness	General assessment <i>Explanation of rating and aspects of the policy option necessary to achieve positive impacts</i>
		necessary. Others, such as nitromethane and, depending on its concentration level, hydrogen peroxide, keep their dangerous characteristics or could be re-concentrated. For these, the proposed system may be useful.

POLICY OPTION 5– Policy option 5: Taking measure to enhance the surveillance of professional use, including sub-options such as: - 5.a Promoting Codes of conduct - 5.b Education and training - 5.c Raising staff awareness - 5.d Addressing in particular medium / small users	Rating of Anticipated impact effectiveness	General assessment <i>Explanation of rating and aspects of the policy option necessary to achieve positive impacts</i>
Overall considerations to dimension the Policy option		
This policy option would entail the introduction of one or several non-legislative measures aiming at enhancing the control and surveillance of the precursors market among all supply chain actors. To this end, the SCP has recommended the possible adoption of Codes of Conduct, education and training measures and campaigns to increase awareness among supply chain operators. The proposed measures would need to address the specific concern of small and medium end-users. Several Member States (e.g. Germany, Denmark, Netherlands, Sweden and UK) have developed similar measures with various purposes. It should be noted that the majority of voluntary measures adopted by Member States generally cover several groups of precursors, with only a few specifically dedicated to specific precursors.		
Assessment of achievement of the policy objectives		
1.1 To restrict access to certain precursors by the general public	+1.5	Positive effect. As a result of enhanced awareness among supply chain operators and notably retailers and end-user sellers, businesses may be encouraged not to sell the selected precursors to members of the public.

POLICY OPTION 5– Policy option 5: Taking measure to enhance the surveillance of professional use, including sub- options such as: - 5.a Promoting Codes of conduct - 5.b Education and training - 5.c Raising staff awareness - 5.d Addressing in particular medium / small users	Rating of Anticipated impact effectiveness	General assessment <i>Explanation of rating and aspects of the policy option necessary to achieve positive impacts</i>
		In addition, as the proposed measures are voluntary, businesses are free not to comply with the requirements, as there is no “hard” sanction for non-compliance.
1.2 To reduce the reliability and potency of ‘home made’ explosives or components manufactured for malicious or criminal purposes	0	This policy option would not reduce the potency and reliability of HMEs or IEDs, as it would still be possible to access the selected precursors in high concentrations by determined terrorists, especially at the retail level.
1.3 To enhance the security and awareness of the entire supply chain of precursors	+2	The proposed measures are the most likely to effectively increase the level of awareness among supply chain actors. Awareness campaigns similar to the UK “Know your customer” have significantly enhanced the awareness among businesses on the possible criminal/terrorist use of certain precursors. Moreover, existing awareness campaigns are often accompanied by notification/reporting mechanisms in case of thefts, losses or suspicious transactions. Codes of Conduct and related guidelines have also proved effective in raising security at all stages of the supply chain, notably during storage and transport.
1.4 To prevent terrorists and other criminals from making use of lower control levels and fewer restrictions on chemicals in some countries	+1	This policy option will not completely prevent terrorists from taking advantage of lower control levels, as the proposed measures are in essence voluntary and their effectiveness depends on businesses’ willingness to comply with them. While businesses in some Member States may have strong incentives to comply with the requirements (i.e. as there is already a strong culture and consensus around this type of measures), this may not be the case in other Member States.
Assessment of economic impacts		
Impacts on administrative costs for business and authorities	0	This option does not impose administrative costs upon businesses as it does not involve legal obligations.
Compliance costs for business and authorities	-0.5	This option does not impose compliance costs upon businesses: no requirements to comply with certain legislation, However, it is expected that all major players (members of the relevant trade associations of producers, chemical distributors, the retail sector)

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		who will voluntarily comply with the relevant codes of conduct, will train their staff accordingly, and will employ other necessary tools and methods to raise awareness among staff (and business partners). These costs are estimated to be around €64 million per year, bearing in mind that actions disproportionately increasing the cost of sale are unlikely to be taken by businesses. Also, various public authorities will have to incur costs, to offer training and guidance. It is estimated that costs will about match the expenditure incurring to business, i.e. €64 million per year (this includes awareness raising campaigns at an average cost of €1-2 million per Member State, some form of training given to thousands of retailers). These costs are an aggregate and not specific to certain precursors (except some differences in the retail target group).
Economic impacts		Lacking legal restrictions, the precursors and products based upon them will be still eligible for sale to the general public (at least this will not impose additional restrictions, if understood as an add-on Policy option).
Article 16 Freedom to conduct a business	No effect	
Article 17 Right to property	No effect	
Assessment of social impacts		
Impacts on labour market	+1	Sales to the general public would still continue, provided that there are no grounds for suspicion. Businesses may refuse a few transactions, but this is not expected to lead to a significant loss in activity or job losses. Considering that a multitude of initiatives and measures would need to be developed by businesses, trade associations and public authorities, this policy option may lead to job creation.
Impacts on public health	+1	Although members of the general public could feel safer as a consequence of retailers and other supply chain actors enforcing stricter controls, this policy options would not completely prevent terrorists from accessing the selected precursors (e.g. using fake ID), and hence the potency and reliability of HMEs and IEDs would remain high. Voluntary measures supporting research, testing and detection

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		lead to increased use of additives, phlegmatisation, substitutes, taggants and effective detection techniques. This may ultimately decrease the potency and reliability of HMEs and IEDs, and hence reduce the number of casualties/life losses.
Other impacts	0	Very little inconvenience to consumers, possibly some increased concerns if the voluntary measures are to ‘evident’ (e.g. warnings, posters, notices, etc).
Article 8 Protection of personal data		If the proposed awareness measures also encourage businesses to check the credentials of their customers in order to identify suspicious transactions, clear guidelines related to the obligation to comply with national DP law implementing EU DP law will need to be set out, to avoid a lack of protection of personal data.
Article 21 Non-discrimination		The proposed measure should explicitly define objective and non-discriminatory criteria for identifying suspicious customers/transactions, to avoid potential discriminatory behaviour.
Assessment of environmental impacts		
	0	Possibly some increased use of paper (and other hardcopy support requiring the use of chemicals) for awareness initiatives, guidance material, training material (e.g. leaflets, posters, booklets), etc.
Considerations on feasibility and subsidiarity		
Key risks, uncertainties, political and technical feasibility and necessary preconditions to achieve impacts.	-1	One of the key risks associated with this policy option is the voluntary nature of the measures, meaning that businesses may choose not to comply with the requirements. Awareness campaigns need to reach a significant share of the retail market and of professional end-users, requiring a tremendous effort from public authorities and trade associations. Such campaigns also require frequent “updates” and follow-ups. The degree of professional organisation within the EU precursors market (i.e. to what extent the market is organised and well-represented by trade bodies), greatly varies among Member States, which is not equally developed among the Member States. The existence of a good working relationship between industry and government is also essential. There may be some ‘cultural’ difficulties in some countries. It can take up to several years before a voluntary measure has a wide coverage and 100% market coverage often remains difficult to achieve. With regard to the notification of suspicious transactions, the simpler and more transparent the mechanism (i.e. do stakeholders

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		need to call one single national hotline or several authorities at different levels and has this been clearly explained to them?), the more efficient and effective such mechanisms are..
EU added value and rationale	Overall, there would be a rationale in developing the proposed measures on an EU-wide scale, as this would ensure an equal level of awareness among supply chain actors, and notably retailers. EU-wide actions have already been developed at EU-level by EFMA (i.e. guidance for the secure and safe storage of fertilisers on farms premises) or are under way (i.e. European Code supported by the Commission and targeting the entire supply chain).	
Need for changes in Community legislation	No changes required.	
Issues raised by Member States and stakeholders	This policy option enjoys a very strong support among Member States and industry stakeholders, as the proposed measures are deemed highly desirable. In the Member States where such measures have been implemented, it has been noted that the level of awareness among the supply chain has increased. Industry stakeholders pointed that it remains difficult to ensure that the proposed measures will be evenly applied across all Member States. With regard to research, several Member States agreed that increased research is needed into phlegmatisation, which could ultimately facilitate any (future) restrictions on the sale of precursors above certain concentration levels	
Summary of main strengths and weaknesses		
Overall, there seems to be a clear support for developing some, if not, all measures proposed under this policy option. There was a consensus among Member States and industry stakeholders that the proposed measures could be highly beneficial. This policy option can help indeed achieve a greater level of awareness and control within the supply chain, while its economic costs and impacts are close to neutral. The fact that several Member States have developed similar measures in place, seems to suggest that this type of measures work and are overall effective. Nonetheless, the effectiveness of this policy option across all EU Member States depends on a certain number of pre-requisites.		

ANNEX 10: GLOSSARY

ADR	International Carriage of Dangerous Goods by Road Regulations (Accord européen relatif au transport international des marchandises dangereuses par route)
CBRN	Chemical, Biological, Radiological and Nuclear
CEFIC	European Chemical Industry Council
DG ENTR	Directorate-General for Enterprise and Industry of the European Commission
DG JLS	Directorate-General for Justice, Freedom and Security of the European Commission
DG MOVE	Directorate-General for Mobility and Transport
DG SANCO	Directorate General for Health and Consumer Affairs
HME	Home Made Explosive
HP	Hydrogen Peroxide
IED	Improvised Explosive Device
REACH	European Union Regulation on Registration, Evaluation, Authorisation and restriction of Chemicals
SCP	Standing Committee on Precursors