1

European legislation relating to textile dyeing

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1.1 Introduction

European Union (EU) environmental legislation has developed over the last 30 years and comprises today some 300 legal acts and a large number of other policy documents of relevance for EU environmental policy. Section 1.2.1 of this chapter gives a general introduction to the EU forms of legislation and the principles of the EU environmental policy. The legislation related to the environmental aspects of textile processes in general, primarily the emissions to water and air, is discussed in sections 1.2 to 1.6.

The EU introduced in 1996 an integrated approach on the environmental performance of (large) textile facilities with wet processes, and industrial processes in general. The 'Integrated Pollution Prevention and Control', or so-called IPPC Directive is in essence about minimising pollution from various industrial point sources throughout the European Union by means of environmental permits (see section 1.3). These permits are based on the principle of using Best Available Techniques (BAT) and the BAT Reference documents (BREF) for the Textiles Industry.

A number of chemicals that may be used in textile processes are worth mentioning for their potential negative effects on the environment and human health and are therefore regulated (see section 1.4). To identify textiles meeting these requirements more easily, ecolabels are developed. Since the textile industry uses water as the principal medium for removing impurities, applying dyes and finishing agents, the main concern is therefore about the water discharged and the chemical load it carries. EU legislation regarding (waste) water is set out in section 1.5.

Improving air pollution is a world priority. To achieve a significant reduction in air pollution, national and international measures must be combined to reduce emissions of the gases responsible (see section 1.6). Future trends worth mentioning are the integrated product policy (IPP) and the new chemicals policy, REACH and GHS (see section 1.7). IPP aims to develop a more ecological product market by making products more environmentally

sustainable throughout their life cycle. REACH is a single integrated system for the registration, evaluation and authorisation of chemicals.

1.2 Legislation relating to textile dyeing in Europe

1.2.1 Principles of EU environmental policy

Environmental policy is one of the greatest social challenges facing the public authorities and all sectors of the economy today. It is also a subject of which the public is acutely aware, since it directly affects its welfare and health. From the 1970s on, the concern to conserve the environment started to give birth to a series of Community initiatives. The Treaty on European Union upgraded the environment to a Community policy and no longer simply an action by the Community.

Community policy on the environment is set out in Article 174 of the Treaty establishing the European Community:

> Community policy on the environment shall contribute to pursuit of the following objectives:
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> - preserving, protecting and improving the quality of the environment,
> - protecting human health,
> - prudent and rational utilisation of natural resources,
> - promoting measures at international level to deal with regional or worldwide environmental problems.
>
> Community policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the Community. It shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay.

The broad objectives of EU environmental policy as set out in Articles 174–176 provide the Community with legal competence to act in all areas of environmental policy. However, it is clear from the Treaty that this competence is not exclusive and that it is shared with the Member States.

The European Communities' core objective of achieving European unification is based exclusively on the rule of law. Community law is an independent legal system which takes precedence over national legal provisions. A number of key players (Commission, Council and Parliament) are involved in the process of implementing, monitoring and further developing this legal system for which a variety of procedures apply.

1.2.2 Forms of EU environmental legislation

European Union environmental legislation includes mainly directives, regulations and decisions.

Most EU environmental laws are *directives*. This is a form of law peculiar to the European Union. They are designed to impose obligations on Member States and to be sufficiently flexible to take into account differing legal and administrative traditions. The choice and method of aligning the national legal and administrative system is left to the discretion of the Member State. Directives are binding on all Member States but may contain differing requirements which take into account the different environmental and economic conditions in each Member State.

Framework directives set out general principles, procedures and requirements for legislation in different sectors. So far they have been adopted for the air, water and waste sectors. Other 'daughter' directives in each sector must conform to the general requirements of the framework directive.

About 10% of EU environmental laws take the form of *regulations*. Regulations are directly binding in Member States and supersede any conflicting national laws. Member states may not transpose the provisions of regulations into national law, even if the national law is identical to the regulation. Nevertheless, environmental regulations require further national measures for implementation.

Regulations usually have a precise purpose and are used where it is important that, in the Member States, precisely the same requirements are applied. In some sectors such as waste and chemicals, EU law is a mixture of regulations and directives.

Decisions are individual legislative acts which are binding in their entirety upon the parties to whom they are addressed. They differ from regulations or directives in that they are usually very specific in nature. They are less common in the environmental field. Environmental regulations or directives often give the Commission the power to take decisions to implement them. Table 1.1 summarises these three major forms of binding EU legislation.

1.3 Integrated pollution prevention and control (IPPC)

The European Union defines obligations with which highly polluting industrial and agricultural activities must comply. It establishes a procedure for authorising these activities and sets minimum requirements to be included in all permits, particularly in terms of pollutants released. The aim is to prevent or reduce pollution of the atmosphere, water and soil, as well as the quantities of waste arising from industrial and agricultural installations to ensure a high level of environmental protection. These rules are set out in the so-called IPPC Directive

Table 1.1 Three forms of binding EU legislation

Directives	Regulations	Decisions
Enter into force upon the date specified in the directive or on the 20th day after publication in the *Official Journal*: this obliges Member States to approximate	Enter into force upon the date specified in the directive or on the 20th day after publication in the *Official Journal*	Enter into force upon notification to the party to whom they are addressed.
Are the most frequently used of EU environmental laws	Are used when a unified system is needed: Funds, institutions; EU voluntary schemes such as eco-label; product or trade regulation (endangered species, transport of wastes)	Are used to specify detailed administrative requirements or update technical aspects of Regulations or Directives
Member States must adopt laws, regulations and procedures to give effect to the directive by the date of transposition; this is typically two years after the date of entry into force.	Member States must establish institutions and procedures; they should repeal conflicting national provisions	Focused in scope and application
Come into effect on the date of practical application, the same as the date of transposition unless other date(s) is(are) indicated in the directive itself for specific actions. Some directives can have direct effect if the Member State fail to transpose into national legislation.	Are directly binding on the date they come into force	Are binding on the parties to whom they are addressed on the date they come into force

96/61/EC of 24 September 1996. IPPC stands for Integrated Pollution Prevention and Control. The IPPC Directive is based on several principles, namely (1) an integrated approach, (2) best available techniques (BAT), (3) flexibility and (4) public participation.

1.3.1 Implementation of the IPPC Directive

All installations covered by Annex I of the Directive are required to obtain an authorisation (permit) from the authorities in the EU member states. Unless they have a permit, they are not allowed to operate. This Annex I section 6.2 includes '*Plants for the pre-treatment (operations such as washing,*

bleaching, mercerisation) or dyeing of fibres or textiles where the treatment capacity exceeds 10 tonnes per day'. In 2001, 130 textile facilities exceding 10 tonnes treatment capacity were reported, emitting some 24 different pollutants above the EPER thresholds (see Table 1.2).

Since 30 October 1999 for the EU-15, and 1 May 2004 for the ten new Member States, the IPPC Directive has applied to new installations as well as to those 'existing' installations (i.e. those built before 2000) where the operators intend to carry out changes that may have significant negative effects on human health and the environment. Member States have been given an eight-year transitional period until October 2007 to ensure that all other existing installations fully comply with the Directive. Four new Member States – Latvia, Poland, Slovakia and Slovenia – were granted transitional periods for certain installations until the end of 2010.

The Commission has recently launched a review process of the IPPC Directive and related legislation on industrial emissions. While not altering its main underlying principles and level of ambition, the review will evaluate the scope to improve the functioning of the Directive, its coherence and complementarity with other industrial emissions-related legislation and the effectiveness of market-based-instruments in this context. The deadline of 30 October 2007 for the full implementation of the Directive remains valid.

1.3.2 Permits based on best available techniques (BAT)

'Integrated' means that the permits must take into account the whole environmental performance of the plant, including emissions to air, water

Table 1.2 Number of reported textile IPPC facilities and pollutants by country in 2001

Country	Facilities	Pollutants
Austria	3	5
Belgium	27	11
Finland	1	4
France	20	10
Germany	26	11
Greece	1	1
Ireland	1	1
Italy	18	10
The Netherlands	1	4
Portugal	8	11
Spain	15	14
Sweden	1	1
United Kingdom	8	3
EU total	130	24

and land, generation of waste, use of raw materials, energy efficiency, noise, prevention of accidents, risk management. The Member States have chosen various approaches to implement the IPPC Directive, such as case-by-case permitting or use of General Binding Rules for industry sectors.

Competent authorities responsible for issuing permits are required to take account of the general principles set out in article 3 when determining the conditions of the permit. These conditions must include emission limit values, supplemented or replaced where appropriate by equivalent parameters or technical measures. According to article 9(4) of the Directive, these emission limit values, equivalent parameters and technical measures must, without prejudice to compliance with environmental quality standards, be based on the best available techniques, without prescribing the use of any technique or specific technology, but taking into account (1) the technical characteristics of the installation concerned, (2) its geographical location and (3) the local environmental conditions. In all circumstances, the conditions of the permit must include provisions on the minimisation of long-distance or transboundary pollution and must ensure a high level of protection for the environment as a whole.

The permits must be based on the concept of 'best available techniques' (or BAT), which is defined in article 2(11) of the Directive:

> 'best available techniques' shall mean the most effective and advanced stage in the development of activities and their methods of operation which indicate the practical suitability of particular techniques for providing in principle the basis for emission limit values designed to prevent and, where that is not practicable, generally to reduce emissions and the impact on the environment as a whole:
>
> - 'techniques' shall include both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned,
> - 'available' techniques shall mean those developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions, taking into consideration the costs and advantages, whether or not the techniques are used or produced inside the Member State in question, as long as they are reasonably accessible to the operator,
> - 'best' shall mean most effective in achieving a high general level of protection of the environment as a whole.

Annex IV lists the considerations to be taken into account when determining best available techniques, bearing in mind the likely costs and benefits of a measure and the principles of precaution and prevention: the use of low-waste technology, the use of less hazardous substances, the nature, effects and volume

of the emissions concerned, the consumption and nature of raw materials (including water) used in the process and their energy efficiency, and the need to prevent accidents and to minimise the consequences for the environment.

1.3.3 Best available techniques for the textiles industry (BREF document)

Since the permits must be based on BAT, the licensing authorities need some assistance to find out which techniques are BAT. Therefore, the European Commission organises an exchange of information between experts from the EU Member States, industry and environmental organisations. This work is co-ordinated by the European IPPC Bureau and results in a BAT reference document, a so-called BREF document, for some 30 sectors. The 'Reference Document on Best Available Techniques for the Textiles Industry' was formally adopted by the Commission in July 2003. This document covers the industrial activities specified in Section 6.2 of Annex 1 of Directive 96/61/EC, namely: 'Plants for the pretreatment (operations such as washing, bleaching, mercerisation) or dyeing of fibres or textiles where the treatment capacity exceeds 10 tonnes per day'.

The BREF document contains a thorough description of the applied processes and techniques in the textiles industry (fibre preparation, pretreatment, dyeing, printing and finishing) as well as a description of environmental aspects of different process steps in textile processing. Upstream processes, which may have a significant influence on the environmental impact of the subsequent wet processing activities are also briefly described. Furthermore, some emission levels of environmental aspects and consumption of levels of energy, water and some chemicals are also presented. The main part of the BREF is a thorough description of different techniques to consider in the determination of the best available technique (BAT) for each textile process. It should be stressed, however, that this document does not propose emission limit values. Finally, the document lists the best available technique for each step of textile processing. In the Annex to the document different textile auxiliaries are described and possible substitutes for problematic substances are suggested.

1.3.4 European Pollutant Emission Register (EPER)

The IPPC Directive ensures that the public has a right to participate in the decision-making process, and to be informed of its consequences, by having access to (a) permit applications in order to give opinions, (b) permits, (c) results of the monitoring of releases and (d) the European Pollutant Emission Register (EPER).

EPER is the European Pollutant Emission Register of industrial emissions into air and water, which was established by a Commission Decision of 17

July 2000 to have better and public information about the amount of pollution that different installations are responsible for. The EPER Decision is based on Article 15(3) of the IPPC Directive 96/61/EC.

According to the EPER Decision, Member States have to produce a triennial report on the emissions of industrial facilities into the air and waters. The report covers 50 pollutants which must be included if the threshold values indicated in Annex A1 of the EPER Decision are exceeded. The first reporting year was 2001. The 130 textile IPPC facilities reported some 24 different pollutants, mainly emissions to water (see Table 1.3).

EPER will be replaced by the European Pollutant Release and Transfer Register (E-PRTR) from 2007 reporting period onwards. The E-PRTR will report on more substances and will also have information on what the industrial installations do with their waste and waste water. The reporting cycle will be annual instead of every three years.

1.4 EU legislation on chemical substances

A number of chemicals that may be used in textile processes are worth mentioning for their potential negative effects on the environment and human health and are therefore regulated. It is reported that more than 90% of the organic chemicals and auxiliaries in pretreatment and dyeing operations do not stay on the fibre, whereas the reverse is true in the finishing treatment. In order to protect the general public and the environment from certain dangerous substances and preparations and to ensure the proper functioning of the internal market, the European Union has drawn up a list of substances and preparations to which restrictions on marketing and use apply. In an increasingly health- and environment-conscious world, a product that is able to prove that it is better for the environment and health by a trustworthy label can help to make a difference in the eyes of customers.

1.4.1 Evaluation and control of the risk of substances

The European Union has laid down common rules to ensure the systematic evaluation and better management of the risks linked to existing substances as well as, where appropriate, new protective measures in Council Regulation 793/93/EEC of 23 March 1993 on the evaluation and control of the risks of existing substances. The purpose of these rules is, as part of the internal market, to protect humans and all parts of the environment from the possible effects of exposure to dangerous chemical products. The Regulation does not provide directly for risk reduction measures, although it may give rise to such measures being taken. If the risk reduction strategy contained in the Recommendation proposes limiting the marketing and use of a substance, the Commission may decide to propose measures under Directive 76/769/

Table 1.3 Aggregated emissions of all reported pollutants of textile IPPC activity in 2001 (in tonne year^{-1})

Pollutant	To air (t y^{-1})	Direct to water (t y^{-1})	Indirect to water (transfer to off-site waste water treatment) (t y^{-1})
Ammonia (NH_3)	27.40	–	–
Arsenic and its compounds (As)	–	–	0.0337
Benzene, toluene, ethylbenzene, xylenes (as BTEX)	–	–	0.707
Brominated diphenylethers	–	–	1.40
Cadmium and its compounds (Cd)	–	0.0333	0.0476
Carbon dioxide (CO_2)	187 000.00	–	–
Carbon monoxide (CO)	1230.00	–	–
Chlorides (Cl^-)	–	–	363 000.00
Chromium and its compounds (Cr)	–	0.7837	1.41
Copper and its compounds (Cu)	–	4.54	2.62
Hydrogen cyanide (HCN)	0.541	–	–
Lead and its compounds (Pb)	–	0.4839	0.2224
Mercury and its compounds (Hg)	–	0.00904	0.0079
Nickel and its compounds (Ni)	–	0.8146	0.992
Nitrogen oxides (NO_x)	941.00	–	–
Non-methane volatile organic compounds (NMVOC)	188.00	–	–
Phenols	–	0.0721	79.41
Phosphorus, total (P)	–	47.18	58.28
Polycyclic aromatic hydrocarbons (PAH)	–	–	12.28
Sulphur oxides (SO_x)	1485.00	–	–
Tetrachloromethane (TCM)	0.8	–	–
Total organic carbon (TOC)	–	1523.20	10 607.80
Trichloroethylene (TRI)	39.06	–	–
Zinc and its compounds (Zn)	–	2.27	2.05

EEC on restrictions on the marketing and use of certain dangerous substances and preparations. Furthermore, other Community instruments may be used with a view to reducing the threats posed by the substance under examination.

The criteria which define a substance as dangerous are harmonised at European level, as are the packaging and labelling criteria designed to ensure that these substances are easily identifiable in order to protect public health and the environment and ensure the free movement of such products.

Classification, packaging and labelling of chemicals is provided for by two directives and their subsequent amendments: Directive 1967/548/EEC of 27 June 1967 for dangerous substances and Directive 1999/45/EC of 31 May 1999 for dangerous preparations. Characteristics and parameters for assessment of dangers for the environment, and a new danger symbol 'dangerous for the environment' was added by Directive 92/32/EEC of 30 April 1992, amending Directive 67/548/EEC for the seventh time. The most recent proposal to amend the legislation will establish a single integrated registration system (REACH) and a Globally Harmonized System of Classification and Labelling of Chemicals (GHS) (see section 1.3).

Due to the large number of substances covered by the Regulation, a priority-setting approach has been adopted. The *lists of priority substances* are drawn up and published each year by the Commission. Four priority lists have been adopted under the regulation to date, resulting in 141 substances. The substances included are those that require priority attention because of their possible effects on man and the environment. Special attention is accorded to substances with potentially chronic effects, such as carcinogens. A number of criteria may be taken into account when deciding whether to include a substance, such as the effects on man and the environment, the absence of data on the effects of the substance and the work already carried out in other international fora. A substance already evaluated under other Community legislation may only be placed on the list if the evaluation in question fails to take account of risks to man and the environment.

To have an indication of the potential danger and information regarding the protection of health and the environment, Directive 91/155 defines the detailed arrangements for the information system for dangerous preparations. This information system in the form of safety data sheets (SDS) is principally intended for industrial and professional users and must enable them to take the measures necessary to ensure the protection of health and safety at the workplace and the environment. Any person, whether the manufacturer, importer or distributor, established within the Community, who is responsible for placing a dangerous substance or preparation on the market, shall supply the recipient who is an industrial user of the substance or preparation with a safety data sheet containing the information set out in the Directive. The information shall be provided free of charge at the latest when the substance or preparation is first supplied and thereafter following any revision due to

any significant new information regarding safety and protection of health and the environment.

1.4.2 Restrictions on marketing and use of certain dangerous substances and preparations

Annex I of Council Directive 76/769/EEC of 27 July 1976 and its subsequent amendments on the approximation of the laws, regulations and administrative provisions of the Member States relating to restrictions on the marketing and use of certain *dangerous substances and preparations* contains the list of substances and preparations covered by the measures provided for in this Directive as well as the conditions governing their placing on the market. The list in Annex I has been amended several times introducing new substances and preparations. An overview of these directives relevant for substances and preparations used in textile processing is listed in Table 1.4. Among these chemicals there are also certain biocides.

Biocidal products are used during textile production as preservatives, but also in finishing treatment, for example insecticides and acaricides. Directive 98/8/EC of 16 February 1998 concerning the placing of biocidal products on the market establishes a regulatory framework for the placing of biocidal products on the market, with a view to ensuring a high level of protection for man and the environment and the proper functioning of the common market. The time limit for transposition of the Directive in the Member States was 14 May 2000. Active substances, introduced on the market after this date, are subject to the provisions of the Directive. At this same date, a 10-year review program of active substances already on the market (so-called existing active substances) was started. The aim of the programme is to assess all active substances that were already on the market before 14 May 2000. During this transitional phase, Member States may continue to apply their national rules on biocidal products containing existing active substances until the decision on the inclusion of the particular substances has been made.

Currently, some biocidally active substances are subject to restrictions under Directive 76/769/EEC on restrictions of the marketing and use of chemicals: arsenic (Directive 2003/2/EC), creosote (Directive 2001/90/EC), organic tin compounds (Directive 2002/62/EC), mercury (Directive 89/677/EEC), pentachlorophenol (Directive 1999/51/EC).

Existing active substances within product type 18, i.e. products used for the control of arthropods (e.g. insects, acarids), will be evaluated during the second phase of the review programme. Existing active substance within products used for the preservation of fibrous or polymerised materials, such as leather, rubber or paper or textile products, by the control of microbiological deterioration, i.e. product-type 9, will be evaluated during the fourth phase of the review programme.

Table 1.4 Overview of legislation related to restrictions on marketing and use of certain dangerous substances of relevance for the textile industry

Directive	Subject	Summary
76/769/EC	Restriction on marketing and use of dangerous substances	The Annex contains the list of products covered by the measures provided for in this Directive as well as the conditions governing their placing on the market.
1979/663/EEC	Tris [2,3-dibromopropyl] phosphate	May not be used in textile articles, such as garments, undergarments and linen, intended to come into contact with the skin.
1982/806/EEC 1989/677/EEC	Benzene	Not permitted in toys or parts of toys as placed on the market where the concentration of benzene in the free state is in excess of 5 mg kg^{-1} of the weight of the toy or part of toy (e.g. textiles). May not be used in concentrations equal to, or greater than, 0.1% by mass in substances or preparations placed on the market.
1983/264/EEC	Tris-aziridinyl phosphinoxide, polybrominated biphenyl (PBB)	May not be used in textile articles, such as garments, undergarments and linen, intended to come into contact with the skin.
89/677/EEC	Mercury compounds	May not be used as substances and constituents of preparations intended for use in the impregnation of heavy-duty industrial textiles and yarn intended for their manufacture.
1991/338/EEC	Cadmium and its compounds	This Directive prohibits the use of cadmium and its compounds in three areas: 'to give colour', stabiliser for finished products manufactured from vinylchloride and cadmium plating. Furthermore, it provides for a general exemption clause where justification exists on the grounds of safety or reliability and where the use of cadmium is unavoidable. In any case, whatever their use or intended final purpose, finished products or components of products listed in the Directive may not be placed on the market if their cadmium content expressed as Cd metal) exceeds 0.01% by mass of the plastic material.
94/27/EC	Nickel and its compounds	May not be used in jewellery and personal objects, including buttons and zippers, which may come into contact with the skin if the rate of nickel release from the parts of these products coming into direct and prolonged contact with the skin is greater than 0.5 μg $cm^{-2}/week^{-1}$;

Table 1.4 Cont'd

Directive	Subject	Summary
1999/51/EC	Pentachlorophenol and its salts and esters	Shall not be used in a concentration equal to or greater than 0.1% by mass in substances or preparations placed on the market. By way of derogation until 31 December 2008, France, Ireland, Portugal, Spain and the United Kingdom may choose not to apply this provision to substances and preparations intended for use in industrial installations not permitting the emission and/or discharge of pentachlorophenol (PCP) in quantities greater than those prescribed by existing legislation: (b) in the impregnation of fibres and heavy-duty textiles not intended in any case for clothing or for decorative furnishings.
1999/77/EEC	Asbestos fibres	Ban on the marketing and use of asbestos fibres; crocidolite, chrysotile, amosite, anthophyllite, actinolite and tremolite, and products containing these substances.
97/10/EC 97/56/EC 1999/43/EC 2001/41/EC 2003/34/EC 2003/36/EC	Substances classified as carcinogenic, mutagenic or toxic to reproduction (CMR)	Ban on the marketing to the general public of substances classified as carcinogenic, mutagenic or toxic to reproduction, and of preparations containing these substances.
2002/45	Short-chain chlorinated paraffins (SCCPs)	Ban on the use and marketing of substances or preparations containing more than 1% SCCPs in metalworking and leather finishing. By 1 January 2003, all remaining uses of SCCPs were to undergo a risk-assessment review.
2002/61/EC 2003/3/EC	Azoic colouring agents	Azo dyes which, by reductive cleavage of one or more azo groups, may release one or more of the aromatic amines listed in the Appendix, in detectable concentrations, i.e. above 30 ppm in the finished articles or in the dyed parts thereof, may not be used in textile and leather articles which may come into direct and prolonged contact with the human skin or oral cavity.
2003/11/EC	Pentabromodiphenyl ether (pentaBDE), octabromodiphenyl ether (octaBDE)	Ban on the marketing and use of pentaBDE and octaBDE as a substance, in preparations and in articles containing concentrations in excess of 0.1% by mass of pentaBDE and octaBDE.

Table 1.4 Cont'd

Directive	Subject	Summary
2003/53/EC	Nonylphenol, nonylphenol ethoxylate	May not be placed on the market or used as a substance or constituent of preparations in concentrations equal or higher than 0.1% by mass for, amongst others, textiles and leather processing except processing with no release into wastewater or systems with special treatment where the process water is pre-treated to remove the organic fraction completely before biological waste water treatment (degreasing of sheepskin).
98/8/EC*	Biocidal products	Regulatory framework for the placing of biocidal products (i.e. active substances and preparations containing one or more active substances, put up in the form in which they are supplied to the user, intended to destroy, deter, render harmless, prevent the action of, or otherwise exert a controlling effect on any harmful organism by chemical or biological means) on the market, with a view to ensuring a high level of protection for man and the environment and the proper functioning of the common market.
648/2004/EC*	Surfactants in detergents	Surfactants in detergents shall be considered as biodegradable if the level of biodegradability (mineralisation) measured is at least 60% within 28 days according to tests in Annex III A, or at least 70% according to tests in Annex III B.

Acts marked* are not amending acts of Directive 76/769/EEC.

The combination of an article (e.g. textiles) and an active substance, has to comply with the requirements of the Directive if the active substance is placed on the market as an inseparable ingredient of the article and if it is intended that the biocidally active substance is released from the treated article to control harmful organisms outside the treated article (external effect) or if it is intended to control only organisms that are not harmful to the treated article itself. In such cases, the article has the function of a delivery system and shall be considered as a biocidal product that must be authorised. Examples of such delivery systems are: mosquito nets containing insect repellents, mattress covers that are labelled as anti-mite for use in prevention of the action of house mites outside the cover (i.e. within the mattress), sleeping bag treated with an insect repellent, socks treated with a biocidally active substance

intended to have a biocidal action on the foot, treated textiles to be used for pets that release substances with a lethal effect on fleas and flea eggs.

When an article (e.g. textiles) has been treated with a biocidally active substance with the intention to control organisms harmful to the treated article/material itself (on the surface or inside), then the treated article shall not be considered as a biocidal product (so-called internal effect). Examples of such articles might be treated materials like wood, leather and most water-based paints. However, the active substance that (by itself or in a formulation) has been used to treat the article is a biocidal product requiring authorisation.

Regulation 648/2004/EC of 31 March 2004 on *detergents* harmonises the rules of the biodegradability of surfactants in detergents and restrictions for the placing on the market of detergents and surfactants for detergents. This Regulation will permit improved protection of the aquatic environment against surfactants. These surfactants – also called tensides – are included in detergents and other cleaning products in order to reduce the surface tension of liquids so that they can wet surfaces and clean them more effectively. Thus, the surfactants in auxiliaries and the detergents used by textile companies in Europe must fulfil the criteria as set out in this Regulation.

1.4.3 Elimination and minimisation of persistent organic pollutants (POPs)

The Stockholm Convention on persistent organic pollutants (POPs) forms a framework, based on the precautionary principle, which seeks to guarantee the safe elimination of these substances, which are harmful to human health and the environment, as well as reductions in their production and use. Persistent organic pollutants are chemical substances that possess certain toxic properties and, unlike other pollutants, resist degradation, which makes them particularly harmful for human health and the environment. POPs accumulate in living organisms, are transported by air, water and migratory species and accumulate in terrestrial and aquatic ecosystems. They are, therefore, a cross-border problem on which international action is indispensable. The Convention covers 12 priority POPs, although the eventual long-term objective is to cover other substances. These 12 priority POPs are aldrin, chlordane, dichlorodiphenyltrichlorethane (DDT), dieldrin, endrin, heptachlor, mirex, toxaphene, polychlorobiphenyls (PCBs), hexachlorobenzene, dioxins and furanes. Some pesticides can still be found on imported natural raw material like cotton.

1.4.4 Ecolabelling

Labels allow consumers to make comparisons among products and give consumers the ability to reduce the environmental impacts of their daily

activities by purchasing environmentally preferable and healthy products and minimising their consequences during use and disposal. Depending on the label, the criteria aim more at environmental aspects or harmful substances. Ecolabelling schemes are voluntary and mostly set up by private organisations. However, the EU eco-label scheme is regulated by law.

The Öko-Tex standard 100 is the world's leading eco-label for textiles. Products carrying this label have been tested and certified by internationally renowned textile institutes. Since 1992, the Öko-Tex standard 100 has grown into an international standard on safety of textiles, applied in the entire textile production chain. More than 6000 companies world-wide active in textiles and clothing are involved in the Öko-Tex certification network. With over 50000 certificates granted to millions of textile products, Öko-Tex standard 100 has become the world's leading eco label for textiles. Other textile labels worth mentioning include Nordic Swan, Blue Angel, Toxproof.

The EU Flower is the EU regulated eco–label. The first criteria for textiles were established in 1999. Regulation 880/92/EEC on a EU eco-label award scheme seeks to promote the design, production, marketing and use of products which have reduced environmental impacts during their life cycles. The regulation also seeks to provide consumers with better information on the environmental impact of products. It does not apply to food, drink or pharmaceuticals, dangerous substances under Directives 67/548/EEC or 88/379/EEC, or to products manufactured using processes which are likely to cause significant harm to man or the environment. Conditions for the awards for each product group are to be determined by a Committee of Member State representatives after a consultation process involving interested groups from industry, commerce, consumer and environmental organisations. Product group eco-label criteria last three years and are determined according to life cycle assessments of product groups based on the maintenance of a high level of environmental protection. So far, eco-label criteria have been determined for several product groups, including bed linen and T-shirts. The current eco-label criteria for textile products for the EU flower were established by the Commission on 15 May 2002 (2002/371/EC) and are valid until 31 May 2007. At present (March 2006) 69 companies hold EU Flower licences for some 113 textile products.

1.5 EU legislation on water quality

The textile industry uses water as the principal medium for removing impurities, applying dyes and finishing agents and for the generation of steam. The main concern is therefore about the water (quantity and quality) supplied and discharged and the chemical load and pollutants it carries.

Water is one of the most comprehensively regulated area of EU environmental legislation. There are a number of measures taken at Community

level to tackle particular pollution problems. Community policy concerning dangerous or hazardous substances in European waters was introduced more than two decades ago by Council Directive on Pollution Caused by Discharges of Certain Dangerous Substances (76/464/EEC). Several substances have been regulated in specific directives (also called 'daughter' directives) in the 1980s by defining Community-wide emission limit values and quality objectives in the surface and coastal waters. Other examples are the Urban Waste Water Treatment Directive and the Nitrates Directive (91/676/EC), which together tackle the problem of eutrophication (as well as health effects such as microbial pollution in bathing water areas and nitrates in drinking water); and the IPPC Directive, which deals with chemical pollution.

1.5.1 Water Framework Directive (WFD)

Historically, there has been a dichotomy in approach to pollution control at European level, with some controls concentrating on what is achievable at source, through the application of technology; and some dealing with the needs of the receiving environment in the form of quality objectives. Source controls alone can allow a cumulative pollution load, which is severely detrimental to the environment, where there is a concentration of pollution sources. Also quality standards can underestimate the effect of a particular substance on the ecosystem, due to the limitations in scientific knowledge regarding dose-response relationships and the mechanics of transport within the environment.

For this reason, a consensus has developed that both emission limit value legislation as well as water quality standards legislation are needed to have an efficient protection, i.e. a so-called 'combined approach'. This combined approach is also in accordance with the precautionary principle and the principle that environmental damage should, as a priority, be rectified at the source, as well as the principle that environmental conditions in the various regions shall be taken into consideration.

The Water Framework Directive (WFD) formalises this. On 23 October 2000, the Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy was adopted.

The aim is long-term sustainable water management based on a high level of protection of the aquatic environment. Article 4.1 defines the WFD general objective to be achieved in all surface and groundwater bodies, i.e. good status by 2015, and introduces the principle of preventing any further deterioration of status.

To fulfil this aim, it requires that, as part of the basic measures to be taken on the source side in the river basin, all existing technology-driven source-based controls must be implemented as a first step. But, over and above this,

it also sets out a framework for developing further such controls. The framework comprises the development of a list of priority substances for action at EU level, prioritised on the basis of risk; and then the design of the most cost-effective set of measures to achieve load reduction of those substances, taking into account both product and process sources. On the effects side, it co-ordinates all the environmental objectives in existing legislation, and provides a new overall objective of good status for all waters, and requires that, where the measures taken on the source side are not sufficient to achieve these objectives, additional ones are required.

The WFD establishes river basin management based on an assessment of the characteristics of the river basin; monitoring of the status of its surface and groundwaters; definition of quality objectives; establishment of programmes of measures to achieve the defined objective. However, the administrative structure to achieve this river basin management is left to the discretion of Member States. The programme of measures will have to follow the above-mentioned combined approach, using the setting of emission limit values and of water quality standards. In this context, the full implementation of existing EU emission limit value legislation has to be provided, i.e. Urban Waste Water Treatment Directive, IPPC Directive, Nitrates Directive, Plant Protection Products Directive, Dangerous Substances Directives and its daughter directives (1976). In addition, the water quality standards established under the Water Framework Directive and other relevant EU water legislation (e.g. Bathing Water Directive) have to be complied with. These general EU provisions need to be transposed into national legislation. Thus, emission limit values for waste water of textile dyeing companies can be subject to different approaches depending on the Member States. Either the approach of an individual permit or authorisation system is used to set emission limit values for a single company, or emission limit values are defined for an industrial sector, or a combination of both. The WFD obliges Member States to set maximum emission limit values. However, as an alternative, Member States are allowed to control pollution by complying with water quality standards established in the same Directive and thus derived emission limit values. Furthermore, Member States will have to ensure that services to water users are paid at full cost-recovery prices (basically prices for water supply and waste water collection and treatment).

Article 16 of the WFD sets out a 'Strategy against pollution of water'. The first step of the strategy was the establishment of a list of 'priority substances' to become Annex X of the Directive. The Commission will prepare Community-wide emission controls and quality standards for the priority substances.

The preparation of the priority list, included a procedure called COMMPS which was developed to identify the substances of highest concern at Community level. The Decision (2455/2001/EC) was adopted on 20 November

2001 and identifies 33 substances or group of substances (see Table 1.5), which have been shown to be of major concern for European Waters. Within this list, 11 substances have been identified as 'priority hazardous substances' which are of particular concern for the inland, transitional, coastal and territorial waters. 'Hazardous substances' are defined in Article 2(29) of the WFD as 'substances or groups of substances that are toxic, persistent and liable to bio-accumulate, and other substances or groups of substances which give rise to an equivalent level of concern'. These substances will be subject to cessation or phasing out of discharges, emissions and losses by 2020. A further 14 substances are identified as being subject to review for identification as possible 'priority hazardous substances'.

In accordance with Article 1(c) of Directive 2000/60/EC, the future reviews of the list of priority substances under Article 16(4) of that Directive will contribute to the cessation of emissions, discharges and losses of all hazardous substances by 2020 by progressively adding further substances to the list.

The list of priority substances adopted under this Decision is to replace the list of substances in the Commission Communication to the Council of 22 June 1982 on dangerous substances which might be included in List I of Council Directive 76/464/EEC. The Directive 76/464/EEC of 4 May 1976 on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community was one of the first water-related Directives to be adopted. It had the ambitious objective of regulating potential aquatic pollution by thousands of chemicals already produced in Europe at that time. The Directive covered discharges to inland surface waters, territorial waters, inland coastal waters and groundwater. In 1980, the protection of groundwater was taken out of 76/464/EEC and regulated under the separate Council Directive 80/68/EEC on the Protection of Groundwater Against Pollution Caused by Certain Dangerous Substances. This Directive introduced the concept of list I and list II substances, the so-called Europe's Black List and Grey List of dangerous substances, which were listed in the Annex to the Directive, to eliminate pollution from list I substances and to reduce pollution from list II substances, but are now integrated in the WFD.

1.5.2 Protection of the maritime waters against pollution

The Community and Member States are party to various international agreements containing important obligations to prevent and eliminate pollution and to protect the maritime area against the adverse effects of human activities. Europe's seas may be divided into three regions (with possible subregions): the Baltic Sea, the North-East Atlantic and the Mediterranean, resulting in three conventions, Convention on the Protection of the Marine Environment of the Baltic Sea Area, signed in Helsinki on 9 April 1992 and approved by Council Decision 94/157/EC (the Helsinki Convention), the Convention for

Table 1.5 List of priority substances in the field of water policy (2455/2001/EC)

	CAS number†	EU number‡	Name of priority substance*	Identified as priority hazardous substance
1	15972-60-8	240-110-8	Alachlor	
2	120-12-7	204-371-1	Anthracene	(X)***
3	1912-24-9	217-617-8	Atrazine	(X)***
4	71-43-2	200-753-7	Benzene	
5	Not applicable	Not applicable	Brominated diphenylethers**	X****
6	7440-43-9	231-152-8	Cadmium and its compounds	X
7	85535-84-8	287-476-5	C_{10-13}-chloroalkanes (**)	X
8	470-90-6	207-432-0	Chlorfenvinphos	
9	2921-88-2	220-864-4	Chlorpyriphos	(X)***
10	107-06-2	203-458-1	1,2-Dichloroethane	
11	75-09-2	200-838-9	Dichloromethane	
12	117-81-7	204-211-0	Di-(2-ethylhexyl)phthalate (DEHP)	(X)***
13	330-54-1	206-354-4	Diuron	(X)***
14	115-29-7	204-079-4	Endosulfan	(X)***
	959-98-8	Not applicable	(alpha-endosulfan)	
15	206-44-0	205-912-4	Fluoranthene*****	
16	118-74-1	204-273-9	Hexachlorobenzene	X
17	87-68-3	201-765-5	Hexachlorobutadiene	X
18	608-73-1	210-158-9	Hexachlorocyclohexane	X
	58-89-9	200-401-2	(gamma-Lindane)	
19	34123-59-6	251-835-4	Isoproturon	(X)***
20	7439-92-1	231-100-4	Lead and its compounds	(X)***
21	7439-97-6	231-106-7	Mercury and its compounds	X
22	91-20-3	202-049-5	Naphthalene	(X)***
23	7440-02-0	231-111-4	Nickel and its compounds	
24	25154-52-3	246-672-0	Nonylphenols	X
	104-40-5	203-199-4	(4-nonylphenol)	

25	1806-26-4	217-302-5	Octylphenols	(X)***
	140-66-9	Not applicable	(4-t-octylphenol)	
26	608-93-5	210-172-5	Pentachlorobenzene	X
27	87-86-5	201-778-6	Pentachlorophenol	(X)***
28	Not applicable	Not applicable	Polyaromatic hydrocarbons	X
	50-32-8	200-028-5	(Benzo[*a*]pyrene)	
	205-99-2	205-911-9	(Benzo[*b*]fluoranthene)	
	191-24-2	205-883-8	(Benzo[*ghi*]perylene)	
	207-08-9	205-916-6	(Benzo[*k*]fluoranthene)	
	193-39-5	205-893-2	(Indeno[1,2,3-*cd*]pyrene)	
29	122-34-9	204-535-2	Simazine	(X)***
30	688-73-3	211-704-4	Tributyltin compounds	X
	36643-28-4	Not applicable	(Tributyltin cation)	
31	12002-48-1	234-413-4	Trichlorobenzenes	(X)***
	120-82-1	204-428-0	(1,2,4-Trichlorobenzene)	
32	67-66-3	200-663-8	Trichloromethane (chloroform)	
33	1582-09-8	216-428-8	Trifluralin	(X)***

*Where groups of substances have been selected, typical individual representatives are listed as indicative parameters (in brackets and without number). The establishment of controls will be targeted to these individual substances, without prejudicing the inclusion of other individual representatives, where appropriate.
**These groups of substances normally include a considerable number of individual compounds. At present, appropriate indicative parameters cannot be given.
***This priority substance is subject to a review for identification as a possible 'priority hazardous substance'. The Commission will make a proposal to the European Parliament and Council for its final classification not later than 12 months after adoption of this list. The timetable laid down in Article 16 of Directive 2000/60/EC for the Commission's proposals of controls is not affected by this review.
****Only pentabromobiphenylether (CAS number 32534-81-9).
*****Fluoranthene is on the list as an indicator of other, more dangerous polyaromatic hydrocarbons.
[†]Chemical Abstract Services.
[‡]European Inventory of Existing Commercial Chemical Substances (EINECS) or European List of Notified Chemical Substances (ELINCS).

the Protection of the Marine Environment of the North-East Atlantic, signed in Paris on 22 September 1992 and approved by Council Decision 98/249/EC (the OSPAR convention) and the Convention for the Protection of the Mediterranean Sea Against Pollution, signed in Barcelona on 16 February 1976 and approved by Council Decision 77/585/EEC (the Barcelona Convention). In each region, and possibly in the subregions to which they belong, the Member States concerned must coordinate their actions with each other and with the third countries involved.

The OSPAR Commission acts as the decision-making body for the OSPAR Convention. Each year, it discusses, decisions and recommendations and adopts them, either unanimously or by a three-quarters majority of the Contracting Parties. The Hazardous Substances Strategy sets the objective of preventing pollution of the maritime area by continuously reducing discharges, emissions and losses of hazardous substances, with the ultimate aim of achieving concentrations in the marine environment near background values for naturally occurring substances and close to zero for man-made synthetic substances. As its timeframe, the Hazardous Substances Strategy further declares that the Commission will implement this Strategy progressively by making every endeavour to move towards the target of the cessation of discharges, emissions and losses of hazardous substances by the year 2020.

PARCOM has also issued, in 1997, one Recommendation concerning reference values for effluent discharges from wet processes in the textile processing industry (Recommendation 97/1) and one Recommendation BAT and best environmental practice (BEP) for this industry 94/5. The PARCOM Recommendation 97/1 contains limit values for additional metals compared to the HELCOM Recommendation (e.g. Cd, As, Pb). The limit values for Cr (both total and Cr VI) are stricter in the PARCOM Recommendation. The PARCOM Recommendation also contains requirements expressed as mg kg^{-1} of textiles processed for different cases/processes.

1.5.3 Urban Waste Water Directive

Directive 91/271/EEC of 21 May 1991 concerning urban waste water treatment aims to protect surface inland waters and coastal waters by regulating collection and treatment of urban waste water and discharge of certain biodegradable industrial waste water (basically from the agro-food industry). In addition, industrial waste water entering collecting systems should be subject to general rules or regulations and/or specific authorisations (Article 11). Industrial waste water entering collecting systems and urban waste water treatment plants shall be subject to such pre-treatment as is required in order to: (a) protect the health of staff working in collecting systems and treatment plants, (b) ensure that collecting systems, waste water treatment plants and associated equipment are

not damaged, (c) ensure that the operation of the waste water treatment plant and the treatment of sludge are not impeded, (d) ensure that discharges from the treatment plants do not adversely affect the environment, or prevent receiving water from complying with other Community Directives, (e) ensure that sludge can be disposed of safely in an environmentally acceptable manner.

1.6 EU legislation on air pollution

With regard to emissions to air, the BREF on Textile Processing reports two sources: (1) emissions of textile processes setting volatile organic compounds (VOC) free and (2) emissions of combustion processes to produce thermal energy. The first type of emissions is covered by the VOC Directive, the second by several directives depending on the pollutant and the thermal input of the installation.

Air quality is one of the areas in which Europe has been most active in recent years. The aim has been to develop an overall strategy through the setting of long-term air quality objectives. A series of directives has been introduced to control levels of certain pollutants and to monitor their concentrations in the air. In 1996, the Environment Council adopted Framework Directive 96/62/EC on ambient air quality assessment and management. This Directive covers the revision of previously existing legislation and the introduction of new air quality standards for previously unregulated air pollutants, setting the timetable for the development of daughter directives on a range of pollutants. The list of atmospheric pollutants to be considered includes sulphur dioxide, nitrogen dioxide, particulate matter, lead and ozone – pollutants governed by already existing ambient air quality objectives – and benzene, carbon monoxide, polyaromatic hydrocarbons, cadmium, arsenic, nickel and mercury.

Emissions associated with the on-site burning of fossil fuels to produce thermal energy for textile processes are CO_2, SO_x, NO_x, and particulates. Directive 2001/80/EC of 23 October 2001 on the limitation of emissions of certain pollutants into the air from large combustion plants applies to combustion plants (technical apparatus in which fuels are oxidised in order to use the heat thus generated) with a rated thermal input equal to or greater than 50 MW, irrespective of the type of fuel used. The aim of the LCP Directive is gradually to reduce the annual emissions of sulphur dioxide and oxides of nitrogen from existing plants and to lay down emission limit values for sulphur dioxide, nitrogen oxides and dust in the case of new plants.

The EU has set national emission ceilings for acidifying and eutrophying pollutants and for ozone precursors in order to provide fuller protection for the environment and human health against their adverse effects. Directive 2001/81/EC of 23 October 2001 on National Emission Ceilings (NECs) for certain pollutants sets upper limits for each Member State for the total emissions

in 2010 of the four pollutants responsible for acidification, eutrophication and ground-level ozone pollution (SO_2, NO_x, VOCs and ammonia), but leaves it largely to the Member States to decide which measures to take in order to comply.

According to Directive 2003/87 of 13 October 2003, establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC Member States shall ensure that, from 1 January 2005, no installation undertakes any activity listed in Annex I resulting in emissions specified in relation to that activity unless its operator holds a permit issued by a competent authority. For the textiles industry, the activity 'combustion installations with a rated thermal input exceeding 20 MW (except hazardous or municipal waste installations) with carbon dioxide emissions' is of interest. This Directive establishes a scheme for greenhouse gas emission allowance trading within the Community in order to promote reductions of greenhouse gas emissions in a cost-effective and economically efficient manner. Member States shall develop a national plan stating the total quantity of allowances that it intends to allocate for that period and how it proposes to allocate them. Therefore, the influence of these directives on textile companies depends on the specific situation within a country, but emissions from the textile industry are generally low.

Volatile organic compounds (VOCs) are released from particular textile activities such as: (a) cleaning with organic solvents; (b) printing processes in cases when organic solvents are used (e.g. they are contained in pigment printing pastes); (c) vulcanisation of backing layers (carpet sector); (d) heat treatments (e.g. thermofixation, drying, curing) when the textile materials contain substances that evaporate or degrade thermally (for example oils, plasticisers, finishing agents and residues from upstream processes). Emissions of formaldehyde and uncombusted methane can be particularly significant in poorly maintained, directly heated stenters.

Council Directive 1999/13/EC of 11 March 1999 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations, the so-called VOC Directive, sets the framework of the global strategy to reduce pollution due to tropospheric ozone. The purpose of this Directive is to prevent or reduce the direct and indirect effects of emissions of volatile organic compounds (VOCs) on the environment and human health, by setting emission limits for such compounds and laying down operating conditions for industrial installations using organic solvents.

Industries which use volatile organic solvents and are covered by the Directive are listed in the Annex I to the Directive. For most of the activities concerned, the Directive specifies a consumption threshold (Annex II) above which its provisions apply. For rotary screen printing on textiles with a solvent consumption threshold of 30 tonnes $year^{-1}$, the emission limit values

in waste gases is 100 mg Nm^{-3} of carbon. Fugitive emission values are set at 20% of solvent input.

Member States must take the necessary measures to ensure that all new installations comply with the provisions of the Directive. The industrial operators concerned can conform with the specified emission limits in either of the following ways: (a) by installing equipment to reduce emissions to comply with the emission limit values and the fugitive emission values, or total emission limit values; (b) by introducing a reduction scheme to arrive at an equivalent emission level, in particular by replacing conventional products which are high in solvents with low-solvent or solvent-free products. Solvents containing substances likely to have a serious effect on human health (carcinogens, mutagens or toxic to reproduction), must be replaced, as far as possible, by less harmful substances within the shortest possible time. Stricter emission values are specified for harmful substances.

1.7 Future trends

One of the European Union's fundamental objectives is sustainable development. During the last few years, the Commission has begun to rethink policies relating to the environmental impacts of products. All products and services have an environmental impact, whether during their production, use or disposal. Up to now, product-related environmental policies have tended to focus on large point sources of pollution, such as industrial emissions or waste management issues. Now, however, it is becoming clear that they need to be complemented by a policy that looks at the whole of a product's life-cycle, including the use phase. This should ensure that environmental impacts throughout the life-cycle are addressed in an integrated way – and so are not just shifted from one part of the life-cycle to another. It should also mean that environmental impacts are addressed at the point in the life-cycle where they will best and most cost-effectively reduce the overall environmental impacts and resource use. To this aim, the integrated product policy (IPP) was presented in 2001. The European Union wishes also to modernise European chemicals legislation and to establish REACH, a single integrated system for the registration, evaluation and authorisation of chemicals, which also covers the life-cycle of the chemical substance.

Registration, evaluation, authorisation and restrictions of chemicals (REACH)

The Commission proposed a new EU regulatory framework for the Registration, Evaluation and Authorisation of Chemicals (REACH) on 29 October 2003. The proposed regulation could replace more than 40 directives and regulations currently in force. The aim is to improve the protection of human health and

the environment through the better and earlier identification of the properties of chemical substances. REACH would commit firms which manufacture and import chemicals to evaluate the risks resulting from the use of those chemicals and to take the necessary steps to manage any identified risk. The burden of proof that the safety of chemicals placed on the market is ensured would be reversed and passed from public authorities to industry.

The REACH proposal gives greater responsibility to the industry chain to manage the risks from chemicals and to provide safety information on the substances. Manufacturers and importers will be required to gather information on the properties and exposure of their substances (during the production process and in finished articles), which will help them manage chemicals safely, and to register the information in a central database. A Chemicals Agency will act as the central point in the REACH system: it will run the databases necessary to operate the system, co-ordinate the in-depth evaluation of suspicious chemicals and run a public database in which consumers and professionals can find hazard information.

At the moment, final adoption of the proposal is expected by the end of 2006 which could lead to entry into force around April 2007. The new European Chemicals Agency, to be established in Helsinki, Finland, will be fully operational 12 months later.

1.7.1 Globally Harmonised System (GHS)

The Globally Harmonised System of Classifying and Labelling Chemicals (GHS), is voluntary, but it was agreed at the 2002 UN World Summit on Sustainable Development in Johannesburg that the GHS should be implemented worldwide, with a target date of 2008.

The GHS will provide harmonised health and safety information for chemical substances and mixtures. As the GHS has been formally adopted only very recently and because the Commission wishes to examine in more detail the implications of its adoption for stakeholders and downstream legislation, it has not been considered appropriate to put forward a proposal to incorporate GHS into Community law at the same time as the proposal for REACH. Accordingly, the Commission will present the necessary proposals for adopting the GHS once the REACH legislation has been finally adopted.

The new legislation will replace, after a transitional period, the currently existing provisions on classification and labelling of chemicals, as set out in Council Directive 67/548/EEC and Directive 1999/45/EC as amended.

1.7.2 Integrated Product Policy (IPP)

The Commission presented in 2001 a strategy for strengthening and refocusing product-related environmental policies with a view to promoting the

development of a market for greener products. This Green Paper of 7 February 2001 on integrated product policy [COM(2001) 68 final] resulted in a communication from the Commission to the Council and the European Parliament of 18 June 2003 Integrated Product Policy – Building on Environmental Life-Cycle Thinking [COM(2003) 302 final]. The backbone of IPP is the 'Product Life Cycle' which covers all phases in the existence of the product: starting from the extraction of natural resources, via the production of raw material, through their design, assembly, marketing, distribution, sale and use to their eventual treatment as waste. This so-called 'integrated chain management' uses techniques of LCA (Life Cycle Analysis, which is an inventory of the environmental impact of a product) in order to assess the environmental impact due to all causes in all phases of the product life-cycle. These product-orientated policies provide the instruments to the EU policy, in order to initiate very concrete and directive-based interventions, to improve products from the point of view of their impact on the environment, for example, water quality. While the Water Framework Directive advocates the 'best environmental practices' to control all discharges to water, IPP gives the means to prevent such discharges through a systematic approach to improve environmental performance of a product across its life-cycle.

1.8 Sources of further information and advice

The European IPPC Bureau exists to catalyse an exchange of technical information on best available techniques under the IPPC Directive 96/61/EC and to create reference documents (BREFs), which must be taken into account when the competent authorities of Member States determine conditions for IPPC permits. The Textile BREF document can be downloaded from the EIPPCB website http://eippcb.jrc.es/.

1.8.1 EPER, the European Pollutant Emission Register

http://www.eper.cec.eu.int/ provides access to information on the annual emissions of approximately 10000 industrial facilities in the 15 Member States of the EU as well as Norway and Hungary – mostly from the year 2001. It allows information to be grouped easily, by pollutant, activity (sector), air and water (direct or via a sewerage system) or by country. It is also possible to see detailed data on individual facilities by searching by name or by clicking on a map. Alternatively, it is possible to look for the sources of a particular pollutant.

1.8.2 European Union – summary of legislation

The http://europa.eu.int/scadplus/scad_en.htm, site provides user-friendly fact sheets, which summarise EU legislation. The fact sheets are divided into

32 subject areas which are the Activities of the European Union. These provide not only summaries of existing measures, but also a follow-up of legislative proposals in policies. The aim of this site is to provide a complete summary of the latest legislative developments. The dates that appear at the bottom of each summary corresponds to the date of the last substantial modification, for example, the introduction of an amending or a related act.

EUR-Lex http://europa.eu.int/eur-lex/lex/en/index.htm, provides direct free access to European Union law. The system makes it possible to consult the *Official Journal* of the European Union and it includes *inter alia* the treaties, legislation, case-law and legislative proposals. It offers extensive search facilities. With a simple search on document number, the legislative acts and the bibliographic notice can be found.

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