

REGULATIONS

Learning goals

■ REACH

- *Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 on the Registration, Evaluation and the Authorisation of Chemicals*
- *Commission Regulation (EU) No 453/2010*

■ Classification, packaging and labelling of dangerous preparation (CLP)

- *Directives 1272/2008, 2001/60/EC, 1999/45/EC and 67/548/EEC concerning the classification, packaging and labelling of dangerous preparations*

■ BPR

- *The Biocidal Product Regulation (BPR, Regulation (EU) 528/2012)*

■ Test Methods

- *Annex V to Dir 67/548/EEC*

■ Waste Regulations

- *2008/98/CE*

■ The Italian laws

- *D.Lgs. 152/06 s.m.i.*
- *D.Lgs. 81/2008 s.m.i.*

REACH

Regulation (EC) No **1907/2006** of the European Parliament and of the Council of 18 December 2006 on the Registration, Evaluation and the Authorisation of Chemicals

Commission Regulation (EU) No **453/2010** of 20 May 2010 amended Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

REACH Key principles (I)

- Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 on the Registration, Evaluation and the Authorisation of Chemicals
- Scope:
manufacture, import, placing on market and use of **substances** (on their own, in preparations or in articles)

REACH shall not apply to:

1. This Regulation shall not apply to:

(a) **radioactive substances** within the scope of Council Directive 96/29/Euratom of 13 May 1996 laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation (1);

(b) substances, on their own, in a mixture or in an article, which are subject to **customs supervision**, provided that they do not undergo any treatment or processing, and which are in temporary storage, or in a free zone or free warehouse with a view to re- exportation, or in transit;

(c) non-isolated intermediates;

(d) the carriage of dangerous substances and dangerous substances in dangerous mixtures by rail, road, inland waterway, sea or air.

2. **Waste** as defined in Directive 2006/12/EC of the European Parliament and of the Council (2) is not a substance, mixture or article within the meaning of Article 3 of this Regulation.

3. Member States may allow for exemptions from this Regulation in specific cases for certain substances, on their own, in a mixture or in an article, where necessary in the interests of defence.

“Limited” exemption for biocides

Article 15(2) of REACH provides that:

Active substances manufactured or imported for use in biocidal products only and included either in Annexes I, IA or IB to Directive 98/8/EC...or in Commission Regulation (EC) No 2032/2003 on the second phase of the 10-year work programme...until the date of the decision referred to in the second subparagraph of Article 16(2) of Directive 98/8/EC, shall be regarded as being registered and the registration as completed for manufacture or import for the use in a biocidal product and therefore as fulfilling the requirements of Chapters 1 and 5 of this Title.
(Emphasis added.)

While other exemption provisions, e.g., concerning substances in medicinal products and food, cover all main REACH obligations without qualification (Registration, Downstream Users, Evaluation, Authorisation), Article 15(2) only concerns Registration.

REACH Key principles (II)

- Registration of substances ≥ 1 tonne/yr
- Evaluation of some substances
- Authorisation only for substances of very high concern
- Restrictions - the safety net (EU action)

Focus on priorities:

Substances with high volumes and those of greatest concern!

Registration

Companies have the responsibility of collecting information on the properties and the uses of substances that they manufacture or import **at or above one tonne per year**. They also have to make an assessment of the hazards and potential risks presented by the substance. This information is communicated to ECHA through a registration dossier containing the hazard information and, **where relevant (depending on tonnage and properties of compounds), an assessment of the risks** that the use of the substance may pose and how these risks should be controlled.

Registration applies to substances on their own, substances in mixtures and certain cases of substances in articles. Chemical substances that are already regulated by other legislations such as medicines, or radioactive substances are partially or completely exempted from REACH requirements.

Registration is based on the "**one substance, one registration**" principle. This means that manufacturers and importers of the same substance have the obligation to submit their registration jointly. The analytical and spectral information provided should be consistent and sufficient to confirm the substance identity.

For substance registration a fee is usually charged.

Evaluation

ECHA and the Member States evaluate the information submitted by companies to examine the quality of the registration dossiers and the testing proposals and to **clarify** if a given substance constitutes a risk to human health or the environment.

Evaluation under REACH focuses on three different areas:

- Examination of testing proposals submitted by registrants
- Compliance check of the dossiers submitted by registrants
- Substance evaluation

Once the evaluation is done, registrants may be required to submit further information on the substance.

Authorisation

The authorisation procedure aims to assure that the risks from Substances of Very High Concern **are properly controlled** and that these substances **are progressively replaced by suitable alternatives** while ensuring the good functioning of the EU internal market.

Substances with the following hazard properties may be identified as **Substances of Very High Concern (SVHCs)**:

- Substances meeting the criteria for classification as **carcinogenic**, **mutagenic** or **toxic** for reproduction category 1A or 1B in accordance with Commission Regulation (EC) No 1272/2008 (CMR substances);
- Substances which are **persistent**, **bioaccumulative** and **toxic** (PBT) or **very persistent** and **very bioaccumulative** (vPvB) according to REACH (Annex XIII);
- Substances identified on a **case-by-case** basis, for which there is scientific evidence of probable serious effects that cause an equivalent level of concern as with CMR or PBT/vPvB substances.

After a two-step regulatory process, SVHCs may be included in the Authorisation List and become subject to authorisation. These substances cannot be placed on the market or used after a given date, unless an authorisation is granted for their specific use, or the use is exempted from authorisation.

Manufacturers, importers or downstream users of a substance on the Authorisation List can apply for authorisation.

Restriction

Restrictions are a tool to protect human health and the environment from unacceptable risks posed by chemicals. Restrictions **may limit or ban** the manufacture, placing on the market or use of a substance.

A restriction applies to any substance on its own, in a mixture or in an article, including those that do not require registration. It can also apply to imports.

A Member State, or ECHA on request of the European Commission, can propose restrictions if they find that the risks need to be addressed on a Community wide basis.

Anyone can comment on a proposal to restrict a substance. Those most likely to be interested are companies, organisations representing industry or civil society, individual citizens, as well as public authorities. Comments are welcomed from the EU or beyond.

ECHA works with experts from the Member States to provide scientific opinions on any proposed restriction that will help the European Commission, together with the Member States, to take the final decision.

More responsibility for industry

Industry to demonstrate safety of chemicals

- Properties of substances
- Use of substances
- Risk assessment
- Risk management

Why?

Those who manufacture and use the substances
have easier access to information than authorities

Safety Data Sheet (SDS)

- Art. 31 - Requirements for safety data sheet
- Art. 32 - Duty to communicate information down the supply chain for substances on their own or in mixtures for which a SDS is not required
- Annex II - Guide to the compilation of SDS

Purposes of SDS

- = A mechanism for **transmitting appropriate safety information** on classified chemicals
- Shall **enable users to take the necessary measures** relating to protection of human health and safety at the workplace, and protection of the environment.

Annexes of REACH

ANNEX I GENERAL PROVISIONS FOR ASSESSING SUBSTANCES AND PREPARING CHEMICAL SAFETY REPORTS

ANNEX II GUIDE TO THE COMPILATION OF SAFETY DATA SHEETS

ANNEX III CRITERIA FOR SUBSTANCES REGISTERED IN QUANTITIES BETWEEN 1 AND 10 TONNES

ANNEX IV EXEMPTIONS FROM THE OBLIGATION TO REGISTER IN ACCORDANCE WITH ARTICLE 2(7)(a)

ANNEX V EXEMPTIONS FROM THE OBLIGATION TO REGISTER IN ACCORDANCE WITH ARTICLE 2(7)(b)

ANNEX VI INFORMATION REQUIREMENTS REFERRED TO IN ARTICLE 10

ANNEX VII STANDARD INFORMATION REQUIREMENTS FOR SUBSTANCES MANUFACTURED OR IMPORTED IN QUANTITIES OF ONE TONNE OR MORE.

ANNEX VIII STANDARD INFORMATION REQUIREMENTS FOR SUBSTANCES MANUFACTURED OR IMPORTED IN QUANTITIES OF 10 TONNES OR MORE

ANNEX IX STANDARD INFORMATION REQUIREMENTS FOR SUBSTANCES MANUFACTURED OR IMPORTED IN QUANTITIES OF 100 TONNES OR MORE

ANNEX X STANDARD INFORMATION REQUIREMENTS FOR SUBSTANCES MANUFACTURED OR IMPORTED IN QUANTITIES OF 1 000 TONNES OR MORE

ANNEX XI GENERAL RULES FOR ADAPTATION OF THE STANDARD TESTING REGIME SET OUT IN ANNEXES VII TO X

ANNEX XII GENERAL PROVISIONS FOR DOWNSTREAM USERS TO ASSESS SUBSTANCES AND PREPARE CHEMICAL SAFETY REPORTS

ANNEX XIII CRITERIA FOR THE IDENTIFICATION OF PERSISTENT, BIOACCUMULATIVE AND TOXIC SUBSTANCES, AND VERY PERSISTENT AND VERY BIOACCUMULATIVE SUBSTANCES

ANNEX XIV LIST OF SUBSTANCES SUBJECT TO AUTHORISATION

ANNEX XV DOSSIERS

ANNEX XVI SOCIO-ECONOMIC ANALYSIS

ANNEX XVII RESTRICTIONS ON THE MANUFACTURE, PLACING ON THE MARKET AND USE OF CERTAIN DANGEROUS SUBSTANCES, PREPARATIONS AND ARTICLES

The Commission has the possibility to review and amend Annexes of REACH in line with Article 131. Several reviews were specifically mandated by article 138 or other provisions in REACH.

Suggestion:

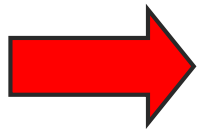
Check web site in order to be sure if the annex is up-to-date

<http://echa.europa.eu/web/guest/regulations/reach/legislation>

Amendment of Annex II of REACH

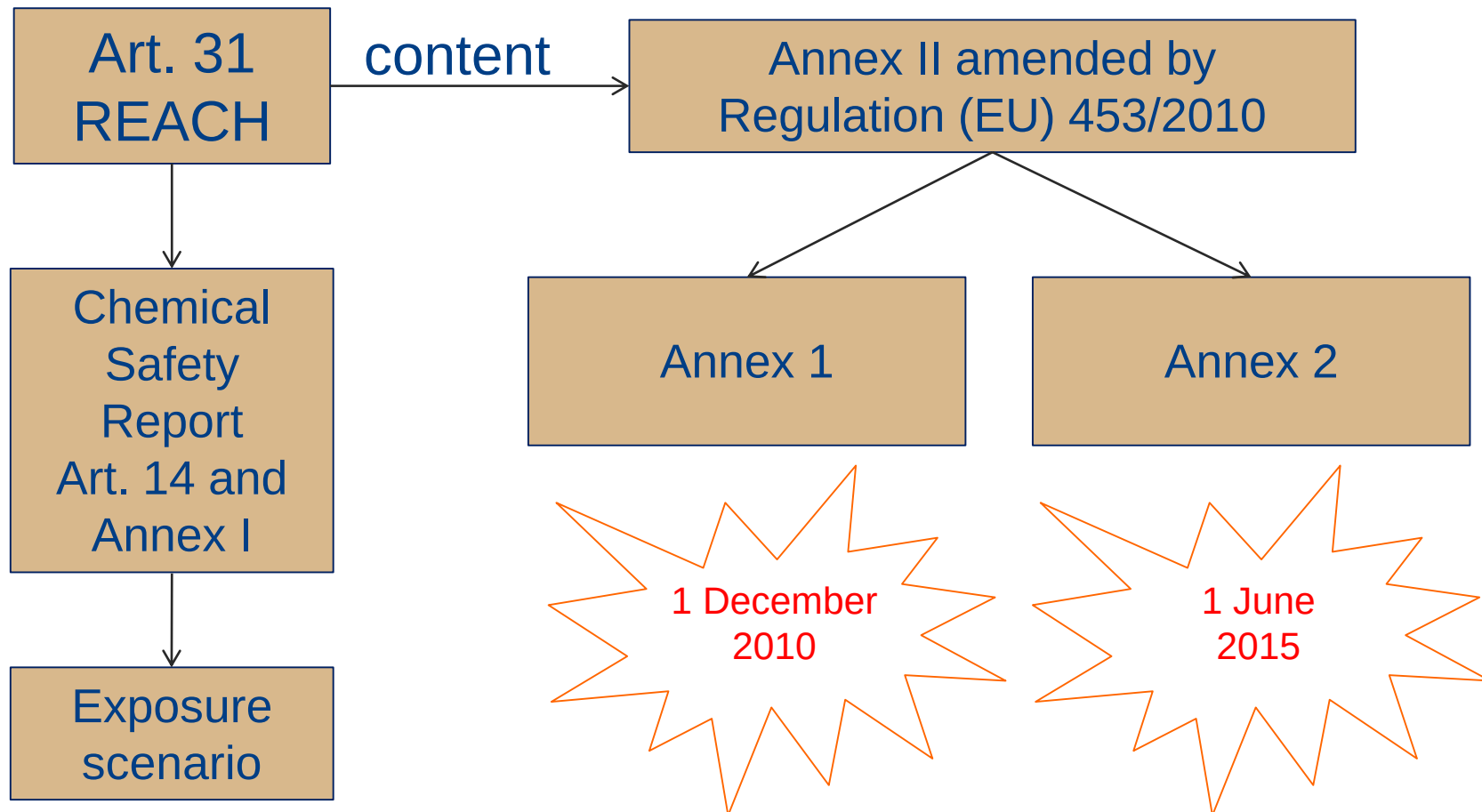
COMMISSION REGULATION (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

- From **1 Dec 2010** old Annex II is replaced by Annex I of new Regulation 453/2010
- From **1 Jun 2015** Annex I of Reg. 453/2010 will be replaced by Annex II of this Regulation



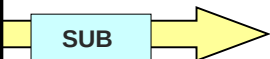
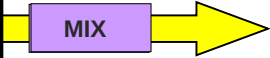
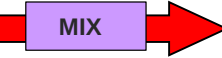
new SDS shall be prepared progressively

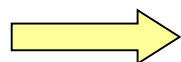
SDS: Regulatory references



Annex 1 foreseen to manage the transitional period and the inclusion of information from both system (old and new) in the SDS

SDS: Timeline of changing

	1 Dec 2010	1 Dec 2012	1 Jun 2015	1 Jun 2017
Placed on the market : before 1 Dec 2010	 			
Placed on the market : during 1 Dec 2010 1 Jun 2015	 			
Placed on the market : from 1 Jun 2015				
Placed on the market : from 1 Jun 2017				



... old format of SDS shall be accepted (unless the chemicals shall be relabelled and repackaged)



... SDS complying with Annex I to Regulation (EU) 453/2010 shall be used



... SDS complying with Annex II to Regulation (EU) 453/2010 shall be used

SUB

... SDS for substances

MIX

... SDS for mixtures

Content of the SDS in accordance with Reg. 453/2010

SECTION 1: Identification of the substance/mixture and of the company/undertaking

- 1.1. Product identifier
- 1.2. Relevant identified uses of the substance or mixture and uses advised against
- 1.3. Details of the supplier of the safety data sheet
- 1.4. Emergency telephone number

SECTION 2: Hazards identification

- 2.1. Classification of the substance or mixture
- 2.2. Label elements
- 2.3. Other hazards

SECTION 3: Composition/information on ingredients

- 3.1. Substances
- 3.2. Mixtures

SECTION 4: First aid measures

- 4.1. Description of first aid measures
- 4.2. Most important symptoms and effects, both acute and delayed
- 4.3. Indication of any immediate medical attention and special treatment needed

SECTION 5: Firefighting measures

- 5.1. Extinguishing media
- 5.2. Special hazards arising from the substance or mixture
- 5.3. Advice for firefighters

SECTION 6: Accidental release measures

- 6.1. Personal precautions, protective equipment and emergency procedures
- 6.2. Environmental precautions
- 6.3. Methods and material for containment and cleaning up
- 6.4. Reference to other sections

SECTION 7: Handling and storage

- 7.1. Precautions for safe handling
- 7.2. Conditions for safe storage, including any incompatibilities
- 7.3. Specific end use(s)

SECTION 8: Exposure controls/personal protection

- 8.1. Control parameters
- 8.2. Exposure controls



SECTION 9: Physical and chemical properties

- 9.1. Information on basic physical and chemical properties
- 9.2. Other information EN L 133/22 Official Journal of the European Union 31.5.2010

SECTION 10: Stability and reactivity

- 10.1. Reactivity
- 10.2. Chemical stability
- 10.3. Possibility of hazardous reactions
- 10.4. Conditions to avoid
- 10.5. Incompatible materials
- 10.6. Hazardous decomposition products



SECTION 11: Toxicological information

- 11.1. Information on toxicological effects

SECTION 12: Ecological information

- 12.1. Toxicity
- 12.2. Persistence and degradability
- 12.3. Bioaccumulative potential
- 12.4. Mobility in soil
- 12.5. Results of PBT and vPvB assessment
- 12.6. Other adverse effects



SECTION 13: Disposal considerations

- 13.1. Waste treatment methods

SECTION 14: Transport information

- 14.1. UN number
- 14.2. UN proper shipping name
- 14.3. Transport hazard class(es)
- 14.4. Packing group
- 14.5. Environmental hazards
- 14.6. Special precautions for user
- 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

SECTION 15: Regulatory information

- 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
- 15.2. Chemical safety assessment

SECTION 16: Other information

CLASSIFICATION AND LABELLING

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures (CLP)

This regulation will stepwise replace Directive 67/548/EEC (Dangerous Substances Directive - DSD) and Directive 1999/45/EC (Dangerous Preparations Directive – DPD- corrected by 2001/60/EC) and amends Regulation (EC) No 1907/2006

Identification of substances

☐ *Index numbers*

☐ *EC numbers*

☐ *CAS numbers*

☐ *International Chemical Identification*

Remember !!!

The labelling is the first and often the only information on the hazards of a chemical that reaches the user, which could be a consumer or a worker. In addition the classification has a large number of downstream consequences within the EU legislation.

Current/old system

- The current EU system on classification, packaging and labelling of chemicals has been developed **over the last 40 years** and is set out in three key instruments
 - the Dangerous Substances Directive (DSD - 67/548/EEC)
 - the Dangerous Preparations Directive (DPD -1999/45/EC)
 - REACH Annex II ((EC) 1907/2006); originally the Safety Data Sheet Directive (91/155/EEC)
- Dangerous/non-dangerous, R-phrases, S-phrases
- Well understood, effective

Substance and mixture

‘substance’ means a chemical element and its compounds in the natural state or obtained by any manufacturing process, including any additive necessary to preserve its stability and any impurity deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition;

‘mixture’ means a mixture or solution composed of two or more substances

Copper (II) Sulphate

Harmful if swallowed. Irritating to eyes and skin. Very toxic to aquatic organisms; may cause long-term adverse effects in the aquatic environment.

Gesundheitsschädlich beim Verschlucken. Reizt die Augen und die Haut. Sehr giftig für Wasserorganismen, kann in Gewässern längerfristig schädliche Wirkungen haben.

Schadelijk bij opname door de mond. Irriterend voor de ogen en de huid. Zeer vergiftig voor in het water levende organismen; kan in het aquatisch milieu op lange termijn schadelijke effecten veroorzaken.

Noctif en cas d'ingestion. Irritant pour les yeux et la peau. Très toxique pour les organismes aquatiques, peut entraîner des effets néfastes à long terme pour l'environnement aquatique.

Noctivo per ingestione. Irritante per gli occhi e la pelle. Altamente tossico per gli organismi acquatici, può provocare a lungo termine effetti negativi per l'ambiente acquatico.

Førlig ved indtagelse. Irriterer øjnene og huden. Meget giftig for organismer, der lever i vand; kan forårsage uønskede langtidseffekter i vandmiljøet.

0 350532 07887 >

Product Code: XYZ000, Quantity: 0.2g, Batch No.: ABC123DE

Made in the United Kingdom

Dangerous for the environment. Umweltgefährlich. Milieugevaarlijk. Dangereux pour l'environnement. Pericoloso per l'ambiente. Miljøfarlig.



Application limits

The directives shall not apply to the following preparations in the finished state, intended for the final user:

- medicinal products for human or veterinary use;
- cosmetic products;
- mixtures of substances which, in the form of waste, are covered by other Directives;
- foodstuffs;
- animal feedingstuffs;
- preparations containing radioactive substances;
- medical devices;
- the carriage of dangerous preparations by rail (RID), road (ADR), inland waterway (ADN), sea or air;
- preparations in transit.

Determination of dangerous properties of preparations

The evaluations of the hazard of a preparation shall be based on the determination of:

- physico-chemical properties;
- properties affecting health;
- environmental properties.

The danger symbol (1)

Classification	Hazard description	Symbol
Explosive	Explosive substances and preparations: solid, liquid, pasty or gelatinous substances and preparations which may also react exothermically without atmospheric oxygen thereby quickly evolving gases, and which, under defined test conditions, detonate, quickly deflagrate or upon heating explode when partially confined	 E
Oxidising	Oxidising substances and preparations: substances and preparations which give rise to a highly exothermic reaction in contact with other substances, particularly flammable substances	 O
Extremely flammable	Extremely flammable substances and preparations: liquid substances and preparations having an extremely low flash-point and a low boiling-point and gaseous substances and preparations which are flammable in contact with air at ambient temperature and pressure	 F+

The danger symbol (2)

Classification	Hazard description	Symbol
Highly flammable	- substances and preparations which may become hot and finally catch fire in contact with air at ambient temperature without any application of energy, or; - solid substances and preparations which may readily catch fire after brief contact with a source of ignition and with continue to burn or to be consumed after removal of the source of ignition, or; - liquid substances and preparations having a very low flash point, or - substances and preparations which, in contact with water or damp air, evolve extremely flammable gases in dangerous quantities;	 F
Flammable	Flammable substances and preparations: liquid substances and preparations having a low flash-point	 F-

The danger symbol (3)

Classification	Hazard description	Symbol
Very toxic	Very toxic substances and preparations: substances and preparations which in <u>very low</u> quantities cause death or acute or chronic damage to health when inhaled, swallowed or adsorbed via the skin	 T+
Toxic	Toxic substances and preparations: substances and preparations which in <u>low</u> quantities cause death or acute or chronic damage to health when inhaled, swallowed or adsorbed via the skin	 T
Harmful	Harmful substances and preparations: substances and preparations which may cause death or acute or chronic damage to health when inhaled, swallowed or adsorbed via the skin	 Xn
Corrosive	Corrosive substances and preparations: substances and preparations which may, on contact with living tissues, destroy them	 C
Irritant	Irritant substances and preparations: non-corrosive substances and preparations which, through immediate, prolonged or repeated contact with the skin or mucous membrane, may cause inflammation	 Xi

The danger symbol (4)

Classification	Hazard description	Symbol	
Sensitising	Sensitising substances and preparations: substances and preparations which, if they are inhaled or if they penetrate the skin, are capable of eliciting a reaction of hypersensitisation such that on further exposure to the substance or preparation, characteristic adverse effects are produced	 Xi	 Xn
Carcinogenic	Carcinogenic substances and preparations: substances or preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce cancer or increase its incidence	 T	 Xn
Mutagenic	Mutagenic substances and preparations: substances and preparations which if they are inhaled or ingested or if they penetrate the skin, may induce <u>heritable genetic defects</u> or increase their incidence	 T	 Xn
Toxic for reproduction	Substances and preparations which are toxic for reproduction: substances and preparations which if they are inhaled or ingested or if they penetrate the skin, may produce, or increase the incidence of, <u>non-heritable adverse effects in the progeny and/or an impairment of male or female reproductive functions or capacity</u>	 T	 Xn
Dangerous for the environment	Substances and preparations which are dangerous for the environment: substances and preparations which, were they enter to the environment, would or could present an immediate or delayed danger for one or more components of the environment	 N	

Carcinogens (I)

The European Union classification of carcinogens consists of three categories (Directive 67/548/EEC):

- Category 1: Substances known to be carcinogenic to humans.
- Category 2: Substances which should be regarded as if they are carcinogenic to humans.
- Category 3: Substances which cause concern for humans, owing to possible carcinogenic effects but in respect of which the available information is not adequate for making a satisfactory assessment.

Different classifications are used

Carcinogens (II)

Hazard categories for carcinogens

Categories	Criteria
CATEGORY 1:	Known or presumed human carcinogens A substance is classified in Category 1 for carcinogenicity on the basis of epidemiological and/or animal data. A substance may be further distinguished as: Category 1A: Category 1A, known to have carcinogenic potential for humans, classification is largely based on human evidence, or Category 1B: Category 1B, presumed to have carcinogenic potential for humans, classification is largely based on animal evidence. The classification in Category 1A and 1B is based on strength of evidence together with additional considerations (see section 3.6.2.2). Such evidence may be derived from: — human studies that establish a causal relationship between human exposure to a substance and the development of cancer (known human carcinogen); or — animal experiments for which there is sufficient⁽¹⁾ evidence to demonstrate animal carcinogenicity (presumed human carcinogen). In addition, on a case-by-case basis, scientific judgement may warrant a decision of presumed human carcinogenicity derived from studies showing limited evidence of carcinogenicity in humans together with limited evidence of carcinogenicity in experimental animals.
CATEGORY 2:	Suspected human carcinogens The placing of a substance in Category 2 is done on the basis of evidence obtained from human and/or animal studies, <u>but which is not sufficiently convincing to place the substance in Category 1A or 1B, based on strength of evidence together with additional considerations (see section 3.6.2.2).</u> Such evidence may be derived either from limited⁽¹⁾ evidence of carcinogenicity in human studies or from limited evidence of carcinogenicity in animal studies.

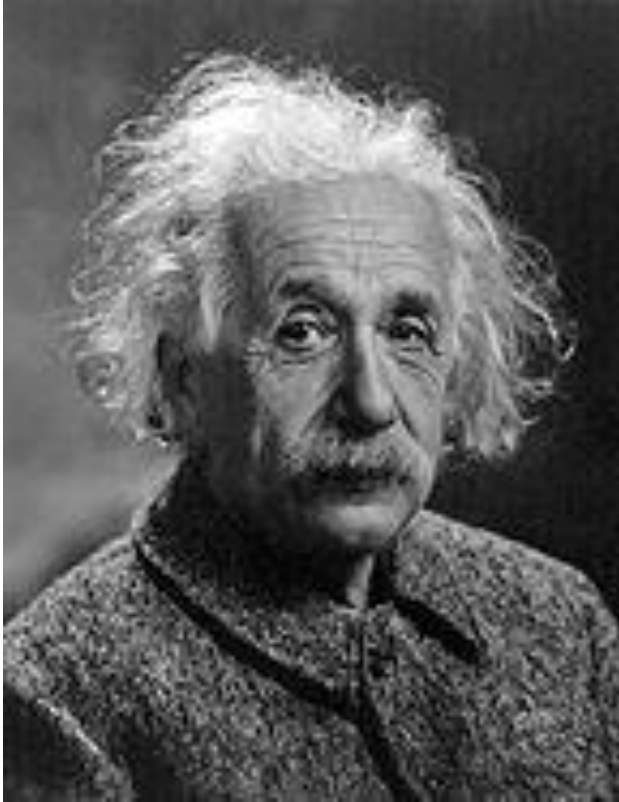
⁽¹⁾ Note: See 3.6.2.2.4.

(Source: CLP Regulation - Annex I. 3.6. Carcinogenicity)

The risk phrases (R phrases)

- R1: Explosive when dry
- R2: Risk of explosion by shock, friction, fire or other sources of ignition
- R3: Extreme risk of explosion by shock, friction, fire or other sources of ignition
- R4: Forms very sensitive explosive metallic compounds
- R5: Heating may cause an explosion
- R6: Explosive with or without contact with air
- R7: May cause fire
- R8: Contact with combustible material may cause fire
- R9: Explosive when mixed with combustible material
- R10: Flammable
- R11: Highly flammable
- R12: Extremely flammable
- R14: Reacts violently with water
- R15: Contact with water liberates extremely flammable gases
- R16: Explosive when mixed with oxidising substances
- R17: Spontaneously flammable in air
- R18: In use, may form flammable/explosive vapour-air mixture
- R19: May form explosive peroxides
- R20: Harmful by inhalation
- R21: Harmful in contact with skin
- R22: Harmful if swallowed
- R23: Toxic by inhalation
- R24: Toxic in contact with skin
- R25: Toxic if swallowed
- R26: Very toxic by inhalation
- R27: Very toxic in contact with skin
- R28: Very toxic if swallowed
- R29: Contact with water liberates toxic gas.
- R30: Can become highly flammable in use
- R31: Contact with acids liberates toxic gas
- R32: Contact with acids liberates very toxic gas
- R33: Danger of cumulative effects
- R34: Causes burns
- R35: Causes severe burns
- R36: Irritating to eyes
- R37: Irritating to respiratory system
- R38: Irritating to skin
- R39: Danger of very serious irreversible effects
- R40: Limited evidence of a carcinogenic effect
- R41: Risk of serious damage to eyes
- R42: May cause sensitisation by inhalation
- R43: May cause sensitisation by skin contact
- R44: Risk of explosion if heated under confinement
- R45: May cause cancer
- R46: May cause heritable genetic damage
- R48: Danger of serious damage to health by prolonged exposure
- R49: May cause cancer by inhalation
- R50: Very toxic to aquatic organisms
- R51: Toxic to aquatic organisms
- R52: Harmful to aquatic organisms
- R53: May cause long-term adverse effects in the aquatic environment
- R54: Toxic to flora
- R55: Toxic to fauna
- R56: Toxic to soil organisms
- •R57: Toxic to bees
- R58: May cause long-term adverse effects in the environment
- R59: Dangerous for the ozone layer
- R60: May impair fertility
- R61: May cause harm to the unborn child
- R62: Possible risk of impaired fertility
- R63: Possible risk of harm to the unborn child
- R64: May cause harm to breast-fed babies
- R65: Harmful: may cause lung damage if swallowed
- R66: Repeated exposure may cause skin dryness or cracking
- R67: Vapours may cause drowsiness and dizziness
- R68: Possible risk of irreversible effects

Einstein bees theory



“If the bee disappears from the surface of the earth, man would have no more than four years to live. No more bees, no more pollination ... no more men!”

Why do we need CLP?

- EU together with ~ 150 other countries have agreed to implement GHS (Global Harmonized System of Classification and Labelling) by end of 2008
- CLP is the EU implementation of GHS (global harmonised system of classification & labelling)
- GHS was an outcome of the 1992 Rio world summit and was developed by IOMC by 2001
- Classification of the hazards of chemicals is the cornerstone of chemical risk management
- Many different systems have been developed over time (e.g. EU, Japan, USA, Canada)
- Increased globalisation of markets made these differences increasing impractical and differences not only in systems but in actual classification undermine the integrity of all systems

The S phrases

Safety advice concerning dangerous substances and preparations

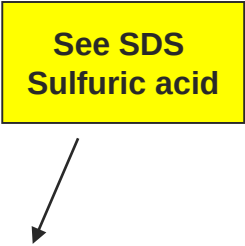
- S1: Keep locked up
- S2: Keep out of the reach of children
- S3: Keep in a cool place
- S4: Keep away from living quarters
- S5: Keep contents under ... (appropriate liquid to be specified by the manufacturer)
- S6: Keep under ... (inert gas to be specified by the manufacturer)
- S7: Keep container tightly closed
- S8: Keep container dry
- S9: Keep container in a well-ventilated place
- S12: Do not keep the container sealed
- S13: Keep away from food, drink and animal foodstuffs
- S14: Keep away from ... (incompatible materials to be indicated by the manufacturer)
- S15: Keep away from heat
- S16: Keep away from sources of ignition - No smoking
- S17: Keep away from combustible material
- S18: Handle and open container with care
- S20: When using do not eat or drink
- S21: When using do not smoke
- S22: Do not breathe dust
- S23: Do not breathe gas/fumes/vapour/spray (appropriate wording to be specified by the manufacturer)
- S24: Avoid contact with skin
- S25: Avoid contact with eyes
- S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
- S27: Take off immediately all contaminated clothing
- S28: After contact with skin, wash immediately with plenty of ... (to be specified by the manufacturer)
- S29: Do not empty into drains
- S30: Never add water to this product

The S phrases

Safety advice concerning dangerous substances and preparations

- S33: Take precautionary measures against static discharges
- S35: This material and its container must be disposed of in a safe way
- S36: Wear suitable protective clothing
- S37: Wear suitable gloves
- S38: In case of insufficient ventilation wear suitable respiratory equipment
- S39: Wear eye/face protection
- S40: To clean the floor and all objects contaminated by this material use ... (to be specified by the manufacturer)
- S41: In case of fire and/or explosion do not breathe fumes
- S42: During fumigation/spraying wear suitable respiratory equipment (appropriate wording to be specified by the manufacturer)
- S43: In case of fire use ... (indicate in the space the precise type of fire-fighting equipment. If water increases the risk add - Never use water)
- S45: In case of accident or if you feel unwell seek medical advice immediately (show the label where possible)
- S46: If swallowed, seek medical advice immediately and show this container or label
- S47: Keep at temperature not exceeding ... °C (to be specified by the manufacturer)
- S48: Keep wet with ... (appropriate material to be specified by the manufacturer)
- S49: Keep only in the original container
- S50: Do not mix with ... (to be specified by the manufacturer)
- S51: Use only in well-ventilated areas
- S52: Not recommended for interior use on large surface areas
- S53: Avoid exposure - obtain special instructions before use
- S56: Dispose of this material and its container at hazardous or special waste collection point
- S57: Use appropriate containment to avoid environmental contamination
- S59: Refer to manufacturer/supplier for information on recovery/recycling
- S60: This material and its container must be disposed of as hazardous waste
- S61: Avoid release to the environment. Refer to special instructions/safety data sheet
- S62: If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label**
- S63: In case of accident by inhalation: remove casualty to fresh air and keep at rest
- S64: If swallowed, rinse mouth with water (only if the person is conscious)

See SDS
Sulfuric acid



Why is the GHS Important?

GHS/CLP

Danger (Skull & Crossbones)

Transport

Liquid: slightly toxic; solid: not classified

EU

Harmful (St Andrew's Cross)

US

Toxic

CAN

Toxic

Australia

Harmful

India

Non-toxic

Japan

Toxic

Malaysia

Harmful

Thailand

Harmful

New Zealand

Hazardous

China

Not Dangerous

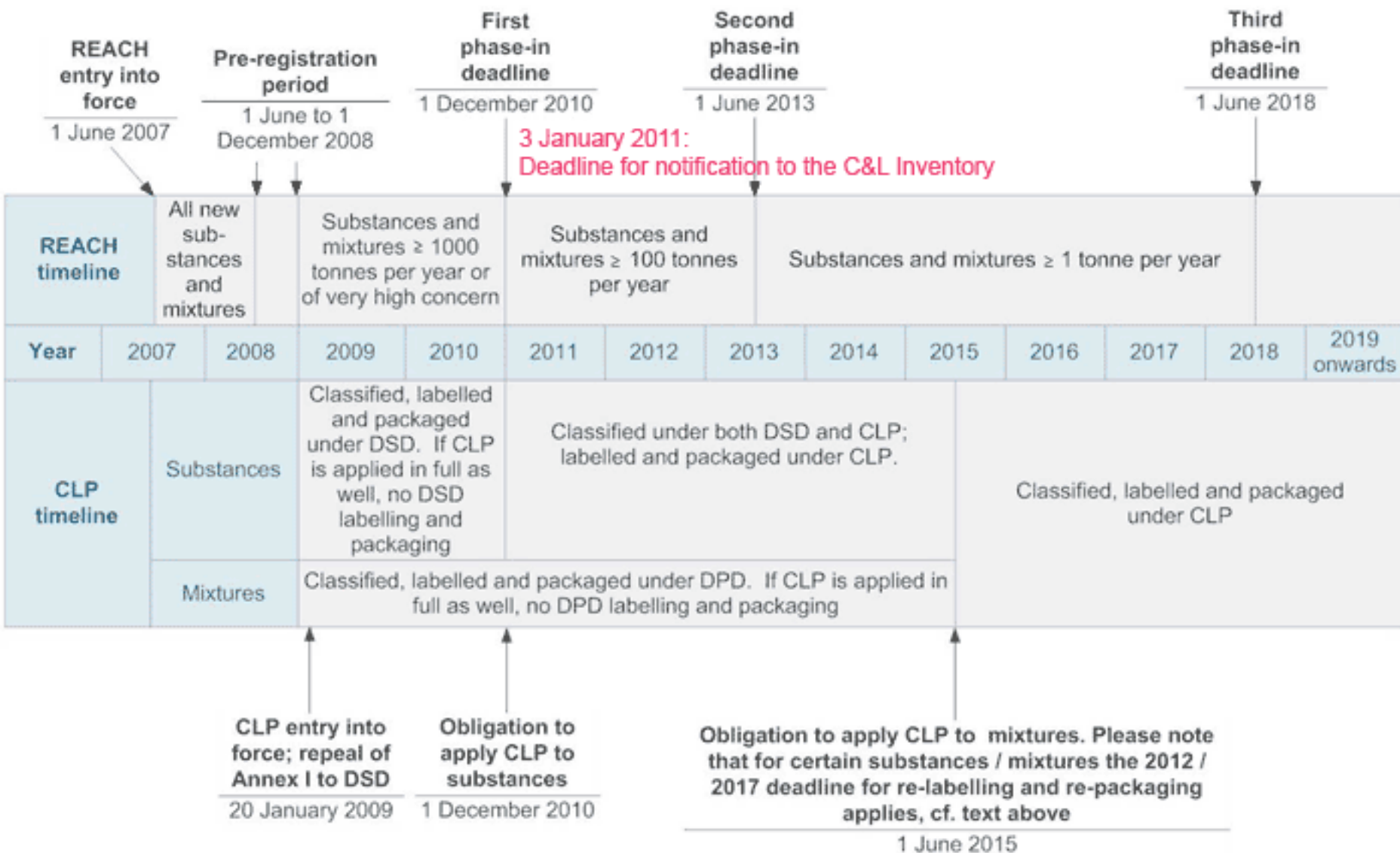
Korea

Toxic

TIME TABLE

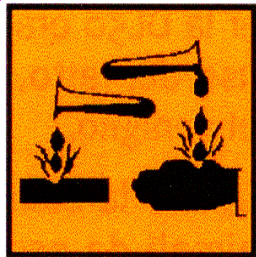
N.B.

Dangerous Substances Directive (DSD) 67/548/EEC
Dangerous Preparations Directive (DPD) 1999/45/EC



CHANGES: SYMBOLS

- Hazard symbols are to be replaced with hazard pictograms
- The orange hazard symbols are replaced by a diamond with a white background, red border and the symbol
- New symbols



HAZARD SYMBOL



HAZARD PICTOGRAMS

CHANGES: SIGNAL WORDS

- CLP introduces two signal words to replace indications of danger such as Toxic or Dangerous to the Environment.
- These signal words are “Warning” and “Danger” depending on the category of the hazard class

CHANGES: HAZARD STATEMENTS

- Hazard Statements replace the Risk (R) phrases.
- Grouping of hazard statements into logical order
 - *H200-H299* Physical hazard
 - *H300-H399* Health hazard
 - *H400-H499* Environment hazard

CHANGES: SUPPLEMENTARY INFORMATION

- A number of European hazard classes and Special Rules were not included in GHS so these have been included in CLP. These are identified by the prefix EUH
- For example – EUH204: Contains isocyanates. May produce an allergic reaction
- Other information – This can be any relevant information which does not contradict any information specified elsewhere on the label

CHANGES: PRECAUTIONARY STATEMENTS

- Precautionary Statements replace the Safety (S) phrases.
- Grouping of Precautionary Statements into logical order
 - *P100* General
 - *P200* Prevention
 - *P300* Response
 - *P400* Storage
 - *P500* Disposal

CHANGES: SUMMARY

Symbol	      
Indication of danger	Explosive Extremely/very flammable Oxidising Very toxic/toxic Corrosive Harmful/irritating Dangerous for the environment
Risk phrase	R##
Safety phrase	S##

Pictogram	        
Signal word	Danger Warning
Hazard statement	H### EUH###
Precautionary statement	P###

CLP Hazard Classes and categories

■ Physical hazards

- Explosives (unstable explosives, Divisions 1.1, 1.2, 1.3, 1.4, 1.5, 1.6)
- Flammable gases (Categories 1 and 2)
- Flammable aerosols (Categories 1 and 2)
- Oxidising gases (Category 1)
- *Gases under pressure*
- Flammable liquids (Category 1, 2, 3)
- Flammable solids (Category 1, 2)
- Self-reactive substances and mixtures (Type A, B, C, D, E, F, G)
- Pyrophoric liquids (Category 1)
- Pyrophoric solids (Category 1)
- *Self-heating substances and mixtures* (Category 1 And 2)
- Substances and mixtures which in contact with water emit flammable gases (Category 1, 2 and 3)
- Oxidising liquids (Category 1, 2, 3)
- Oxidising solids (Category 1, 2, 3)
- Organic peroxides (Type A-G)
- *Corrosive to metal* (category 1)

■ Health Hazards

- **Acute toxicity (Category 1, 2, 3, 4)**
- Skin Corrosion/irritation (Category 1A, 1B, 1C, and 2)
- Serious eye damage/eye irritation (Cat 1&2)
- Respiratory or skin sensitisation (Category 1)
- **Germ cell mutagenicity (Category 1A, 1B, 2)**
- **Carcinogenicity (Category 1A, 1B and 2)**
- **Reproductive toxicity (Category 1A,1B&2) plus addition category for effects by lactation**
- **Specific target organ toxicity (STOT)- repeated exposure (Category 1&2)**
- **Specific target organ toxicity (STOT)- single exposure (Cat 1&2) and Cat 3 for narcotic effects and respiratory tract irritation only**
- Aspiration Hazard (Category 1)

■ Environmental Hazards

- **Hazardous to the aquatic environment (Acute Cat 1, Chronic Cat 1,2 3&4)**
- **Hazardous to the ozone layer**

ECOTOXICOLOGICAL SYMBOL: skull and crossbones

Pictogram (1)	Hazard class and hazard category (2)
GHS06 	Section 3.1 Acute toxicity (oral, dermal, inhalation), hazard categories 1, 2, 3

ECOTOXICOLOGICAL SYMBOL: exclamation mark

Pictogram (1)	Hazard class and hazard category (2)
GHS07 	Section 3.1 Acute toxicity (oral, dermal, inhalation), hazard category 4 Section 3.2 Skin irritation, hazard category 2 Section 3.3 Eye irritation, hazard category 2 Section 3.4 Skin sensitisation, hazard category 1 Section 3.8 Specific Target Organ Toxicity — Single exposure, hazard category 3 Respiratory tract irritation Narcotic effects

ECOTOXICOLOGICAL SYMBOL: health hazard

Pictogram (1)	Hazard class and hazard category (2)
GHS08 	Section 3.4 Respiratory sensitisation, hazard category 1 Section 3.5 Germ cell mutagenicity, hazard categories 1A, 1B, 2 Section 3.6 Carcinogenicity, hazard categories 1A, 1B, 2 Section 3.7 Reproductive toxicity, hazard categories 1A, 1B, 2 Section 3.8 Specific Target Organ Toxicity — Single exposure, hazard categories 1, 2 Section 3.9 Specific Target Organ Toxicity — Repeated exposure, hazard categories 1, 2 Section 3.10 Aspiration hazard, hazard category 1

ECOTOXICOLOGICAL SYMBOL: environment

Pictogram (1)	Hazard class and hazard category (2)
GHS09 	Section 4.1 Hazardous to the aquatic environment — Acute hazard category 1 — Chronic hazard categories 1, 2

Acute toxicity label elements

Classification	Category 1	Category 2	Category 3	Category 4
GHS Pictograms				
Signal Word	Danger	Danger	Danger	Warning
Hazard Statement: — Oral	H300: Fatal if swallowed	H300: Fatal if swallowed	H301: Toxic if swallowed	H302: Harmful if swallowed
— Dermal	H310: Fatal in contact with skin	H310: Fatal in contact with skin	H311: Toxic in contact with skin	H312: Harmful in contact with skin
— Inhalation (see Note 1)	H330: Fatal if inhaled	H330: Fatal if inhaled	H331: Toxic if inhaled	H332: Harmful if inhaled

Label elements of germ cell mutagenicity

Classification	Category 1A or Category 1B	Category 2
GHS Pictograms		
Signal Word	Danger	Warning
Hazard Statement	H340: May cause genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	H341: Suspected of causing genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
Precautionary Statement Prevention	P201 P202 P281	P201 P202 P281
Precautionary Statement Response	P308 + P313	P308 + P313
Precautionary Statement Storage	P405	P405
Precautionary Statement Disposal	P501	P501

Label elements for carcinogenicity

Classification	Category 1A or Category 1B	Category 2
GHS Pictograms		
Signal Word	Danger	Warning
Hazard Statement	H350: May cause cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	H351: Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
Precautionary Statement Prevention	P201 P202 P281	P201 P202 P281
Precautionary Statement Response	P308 + P313	P308 + P313
Precautionary Statement Storage	P405	P405
Precautionary Statement Disposal	P501	P501

Label elements for reproductive toxicity

Classification	Category 1A or Category 1B	Category 2	Additional category for effects on or via lactation
GHS Pictograms			No pictogram
Signal Word	Danger	Warning	No signal word
Hazard Statement	H360: May damage fertility or the unborn child (state specific effect if known)(state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	H361: Suspected of damaging fertility or the unborn child (state specific effect if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	H362: May cause harm to breast-fed children.
Precautionary Statement Prevention	P201 P202 P281	P201 P202 P281	P201 P260 P263 P264 P270
Precautionary Statement Response	P308 + P313	P308 + P313	P308 + P313
Precautionary Statement Storage	P405	P405	
Precautionary Statement Disposal	P501	P501	

Label elements for hazardous to the aquatic environment (ACUTE)

ACUTE AQUATIC HAZARD	
	Acute 1
GHS pictogram	
Signal word	Warning
Hazard statement	H400: Very toxic to aquatic life
Precautionary statement prevention	P273
Precautionary statement response	P391
Precautionary statement storage	
Precautionary statement disposal	P501

The criteria for classification of a substance in acute category 1 are defined on the basis of acute aquatic toxicity data only (EC50 or LC50)

Label elements for hazardous to the aquatic environment (CHRONIC)

LONG-TERM AQUATIC HAZARD				
	Chronic 1	Chronic 2	Chronic 3	Chronic 4
GHS pictograms			No pictogram is used	No pictogram is used
Signal word	Warning	No signal word is used	No signal word is used	No signal word is used
Hazard statement	H410: Very toxic to aquatic life with long lasting effects	H411: Toxic to aquatic life with long lasting effects	H412: Harmful to aquatic life with long lasting effects	H413: May cause long lasting harmful effects to aquatic life
Precautionary statement prevention	P273	P273	P273	P273
Precautionary statement response	P391	P391		
Precautionary statement storage				
Precautionary statement disposal	P501	P501	P501	P501

The criteria for classification of a substance into the chronic categories combine two types of information i.e. acute aquatic toxicity data and environmental fate data (degradability and bioaccumulation data)

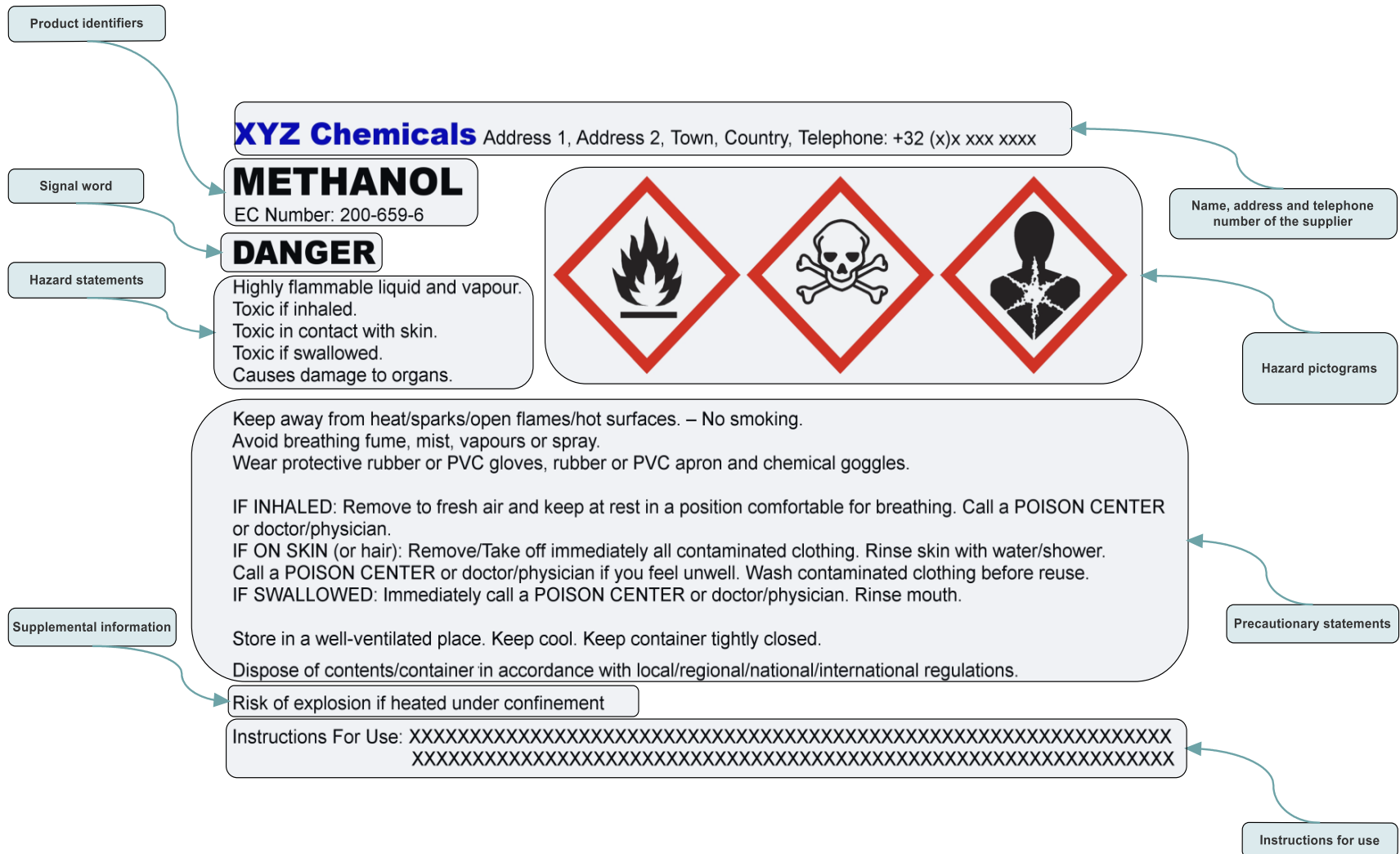
Label elements for hazardous to the ozone layer

Label elements for hazardous to the ozone layer

Symbol/pictogram	
Signal word	Warning
Hazard statement	H420: Harms public health and the environment by destroying ozone in the upper atmosphere
Precautionary statements	P502

The hazard statements H400, H410, 411, H412, H413 and H420 are used for the classification of HP14 of waste

CLP Label



Annexes of CLP

ANNEX I. CLASSIFICATION AND LABELLING REQUIREMENTS FOR HAZARDOUS SUBSTANCES AND MIXTURES

ANNEX II. SPECIAL RULES FOR LABELLING AND PACKAGING OF CERTAIN SUBSTANCES AND MIXTURES

ANNEX III. LIST OF HAZARD STATEMENTS, SUPPLEMENTAL HAZARD INFORMATION AND SUPPLEMENTAL LABEL ELEMENTS

ANNEX IV. LIST OF PRECAUTIONARY STATEMENTS

ANNEX V. HAZARD PICTOGRAMS

ANNEX VI. HARMONISED CLASSIFICATION AND LABELLING FOR CERTAIN HAZARDOUS SUBSTANCES

ANNEX VII. TRANSLATION TABLE FROM CLASSIFICATION UNDER DIRECTIVE 67/548/EEC TO CLASSIFICATION UNDER THIS REGULATION

The Commission has the possibility to review and amend the Regulation..

Suggestion:

Check web site in order to be sure if the annex is up-to-date

<http://echa.europa.eu/web/guest/regulations/clp/legislation>

BIOCIDAL PRODUCT REGULATION

The Biocidal Product Regulation (BPR, Regulation (EU) 528/2012) concerns the placing on the market and use of biocidal products, which are used to protect humans, animals, materials or articles against harmful organisms, like pests or bacteria, by the action of the active substances contained in the biocidal product.

Understanding BPR

The Biocidal Products Regulation (BPR, Regulation (EU) 528/2012) concerns the placing on the market and use of biocidal products, which are used to protect humans, animals, materials or articles against harmful organisms like pests or bacteria, by the action of the active substances contained in the biocidal product. This regulation aims to improve the functioning of the biocidal products market in the EU, while ensuring a high level of protection for humans and the environment.

The text was adopted on 22 May 2012 and will be applicable from 1 September 2013, with a transitional period for certain provisions. It will repeal the Biocidal Products Directive (Directive 98/8/EC).

‘biocidal product’ definition

- any substance or mixture, in the form in which it is supplied to the user, consisting of, containing or generating one or more active substances, with the intention **of destroying, deterring, rendering harmless, preventing the action of, or otherwise exerting a controlling effect on, any harmful organism** by any means other than mere physical or mechanical action,
- any substance or mixture, generated from substances or mixtures which do not themselves fall under the first indent, to be used with the intention of destroying, deterring, rendering harmless, preventing the action of, or otherwise exerting a controlling effect on, any harmful organism by any means other than mere physical or mechanical action.

A treated article that has a primary biocidal function shall be considered a biocidal product.

Product-types

Main group 1: Disinfectants

- PT 1. Human hygiene
- PT 2. Disinfectants and algacides not intended for direct application to humans or animals
- PT 3. Veterinary hygiene
- PT 4. Food and feed area
- PT 5. Drinking water

Main group 2: Preservatives

- T 6. Preservatives for products during storage
- PT 7. Film preservatives
- PT 8. Wood preservatives
- PT 9. Fibre, leather, rubber and polymerised materials preservatives
- PT 10. Construction material preservatives
- PT 11. Preservatives for liquid-cooling and processing systems
- PT 12. Slimicides
- PT 13. Working or cutting fluid preservatives

Main group 3: Pest control

- PT 14. Rodenticides
- PT 15. Avicides
- PT 16. Molluscicides, vermicides and products to control other invertebrates
- PT 17. Piscicides
- PT 18. Insecticides, acaricides and products to control other arthropods
- PT 19. Repellents and attractants
- PT 20. Control of other vertebrates

Main group 4: Other biocidal products

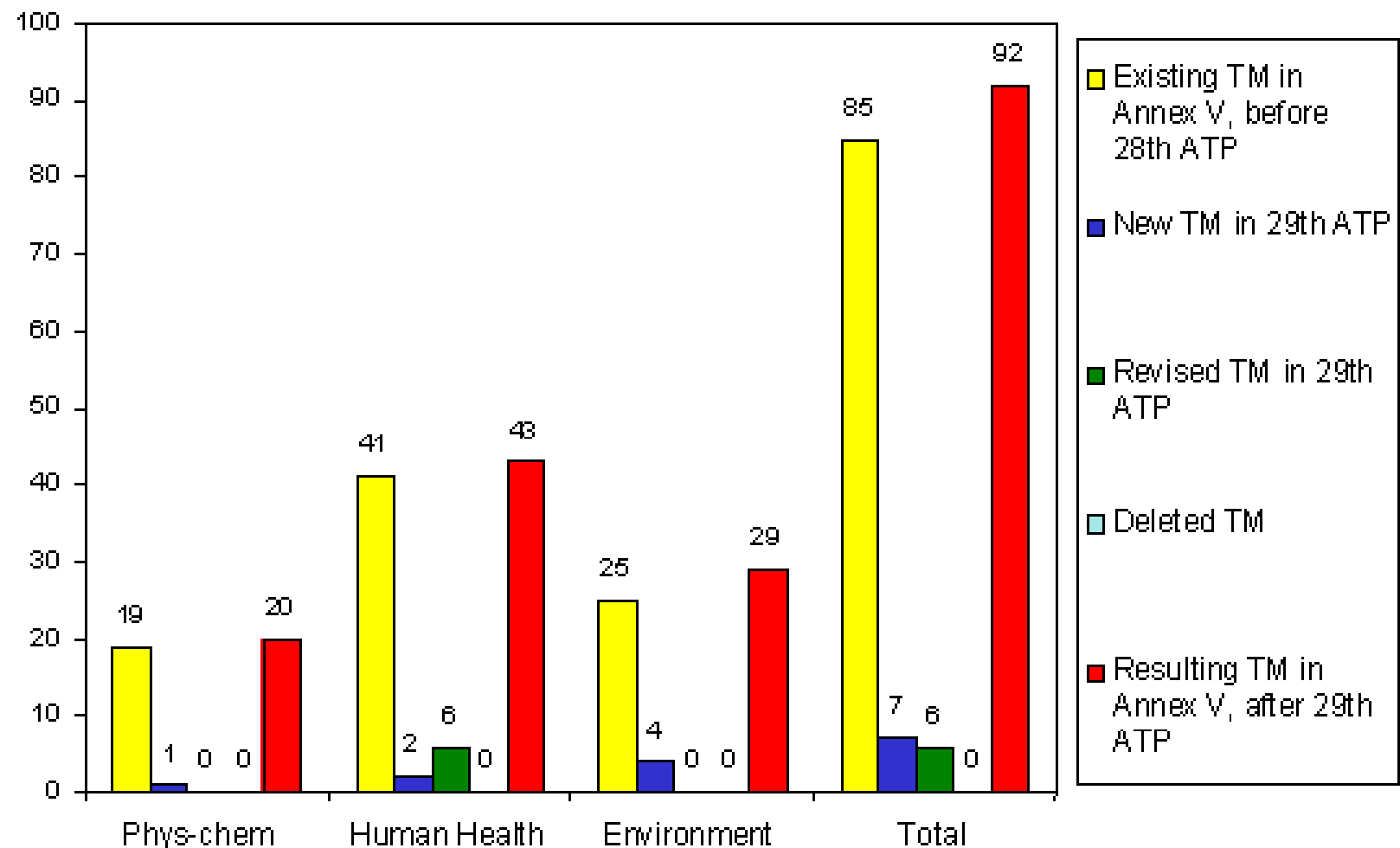
- PT 21 . Antifouling products
- PT 22 . Embalming and taxidermist fluids

TEST METHOD

Annex V to Dir 67/548/EEC is divided in three parts which contain Testing Methods for chemicals that address all areas of concern:

- ❑ **Part A** contains methods for the determination of PHYSICO-CHEMICAL properties (e.g. melting and boiling point, density, flash point, flammability, explosivity, oxidizing power, etc...).
- ❑ **Part B** contains methods for the determination of effects on HUMAN HEALTH (e.g. acute or chronic toxicity, skin sensitisation, irritancy, corrosivity, carcinogenicity, neurotoxicity, etc...), they include also in vitro or alternative methods).
- ❑ **Part C** contains methods for ENVIRONMENTAL EFFECTS, ecotoxicity and environmental fate (e.g. toxicity to fish, daphnia or algae, bioconcentration, biodegradability, etc..).

Methods in Annex V after 29th ATP (Adaptations to Technical Progress) in April 2004



Waste Regulations

CE 2008/98/CE – ANNEX III

PROPERTIES OF WASTE WHICH RENDER IT HAZARDOUS

H 1 'Explosive': substances and preparations which may explode under the effect of flame or which are more sensitive to shocks or friction than dinitrobenzene.

H 2 'Oxidizing': substances and preparations which exhibit highly exothermic reactions when in contact with other substances, particularly flammable substances.

H 3-A 'Highly flammable'

H 3-B 'Flammable': liquid substances and preparations having a flash point equal to or greater than 21 °C and less than or equal to 55 °C.

H 4 'Irritant': non-corrosive substances and preparations which, through immediate, prolonged or repeated contact with the skin or mucous membrane, can cause inflammation.

H 5 'Harmful': substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may involve limited health risks.

H 6 'Toxic': substances and preparations (including very toxic substances and preparations) which, if they are inhaled or ingested or if they penetrate the skin, may involve serious, acute or chronic health risks and even death.

H 7 'Carcinogenic': substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce cancer or increase its incidence.

H 8 'Corrosive': substances and preparations which may destroy living tissue on contact.

H 9 'Infectious': substances and preparations containing viable micro-organisms or their toxins which are known or reliably believed to cause disease in man or other living organisms.

H 10 'Toxic for reproduction': substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce non-hereditary congenital malformations or increase their incidence.

H 11 'Mutagenic': substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce hereditary genetic defects or increase their incidence.

H 12 Waste which releases toxic or very toxic gases in contact with water, air or an acid.

H 13 (*) 'Sensitizing': substances and preparations which, if they are inhaled or if they penetrate the skin, are capable of eliciting a reaction of hypersensitization such that on further exposure to the substance or preparation, characteristic adverse effects are produced.

H 14 'Ecotoxic': waste which presents or may present immediate or delayed risks for one or more sectors of the environment.

H 15 Waste capable by any means, after disposal, of yielding another substance, e.g. a leachate, which possesses any of the characteristics listed above.

Hazard Property 14 - Ecotoxic

“Waste which presents or may present
immediate or delayed
RISKS
for **one or more sectors** of the environment”

Waste containing Substances already classified in the CLP as
H400, H410, H411, H412, H413, H420

Testing

COUNCIL REGULATION (EU) 2017/997

of 8 June 2017

amending Annex III to Directive 2008/98/EC of the European Parliament and of the Council as regards the hazardous property HP 14 'Ecotoxic'

“...the results of the test are to prevail... It is appropriate for the Commission to promote the exchange of best practices with regard to test methods for the assessment of substances as concerns the hazardous property HP 14 'Ecotoxic' with a view to their possible harmonisation. “

MSs are allowed to implement specific testing procedure, taking into account the following

“When a test is performed to assess waste for the hazardous property HP 14 'Ecotoxic', it is appropriate to apply the relevant methods established in Commission Regulation (EC) No 440/2008 (2) or other internationally recognised test methods and guidelines. (...)”

CLP-regulations: article 12 b: ”scientific experimental data showing that the substance or mixture is not biologically available”

H 14 'Ecotoxic'

Test	Standard	Result	Duration
Sample preparation, no pH adjustment	EN 15002 (2015) EN 14735 (2006)		
Aquatic tests (liquid waste or leachate of solid waste)			
1/ Inhibition of the light emission of <i>Vibrio fischeri</i> (Luminescent bacteria test)	EN ISO 11348-3 (2009)	Eluate concentration which results in 50% inhibition of light emission (EC ₅₀)	30 mn
2/ Freshwater algal growth inhibition test with <i>Pseudokirchneriella subcapitata</i>	EN ISO 8692 (2012)	Eluate concentration which results in 50% inhibition of population growth (EC ₅₀)	72 h
3/ Inhibition of the mobility of <i>Daphnia magna</i>	EN ISO 6341 (2012)	Eluate concentration which results in 50% inhibition of mobility (EC ₅₀)	48 h
Terrestrial tests (solid waste)			
4/ Soil contact test with <i>Arthrobacter globiformis</i>	ISO 18187 (2016)	Waste concentration which results in 50% inhibition of enzyme activity (EC ₅₀)	6 h
5/ Effects of chemicals on the emergence and growth of higher plants (<i>Brassica rapa</i>)	EN ISO 11269-2 (2013)	Waste concentration which results in 50% inhibition of growth (EC ₅₀)	14 d
6/ Avoidance test with earthworms (<i>Eisenia fetida</i>)	ISO 17512-1 (2009)	Waste concentration which affects behaviour by 50% (EC ₅₀)	48 h

End-of-Waste Criteria

End of waste definition. A material recovered from waste, which meets the cumulative conditions and requirements set out in the WFD or the detailed criteria established on the basis of these conditions and requirements, and which is to be used as a secondary raw material or product and no longer be considered to be a waste.

CRITERIA

- does the material undergo a recovery operation?
- is the material commonly used for specific purposes?
- does a market or demand exist for the material?
- does a market or demand exist for the material?
- will the use of the material lead to overall **adverse environmental** or human-health impacts?

THE ITALIAN LAW REGARDING ECOTOXICOLOGY

D.Lgs. 152/06 s.m.i.

- WATER: Part III, Section II, Annex I – standard of water quality
- WATER: Part III, Section II, Annex V – Table limits for water emissions
- WASTE: Part IV. Annex i. Properties of waste which render it hazardous

D. Lgs. 81/2008 e s.m.i

TITOLO I Principi comuni

TITOLO II Luoghi di lavoro

TITOLO III Uso delle attrezzature di lavoro e dei DPI

TITOLO IV Cantieri temporanei e mobili

TITOLO V Segnaletica di salute e sicurezza sul lavoro

TITOLO VI Movimentazione manuale dei carichi

TITOLO VII Attrezzature munite di videotermini

TITOLO VIII Agenti fisici

TITOLO IX Sostanze pericolose + 6 allegati

TITOLO X Esposizione ad agenti biologici

TITOLO XI Protezione da atmosfere esplosive

TITOLO XII Disposizioni in materia penale e di procedura penale

TITOLO XIII Norme transitorie e finali

D. Lgs. 81/2008 e s.m.i (Safety Risk)

Carcinogens	Hazard letter	R Phrases	References
Category I and II	T, T+	45/49	Titolo IX, capo II
Category III	X _n	40	Titolo IX, capo I

A program to define the chemical risk of non carcinogenic compounds is available.

See tool “MOVARISK”