

Journalist briefing

Campaign launch press conference

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European Commission Press Room

Le Berlaymont, Rue de la Loi 200
1049 Brussels, Belgium

Healthy Workplaces MANAGE DANGEROUS SUBSTANCES



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What is the issue?

Dangerous substances have featured on the occupational safety and health (OSH) policy agenda for many decades. In recent years there have been high-profile cases of dangerous substances such as asbestos and vinyl chloride being banned or subject to strict control. This may have given rise to the misconception that the use of dangerous substances is declining. This is simply not the case. New substances are being introduced all the time: by 2017, about 129,000 have been classified under the Classification Labelling and Packaging (CLP) Regulation alone (ECHA, 2017). There are hundreds of dangerous substances classified as carcinogens to which workers may be exposed. Dangerous substances are still a major risk in workplaces.

There is also a belief that dangerous substances are all manufactured chemicals. However, many are process generated (e.g. exhaust and welding fumes or dust from drilling and cutting operations) and others are natural products (e.g. grain or flour dust). Awareness of the dangers associated with these substances is often low because they are not labelled with hazard symbols.

Such beliefs and misconceptions may lead employers and workers to underestimate the relevance of dangerous substances in their workplaces. There is also good evidence that enterprises still face serious difficulties in tackling the risks arising from certain dangerous substances. Therefore, there is a strong case for raising awareness and improving our understanding of dangerous substances and the importance of managing them properly. There is also a clear need to provide support for employers and workers in the form of good guidance and practical tools — and to ensure that they make use of the help that is already available.

Specific objectives of the campaign

1. To raise awareness of the relevance and importance of managing dangerous substances in European workplaces by providing reliable facts and figures on the exposure of workers and the impact of this exposure.
2. To promote risk assessment, elimination and substitution — and the STOP hierarchy of prevention measures (Substitution, Technological measures, Organisational measures, Personal protection) — by providing practical tools and examples of good practice.
3. To raise awareness of the risks of exposure to carcinogens by supporting the exchange of good practices.
4. To target specific groups of workers with particular needs, and those at greater risk - such as young workers, migrant workers, women, temporary workers and workers in sectors where awareness is low - by providing tailored facts and figures and guidance on good practice.
5. To improve awareness of developments in policy and legislative framework by providing a plain language overview of existing legislation and guidance.



All Healthy Workplaces Campaigns aim to raise awareness of a particular issue and involve stakeholders. They also have a particular focus on making an impact at workplace level, making available practical tools and resources, and identifying and sharing good practices.

Main messages

1. Ensuring participation of workers and creating a strong prevention culture in the workplace is essential to manage dangerous substances effectively.
2. It is important to understand what dangerous substances encompass — they are present in very many workplaces.
3. The use of dangerous substances is not decreasing and managing them is as relevant as ever.
4. Follow the hierarchy of control measures (the STOP principle) — and use the most effective measures first.
5. If complete elimination of the risk is not possible, there are practical solutions for substitution.
6. There is guidance and support available to help with assessing the risks posed by dangerous substances and managing them.
7. Carcinogens are especially important and special measures need to be put in place to protect workers from them.
8. Certain groups of workers are more at risk than others and it is important to take their needs into account and address the risks for **all** workers.
9. There is a strong legislative framework in place to protect workers from the risks posed by dangerous substances.

Key dates

Official **launch of campaign** and Good Practice Awards competition: 24 April 2018

European Weeks for Safety and Health at Work: October 2018 and 2019

Healthy Workplaces **Good Practice Exchange event**: first quarter of 2019

Healthy Workplaces **Good Practice Awards Ceremony** and **Summit**: November 2019



1 Exposure to dangerous substances in Europe

Estimates vary by country and survey, but it is clear that exposure to potentially dangerous substances in the workplace is a common and important risk factor. Workers in some sectors are more exposed to dangerous substances than others — but no sector is completely free of them.

- In the second edition of EU-OSHA's European Survey of Enterprises on New and Emerging Risks (ESENER-2), 38 % of enterprises reported that chemical or biological substances in the form of liquids, fumes or dust were present in their workplaces (EU-OSHA, 2015).
- According to the Sixth European Working Conditions Survey, over the last decade, there has been a trend towards growing exposure to chemical products or substances and materials which could be infectious. (Eurofound, 2017).
- 17 % of the workers surveyed in the EU reported being exposed to chemical products or substances for at least a quarter of their working time; 11 % reported exposure to vapours from solvents, etc.; and 15 % reported exposure to smoke, fumes, powder and dust (Eurofound, 2017; see Table 1, p. 43: https://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/ef1634en.pdf)
- Large enterprises often use more than 1,000 different chemical products (e.g. paints, inks, glues and cleaners). Depending on the sector and task, it is possible for a single worker in, for example, the construction industry to come into contact with hundreds of different chemical substances (EU-OSHA, 2018a).

- Enterprises in certain sectors reported a particularly high prevalence of dangerous substances in ESENER-2: agriculture, forestry and fishing (62 %); manufacturing (52 %); and construction, waste management, and water and electricity supply (51 %) (EU-OSHA, 2015). No sector is completely free of dangerous substances.
- In the United Kingdom, chemical or biological substances are reported to be present in 52 % of the enterprises surveyed in ESENER-2, making it the third most common risk factor in the workplace (EU-OSHA, 2016).
- According to the Swedish Chemicals Agency, Sweden's use of dangerous substances (excluding petrol) amounted to 3.6 tonnes per citizen in 2015, up from 3 tonnes in 1996 (Swedish Chemicals Agency, n.d.).
- According to a European Commission (2013) report on occupational disease monitoring systems in Europe, the majority of countries studied (19 out of 29) had set themselves risk prevention priorities. Preventing musculoskeletal disorders is given priority in the most countries (15), followed by:
 - exposure to hazardous substances (chemical or biological products) in 11 countries;
 - preventing respiratory allergies and exposure to asbestos in five countries;
 - preventing skin diseases in five countries.

2 Health effects

The health effects of exposure to dangerous substances range from mild and temporary effects to serious long-term, life-changing diseases. Emerging risks include the increasing use of nanomaterials and other innovative materials, new technologies with unknown health risks (e.g. 3D printing) and endocrine disrupters. Short-term health effects are mainly temporary and mild health impairments, e.g. skin irritation, throat irritation (EU-OSHA, 2018b).

Long-term health effects include a number of serious, life-changing and life-threatening diseases, such as respiratory diseases (e.g. asthma, asbestosis and silicosis), damage to the brain and the nervous system, and occupational cancers (e.g. leukaemia, lung cancer, mesothelioma and cancer of the nasal cavity) (EU-OSHA, 2018a). Exposure to some dangerous substances can cause reproductive problems in men and women and birth defects in children.

Harm from dangerous substances can arise from a single short exposure, from long-term exposure or from the long-term accumulation of substances in the body. Some dangerous substances pose safety risks, such as risk of fire, explosion or suffocation. In addition, dangerous substances normally have several of these properties.

There are different 'pathways' through which workers can be exposed to dangerous substances. Some substances can be breathed in or 'inhaled', while others can also be absorbed through the skin. Workers who do 'wet work' (i.e. using water or solvents that can break down the skin's natural defence barrier) are at particular risk from this exposure pathway. Dangerous substances may also penetrate the body through ingestion, for example when workers eat or drink in their workplace, although it is prohibited, when their workplace is contaminated or when they breathe in particles of dust and swallow them.

3 Carcinogens and the Roadmap

Exposure to carcinogens in the workplace causes the majority of fatal occupational diseases in the EU. What's more, many of these deaths could be prevented. Carcinogens are already subject to stricter measures than other dangerous substances, and many well-known and often quite simple risk reduction measures will improve compliance with exposure limits. EU-OSHA is one of the six partners supporting the Roadmap on Carcinogens initiative.

3.1 Carcinogens

- Around 1.6 million people of working age are diagnosed with cancer in Europe every year (Jongeneel et al., 2016).
- The number of people estimated to develop cancer in the EU as a result of occupational exposure to carcinogens is more than 120,000 per year, resulting in almost 80,000 deaths per year (Roadmap on Carcinogens, 2018).
- According to the International Labour Organization and EU estimates, carcinogens cause the majority of fatal occupational diseases in the EU (Nenonen et al., 2014).
- In Britain, it is estimated that about 8,000 people die every year from occupational cancer caused by past exposure to carcinogens at work. In future, many of these deaths will be prevented by mixed interventions to improve compliance with occupational exposure limits (Hutchings et al., 2012).

- The Australian Work Exposures Study found that in 2011/12 about 37 % of participants were exposed to at least one occupational carcinogen in the workplace (Carey et al., 2014).
- Some of the carcinogens identified in workplaces are process generated and therefore not covered by the REACH legislation (EU-OSHA, 2018a).
- A French study (Cavet and Léonard, 2013) found that young workers and maintenance workers in particular are often more exposed and exposed to several carcinogens at the same time. The substances for which control measures are most difficult to implement are process-generated (e.g. welding fumes, respirable crystalline silica) (EU-OSHA, 2014).
- Workers in particular occupations (e.g. welders, painters, hairdressers and nurses) may be at an increased risk of exposure to carcinogens.

3.2 Roadmap on Carcinogens

- On 25 May 2016, six European organisations signed a covenant committing them to an important initiative to raise awareness of the risks arising from exposure to carcinogens in the workplace and to encourage and support the exchange of good practices. The six partners are:
 - the Austrian Federal Ministry of Labour, Social Affairs and Consumer Protection;
 - BUSINESSEUROPE;
 - EU-OSHA;
 - the European Commission;
 - the European Trade Union Confederation;
 - the Netherlands Ministry of Social Affairs and Employment.
- Examples of activities to be developed and implemented during the scheme include:
 - providing information on exposure limit values and raising awareness of exposure to carcinogens in small and medium-sized enterprises (SMEs);
 - influencing behaviour and developing a risk prevention culture at the workplace level;
 - gathering and making available specific, cost-effective good practices — which will work for SMEs — for managing particular carcinogenic substances.
 - EU-OSHA has committed to holding an annual event with the roadmap partners and provide concise information on the most important issues for prevention. The first seminar [“Fighting cancer at the workplace”](#) took place in October 2017 at the world’s largest OSH fair, the A+A 2017 Safety, Security and Health at Work in Düsseldorf and focused on workplace inspection.

4 The business case — the costs of diseases and deaths related to dangerous substances

Active, participatory safety and health management makes a business more competitive, for example by improving productivity and reducing sickness absence. Everyone benefits from efficiently managing dangerous substances in the workplace — workers from improved safety and health, and management from reduced costs arising from control measures and sickness absence, as well as and improved business reputation.

- The direct costs of exposure to carcinogens at work across Europe are estimated at EUR 2.4 billion per year (Roadmap on Carcinogens, 2018a).
- The case of a school cook who developed severe asthma as a result of working with flour in a poorly ventilated kitchen shows that all kinds of substances can be dangerous in certain situations. The effects on the cook’s life were serious and included having to give up work. Her employer, the local council, admitted that it had failed to take measures to protect her and was liable for damages of GBP 200,000 (HSE, n.d.).
- The example of a residential home for the elderly in Spain shows that substituting a disinfectant containing harmful substances with a less harmful alternative significantly reduced the risks to care workers. An added benefit was that the replacement product was also less harmful to the environment (EU-OSHA, 2018a).
- The benefits for businesses of reducing the risks from dangerous substances in the workplace include:
 - improved immediate and long-term health of workers exposed to the dangerous substance, which can substantially lower sickness absence;

- reduced costs of waste disposal, less effluent going into the sewage system and fewer air emissions;
- reduced spending on control measures, personal protective equipment and health surveillance;
- cost savings on fire and explosion protection;
- very often, reduced consumption of chemicals, which leads to further cost savings;
- improved reputation in the eyes of customers and consumers (EU-OSHA, 2018c).

5 Risk prevention and protection of workers

Creating a strong risk assessment culture is key to managing the hazards posed by dangerous substances. This means management and employees working together and sharing responsibility for risk prevention in the workplace.

- For chemical or biological substances, 30 % of establishments would welcome more information or tools to deal with them for financial reasons or insurance purposes (EU-OSHA, 2016).
- EU legislation requires employers to involve workers in the risk assessment process and setting of prevention measures, to give them information on what they may be exposed to and the results of health surveillance and workplace measurements and to provide training on safety and health issues (Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers, particularly Articles 9, 10 and 11; Chemical agents Directive; from EU-OSHA, 2018a).
- The legislation also sets out a hierarchy ('order of priority') of prevention measures, which employers are legally obliged to follow. This hierarchy is often referred to as the STOP principle: **E**limination is the 'gold standard'. If elimination is not possible, the next steps are **S**ubstitution, **T**echnological measures, **O**rganisational measures, and finally **P**ersonal protection (EU, 1998; EU-OSHA, 2018a).
- The seven practical steps to eliminate and substitute dangerous substances in the workplace are:
 1. Identify the hazards and risks — this requires an inventory of dangerous substances in chemical products and from processes, which will allow comparison of substances' safety and health properties and priorities to be drawn up for elimination and substitution.
 2. Look for restrictions on substances — legislation and international or sector-specific agreements restrict the use of certain substances.
 3. Prepare a comprehensive risk assessment — this should include the number of workers exposed, the level of exposure, the place of use, the risk of skin contact, and the risk of inhalation of vapours, fumes or dusts.
 4. Find and compare alternatives — identify alternative substances or alternative processes that remove the need to use a substance or generate fumes, for example.
 5. Try a pilot study — involve workers in a small-scale pilot study to assess the effects of a substitution.
 6. Implement measures and improve them — taking on board feedback from workers and clients can help to achieve a successful substitution.
 7. Introduce a chemical management system — this will continually challenge the use of substances and make substitution part of day-to-day practice (EU-OSHA, 2018c).



6 Legislation

Everyone using and managing dangerous substances in the workplace needs to be aware of the legislation covering such substances. The laws aim to ensure that risks are managed at source. Collective measures — which protect groups of workers systematically — are the priority. All Member States must comply with the EU OSH legislation, but they can also apply additional or more stringent regulations through their national legislation. Therefore, employers need to be familiar with their national OSH legislation.

- Legislation on dangerous substances at work is in place throughout the EU (EU-OSHA, 2018a).
- Occupational safety and health legislation aims to reduce the exposure of workers to dangerous substances in workplaces:
 - The OSH Framework Directive — this sets out the basic principles.
 - Chemical Agents Directive — this aims to protect the safety and health of workers from the risks related to chemical agents at work.
 - Carcinogens and Mutagens Directive — this protects workers from the risks related to exposure to carcinogens or mutagens at work.
 - There are also directives on limit values, but occupational exposure limits have been set for only a limited number of substances used in workplaces. More limit values are currently being set at the European level, including on carcinogens and mutagens, in the Carcinogens and Mutagens Directive.
- Other regulations are relevant in the workplace too, for example the CLP — Classification, Labelling and Packaging — Regulation made the United Nations' Globally Harmonised System for the classification and labelling of chemicals legally binding in the EU.

6.1 REACH 2018

- 'REACH 2018' refers to the 31 May deadline by which all chemicals manufactured or imported from outside the EU in quantities over 1 tonne must be registered with the European Chemicals Agency (ECHA, 2018).
- The REACH Regulation — the Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals — makes available comprehensive information on chemical substances on the European market. Substances and mixtures can be used for only defined purposes, and the use of many substances is restricted or completely prohibited (EU-OSHA, 2018b). However, it is important to bear in mind that REACH does not cover dangerous substances that are generated during work operations, such as dust or combustion products (EU-OSHA, 2018a).
- REACH and the CLP (Classification, labelling and packaging) regulation provide important information for workplace risk assessment, through information about health effects and risk management measures. However, the employer has to take into account all risks and all the products used at a workplace when doing the risk assessment. Heavy physical work or working in heat can potentially increase the uptake, for example. These legislations have introduced some changes: new information in safety data sheets, new classification and labelling requirements and restriction and need for authorisation for some substances. The REACH legislation had the effect that suppliers have mapped uses and acquired more information on how their substances are used, including at work.

7 Specific groups at risk

Certain groups are more at risk from dangerous substances than others and this needs to be taken into account in risk assessments and prevention measures.

- The risks may be higher for some groups of people because they are inexperienced, unaware or physically more vulnerable, or perhaps because they have a greater or just different physiological sensitivity. People who frequently change jobs or are in temporary or informal work may also be at higher risk (EU-OSHA, 2018a).
- Groups at particular risk include women, young workers, migrant workers and workers who are less likely to have received training and information (EU-OSHA, 2018a). Sectors in which these groups of workers are often exposed to dangerous substances include agriculture and horticulture, construction, waste management,

transport, hairdressing, professional cleaning work, health and social care, and hotels, restaurants and catering (EU-OSHA, 2018a).

- According to the limited data available, women are more affected than men by substances such as formaldehyde, cytostatic drugs, biocides, hair dyes and some biological agents (EU-OSHA, 2014).
- In many countries, a high proportion of women work in part-time jobs, and their exposure to dangerous substances may go unreported and therefore not be taken into account when drawing up prevention measures (EU-OSHA, 2014).
- Personal protective equipment (PPE) may not fit many women. This puts them at risk of exposure if, for example, respirators do not fit properly. Or they may find ill-fitting protective clothing or equipment uncomfortable and not wear it. Some guidance is available: for example, the Ontario Women's Directorate and Industrial Accident Prevention Association (2006) have published guidance and checklists to help women assess if their PPE fits properly.
- Young workers are considered vulnerable because they may have a very long period of exposure throughout their lifetime and because their biological development may make them more sensitive to the toxic effects of chemical agents. They are also usually less experienced and sometimes more likely to take risks (EU-OSHA, 2014).
- According to a French survey, young workers are more exposed to carcinogenic factors than any other age group. Workers of all age groups doing maintenance tasks are especially at risk of exposure to carcinogenic agents, but young workers in apprenticeships and subcontracted workers are at particular risk (EU-OSHA, 2014).

8 The situation in Belgium

As in other EU countries, micro and small enterprises (MSEs) dominate the Belgian business economy, accounting for about 96.7 % of all private enterprises and around 39 % of total employment in 2014 (EU-OSHA, 2017).

- Regarding occupational illnesses, the legislation is quite restrictive, as a result of which only a small fraction of the health problems related to work fall within the reach of the regulation of recognised occupational illnesses (Popma and Van Regenmortel, 2013, in EU-OSHA, 2017).
- To determine illnesses caused by work, a list of recognised occupational illnesses has been set up by Royal Decree. It includes illnesses caused by chemical agents, skin diseases, lung diseases, infectious illnesses, illnesses caused by physical agents and 'others' (EU-OSHA, 2017).
- According to the findings of ESENER-2, 63 % of enterprises in Belgium reported routine risk assessment of at least one aspect, including dangerous chemical or biological substances (EU-OSHA, 2017).
- Dangerous substances are among one of the top priorities for risk prevention in Belgium, second only to musculoskeletal diseases [EC, 2013; see Table 1 on p. 24]; <http://ec.europa.eu/social/BlobServlet?docId=9982&langId=en>]. Adaptation of individual protective equipment is also a priority.

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Glossary

Chemical terms

Chemical

Commonly used name for chemical elements, compounds and mixtures of compounds and elements.

Chemical agent

This term is used in the basic OSH legislation: *'Chemical agent' means any chemical element or compound, on its own or admixed, as it occurs in the natural state or as produced, used or released, including release as waste, by any work activity, whether or not produced intentionally and whether or not placed on the market.*

Chemical article

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

Typical examples are tyres, plastic furniture, electronic devices, textiles based on chemical fibres, cables.

Chemical product

A product consisting of one or more chemical substances or compounds. Its function is to a great degree determined by its chemical composition.

Typical example are glues, paints, inks, disinfectants, biocides, plasticisers, silicon, fireworks, lubricating oils, etc.

Compound

A chemical compound consisting of two or more chemical elements.

Dangerous substance (see also Hazardous substance)

The classification of dangerous substances is based on categories defined in the CLP Regulation. These categories include physical hazards (explosive, flammable, unstable, etc.), health hazards (all aspects of short- and long-term harm to health) and environmental hazards (aquatic environment, etc.).

Dust

Solid particles of a substance or mixture suspended in a gas (usually air).

Fumes

The term fume applies particularly to fine solid particles as a suspension in [air](#), often generated by volatilisation from melted substances (e.g. welding or rubber fumes).

Gas

Gas means a substance which: (i) at 50 °C has a vapour pressure greater than 300 kPa (absolute); or (ii) is completely gaseous at 20 °C at a standard pressure of 101.3 kPa.

Generated air contaminants (see: Generated substances)

Generated substances — generated air contaminants

Substances and air contaminants may be generated from process at work places, e.g. combustion processes where fumes, exhausts and smoke is emitted and, grinding and cutting processes emitting dust. These generated substances and air contaminants may be dangerous.

Hazardous substance (see also Dangerous substance)

A substance which fulfils the criteria relating to physical hazards, health hazards or environmental hazards, laid down in Parts 2 to 5 of Annex I of the CLP Regulation, and classified in relation to the respective hazard classes provided for in that Annex.

The classification of dangerous substances is based on categories defined in the CLP Regulation. These categories include physical hazards (explosive, flammable, unstable etc.) health hazards (all aspects of short- and long-term harm to health) and environmental hazards (aquatic environment, etc.)

Often hazardous substances and dangerous substances are used like synonyms. There is no clear distinction; language preferences play a role.

Liquid

Liquid means a substance or mixture which: (i) at 50 °C has a vapour pressure of not more than 300 kPa (3 bar); (ii) is not completely gaseous at 20 °C and at a standard pressure of 101.3 kPa; and (iii) which has a melting point or initial melting point of 20 °C or less at a standard pressure of 101.3 kPa.

Mixture

'Mixture' means a mixture or solution composed of two or more substances.

Process-generated substances (see: Generated substances)

Process-generated contaminants can be generated as emissions from any type of processes leading to exposure at workplaces, e.g. combustion processes, processes that physically or chemically degrade or otherwise modify the starting material.

Solid

Solid means a substance or mixture which does not meet the definitions of liquid or gas (CLP Regulation).

Solid is a state of a matter. It is characterised by structural rigidity and resistance to changes of shape or volume.

Substance

'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.

A chemical element or a compound of two or more chemical elements.

Health and safety

Carcinogen

Carcinogen means a substance or a mixture of substances which induce cancer or increase its incidence.

Explosive

An explosive substance or mixture is a solid or liquid substance or mixture of substances which is in itself capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings.

Exposure

Exposure describes that a substance is present in the environment of a worker and can be either inhaled or taken up by contact with the skin (also eyes, ears) or through ingestion.

Contact of an organism with a chemical, radiological, or physical agent. Exposure is quantified as the amount of the agent available at the exchange boundaries of the organism (e.g. skin, lungs, gut) and available for absorption.

Flammable

The CLP Regulation differentiates between flammable gases, aerosols, liquids and solids and applies different criteria. A simplified definition is that all substances that can ignite and burn or support ignition and burning of other materials are classified as flammable.

Hazard

A hazard is anything that has the potential to cause harm. Hazards can affect people, property, processes; they can cause accidents and ill health, loss of output, damage to machinery, etc.

Ingestion

The taking of food, drugs, liquids, or other substances into the body by mouth.

Inhalation

The drawing of air into the airways and lungs.

Irritants, skin

Skin irritation means the production of reversible damage to the skin following the application of a test substance for up to 4 hours.

Mutagen

A mutation means a permanent change in the amount or structure of the genetic material in a cell. The term 'mutation' applies both to heritable genetic changes that may be manifested at the phenotypic level and to the underlying DNA modifications when known (including specific base pair changes and chromosomal translocations).

Reproductive toxicity

Reproductive toxicity includes adverse effects on sexual function and fertility in adult males and females, as well as developmental toxicity in the offspring.

Risk

Occupational risk refers to the likelihood and the severity of an injury or an illness occurring as a result of exposure to a hazard.

Sensitisers

Respiratory sensitiser means a substance that will lead to hypersensitivity of the airways following inhalation of the substance.

Skin sensitiser means a substance that will lead to an allergic response following skin contact.

Toxic (acute)

From a legal point of view a chemical (substance, mixture) is acutely toxic if it fulfils these CLP criteria: *Acute toxicity means those adverse effects occurring following oral or dermal administration of a single dose of a substance or a mixture, or multiple doses given within 24 hours, or an inhalation exposure of 4 hours.*

The CLP Regulation differentiates between oral, dermal and inhalation toxicity.

Toxic (others)

Exposure to dangerous substances can lead to organ-specific damage. The CLP Regulation differentiates between organ-specific damage due to a single exposure or to repeated exposures.

Legislation

CAD (see: Chemical Agents Directive)

Carcinogens and Mutagens Directive

[Directive 2004/37/EC \(the Carcinogens and Mutagens Directive, CMD\)](#) of 29 April 2004 on the protection of workers from the risks related to exposure to carcinogens or mutagens at work.

Chemical Agents Directive

[Directive 98/24/EC \(the Chemical Agents Directive, CAD\)](#) of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work (fourteenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC).

Classification, labelling and packaging plus the abbr. CLP

[Regulation \(EC\) No 1272/2008 \(CLP Regulation\)](#) of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

CLP (see: Classification, labelling and packaging)

CMD (see: Carcinogens and Mutagens Directive)

GHS (see: Globally Harmonised System)

Globally Harmonised System

The Globally Harmonized System of Classifications and Labelling of Chemical was developed by the United Nations. It provides an internationally standardised system for the classification and labelling of chemicals, which provides information on hazards through labels and safety data sheets. The CLP Regulation made it legally binding in the EU.

[Read more about the GHS.](#)

Occupational exposure limit

[Directive 2009/161/EU — indicative occupational exposure limit values](#) establishes the third list of indicative occupational exposure limit values for 19 chemical agents, including bisphenol A.

OEL (see: Occupational exposure limit)

REACH (see: Registration, Evaluation, Authorisation and Restriction of Chemicals)

Registration, Evaluation, Authorisation and Restriction of Chemicals

[Regulation \(EC\) No 1907/2006 \(REACH Regulation\)](#) of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and establishing a European Chemicals Agency.

Safety data sheet

Under the REACH Regulation, chemical manufacturers are required to provide safety data sheets, which recommend measures to control the risks associated with using chemicals.

SDS (see: Safety data sheet)

Measures and procedures

Control measures (see: Measures)

All measures that aim at the reduction of the generation of dangerous substances and the exposure risk of exposure.

Hazard pictograms

Hazard pictogram means a graphical composition that includes a symbol plus other graphic elements, such as a border, background pattern or colour that is intended to convey specific information on the hazard concerned;

Hazard statement

Hazard statement means a phrase assigned to a hazard class and category that describes the nature of the hazards of a hazardous substance or mixture, including, where appropriate, the degree of hazard;

Measurement of air contaminants

Measurement of the concentration of air contaminants at the workplace. Measurements may be used for measuring workers' exposure or to study the concentration of air contaminants at the workplace, e.g. leakages, identification of sources emitting air contaminants and evaluation of the effectiveness of local exhausts as a basis for decisions about what measures should be taken. Depending on which substance is to be measured, different kinds of measuring equipment are available.

Measurement of exposure

Technical measuring of the exposure of workers to dangerous substances by using substance/substance group specific measuring methods and instruments. Mostly applied is the measuring of airborne concentrations at work places – permanent or case to case, - and of dangerous substances or their metabolites in biological substances (e.g. blood or urine) of the exposed worker(s)

Measures — Control measures

All measures that aim at increasing safety and health. Measures may either reduce the generation of dangerous substances or reduce the risk of exposure.

Organisational measures

All measures aiming at the reduction of exposures to dangerous substances by organisational means, (e.g. reduction of the number workers in exposed areas)

Personal protective equipment plus the abbreviation PPE

PPE means:

(a) equipment designed and manufactured to be worn or held by a person for protection against one or more risks to that person's health or safety;

(b) interchangeable components for equipment referred to in point (a) which are essential for its protective function;

(c) connexion systems for equipment referred to in point (a) that are not held or worn by a person, that are designed to connect that equipment to an external device or to a reliable anchorage point, that are not designed to be permanently fixed and that do not require fastening works before use;

Risk assessment

The aim of occupational risk assessment is to protect workers' health and safety. Risk assessment includes identifying risks, evaluating how severe the risk is and deciding if there is a need to take action to reduce the risk. Under health and safety laws, all employers must carry out regular risk assessment.

Safety data sheets (SDS)

SDS provide information about the properties of a chemical product, its hazards, and instructions for handling, disposal and transport, first aid, fire-fighting and safety measures to reduce exposure. The information in SDS is needed to understand the risks and know how to handle the chemical product safely.

Substitution

Replacement of a dangerous substance or a chemical product or a process generating dangerous substances by less dangerous ones.

Technical measures

All measures aiming at the reduction of exposures to dangerous substances by using technical equipment.