

DANGEROUS SUBSTANCES AND SUCCESSFUL WORKPLACE COMMUNICATION

1 Introduction

Employers, workers and their representatives need to know about the risks to workers' health in the workplace and how to manage those risks. Effective communication about them is a challenge. The new regulations on registration, evaluation and authorisation of chemicals (REACH⁽¹⁾) and on classification, labelling and packaging (CLP⁽²⁾) help to meet that challenge.

REACH aims to improve the amount and quality of information available on chemicals and defines new provisions for communication throughout the supply chain. CLP uses this information to help identify accurate classifications and hazard communication for the user. This factsheet is an update to factsheet 35⁽³⁾ and presents the relevant changes. It also offers points to consider for successful communication in the workplace about dangerous substances.

It is important to note that hazards depend on how and under which circumstances substances are used at the workplace. Flour dust is not commonly perceived as dangerous, but it may become a health hazard to bakers, or may even cause explosions. This is also the case with water, for example distilled water used in a laboratory, when it comes into contact with substances that react violently with it (e.g. some peroxides). Under workplace legislation, employers must have an overview of all these risk factors and how they may interact to put workers at risk. They must also consider all the products, even when those are used as intermediaries, stored or transported, and all relevant tasks.



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2 Legislation

Safety data sheets and labels are important sources of information on the hazards of chemicals. Suppliers, manufacturers or importers of a hazardous substance or mixture must label its packaging according to CLP before placing it on the market, and provide a safety data sheet to professional users.

Safety data sheets are regulated by REACH and should allow employers to evaluate the possible risks to workers and/or the environment. Suppliers of hazardous chemicals (substances and mixtures) should also provide information on their intended uses. For many hazardous chemicals the safety data sheet must contain an 'exposure scenario', which describes the identified use(s) of the substance, operational conditions and risk management measures relevant for its use(s).

REACH and or CLP are not (fully) applicable to some types of substances, for example medicines such as cytostatic drugs, cosmetics such as hairdressing products, and food and feed stuffs. Users may then not have access to safety data sheets or labelled chemicals but may receive the information on hazards and safe use from their suppliers in a different form.

The chemical agents directive⁽⁴⁾ specifies that employers shall obtain additional information that is needed for workplace risk assessment from the supplier or other readily available sources. It is also the

⁽¹⁾ Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC and subsequent amendments (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:396:0001:0849:EN:PDF>).

⁽²⁾ Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labeling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (Text with EEA relevance) and subsequent amendments (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32008R1272:EN:NOT>).

⁽³⁾ <https://osha.europa.eu/en/publications/factsheets/35/view>

employer's responsibility to ensure that workers and their representatives are informed and trained about:

- hazardous properties of the chemicals;
- the level, type and duration of exposure and the circumstances of work;
- appropriate precautions to safeguard themselves and other workers in the workplace, including what to do if there is an accident (e.g. spillage) or emergency;
- the effect of risk-management procedures;
- relevant occupational exposure limit (OEL) values;
- conclusions to be drawn from any health surveillance and exposure assessment already undertaken.



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Additionally, the employer shall ensure that workers are aware of changes in processes or substances used.

There are specific rules for protecting young people and pregnant or breastfeeding workers and workers who have recently given birth, and for informing them and the legal representatives of children under 15 years of age carrying out (light) work about health and safety risks and preventive measures ^(5,6).

Employers must keep records about exposure and health surveillance of workers who are likely to be exposed to hazardous substances, especially carcinogens and mutagens ⁽⁷⁾, and give workers access to their personal data.

The EU workplace directives have to be transferred into national legislation. Member States are entitled to include some additional, more detailed or more stringent provisions for the protection of workers, as the corresponding directives lay down minimum requirements.

It is therefore strongly recommended that you seek clarification of specific national legislation that may apply relating to the use of dangerous substances in the workplace.

Labelling of chemicals

The CLP regulation specifies standardised information to be provided in labels, pictograms and safety data sheets available to users. It replaces earlier directives on dangerous substances and preparations. However, until 1 June 2015 the old classification, labelling and packaging can still be used for mixtures. The re-labelling and re-packaging of a preparation (mixture) that is already labelled and packaged and in the supply chain on 1 June 2015, may be postponed until 1 June 2017. From 1 June 2017, all labels and packages must comply with the new regulation, including those for products that were already on the market before 1 June 2015.

The label should contain the following information:

- contact information of the supplier(s);

⁽⁴⁾ Council Directive 98/24/EC 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) (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:1998:131:0011:0023:EN:PDF>).

⁽⁵⁾ Council Directive 92/85/EEC on the introduction of measures to encourage improvements in the safety and health at work of pregnant workers and workers who have recently given birth or are breastfeeding (tenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC) (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:1992:348:0001:0007:EN:PDF>).

⁽⁶⁾ Council Directive 94/33/EC on the protection of young people at work (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:1994:216:0012:0020:EN:PDF>).

⁽⁷⁾ Council Directive 90/394/EEC on the protection of workers from the risks related to exposure to carcinogens at work (Sixth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC) (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:1990:196:0001:0007:EN:PDF>).

- the name(s) of the product and of substances (usually up to a maximum of four) in the product that contribute to the classification;
- relevant identification number(s), e.g. EC⁽⁸⁾ or CAS⁽⁹⁾ number;
- standardised indications of hazard: hazard pictograms, signal words, hazard (H) statements and precautionary (P) statements.

Hazard pictograms replace the old danger symbols, the H statements replace the old R-phrases and the P statements replace the old S-phrases that were defined in earlier legislation. Examples of CLP hazard pictograms are:



(health hazard) and



(flammable)

Examples of H and P statements are H312 'Harmful in contact with skin', EUH070 'Toxic by eye contact' and P262 'Do not get in eyes, on skin, or on clothing' ⁽¹⁰⁾.

The risk and safety phrase required under the old system (Directives 67/548/EEC and 99/45/EC) can still be used for preparations (mixtures) until 1 June 2015

Safety data sheets

For many hazardous substances, suppliers of chemicals must provide a safety data sheet with information regarding:

- substance properties;
- health, environment and physical-chemical hazards;
- storage, handling, transportation and final disposal;
- safety instructions for workers, and about fire fighting, about accidental release and for first aid.

A safety data sheet must make reference to relevant OELs and to derived no-effect levels (DNELs)⁽¹¹⁾ established under REACH. Workers or their representatives must have access to safety data sheets. The employer should adjust the recommended measures from the safety data sheets to the specific conditions of each workplace.

For substances which are manufactured or imported in quantities over 10 tonnes per year and are classified as hazardous, the safety data sheets have to contain 'Exposure scenarios' that describe the identified use(s) of the substance, operational conditions and risk management measures relevant for the use(s). Users should check whether or not they use the substances according to the provided exposure scenario(s). If they do not, they should provide information on their specific conditions to their supplier, who must then take this information into account.



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⁽⁸⁾ European Commission number, or EC number, also known as EC No., EINECS No., and EC#, is a unique seven-digit identifier that is assigned to chemical substances for regulatory purposes within the European Union by the regulatory authorities. The list of substances having an EC number is called the EC Inventory (<http://esis.jrc.ec.europa.eu/index.php?PGM=ein>)

⁽⁹⁾ A CAS Registry Number is a unique numeric identifier that can contain up to 10 digits, divided by hyphens into three parts. For example, 58-08-2 is the CAS Registry Number for caffeine. A CAS Registry Number is assigned to a substance when it enters the CAS REGISTRY database. CAS REGISTRY contains more than 71 million organic and inorganic substances and 64 million sequences. It covers substances identified from the scientific literature from 1957 to the present, with additional substances going back to the early 1900s. Approximately 15,000 new substances are added each day. (<http://www.cas.org/content/chemical-substances>)

⁽¹⁰⁾ <https://osha.europa.eu/en/topics/ds/clp-classification-labelling-and-packaging-of-substances-and-mixtures>

⁽¹¹⁾ Under REACH there is a requirement for health-based derived no-effect levels (DNELs) to be established for occupational (and non-occupational) exposure to chemicals produced or imported into Europe in annual quantities above 10 tonnes. For more information see [FAQs for REACH and CLP](#)

Other information sources

For some products, such as pharmaceuticals or cosmetics (e.g. hairdressing products), no safety data sheets have to be provided. However, even for chemicals with a safety data sheet, more information may be needed. To gather the necessary information for assessing risks and taking preventive action you can then:

- use other sources (e.g. technical documentation, instructions for use, databases with information chemical risks, such as from the European Chemicals Agency (<http://echa.europa.eu/web/guest/information-on-chemicals>), or technical and scientific literature);
- ask your suppliers;
- consult preventive services;
- seek advice from professional organisations (trade associations, chambers of commerce, trade unions, social security and others);
- contact authorities.

Key points

- Look out for new labels and safety data sheets (SDS).
- Train workers to understand and recognise the new label information.
- Check that your use of the substance or mixture is covered on the SDS and is not advised against.
- Follow the advice provided on the new labels and in safety data sheets.
- Check whether or not the classification has changed.
- Evaluate the risks to workers and update your workplace risk assessments if necessary.
- If you are an employer, communicate these changes to your workers.
- If you have any questions about the new label or safety data sheet, speak to your supplier.

Source: DG Employment.

Examples of useful information systems

- The UK HSE 'COSHH essentials' website provides easy steps to assess and control health risks from chemicals in the workplace (<http://www.coshh-essentials.org.uk>), including sample risk assessments for many sectors and work processes and case studies of real-life situations.
- The Gestis database on hazardous substances (<http://www.dguv.de/ifa/en/gestis/stoffdb>) contains information on about 8,000 chemicals at work. The system is linked to an exposure database (MEGA) with data from more than 60,000 companies, a safety data sheet database (ISI), an international OEL database (limit values of about 1,700 substances are listed) and a DNEL database. Furthermore, it is complemented by a database of combustion and explosion characteristics (Gestis-Dust-Ex) of more than 4,600 dust samples covering most sectors of industry.
- The International Chemical Safety Cards (ICSCs; <http://www.ilo.org/dyn/icsc/showcard.home>) have been developed by international organisations for more than 1,700 substances. They are used at the shop-floor level and often form part of education and training activities. They can also be used by agencies responding to chemical incidents.

The ICSCs are integrated into the OECD Global Portal to Information on Chemical Substances (eChemPortal, <http://www.oecd.org/env/ehs/risk-assessment/echemportalglobalportaltoinformationonchemicalsubstances.htm>), which provides free public access to information on physico-chemical properties and toxicity data. The eChemPortal provides direct links to collections of information prepared for review programmes at national, regional and international levels. It also gives classification results according to national hazard classification schemes or according to the Globally Harmonised System of Classification and Labelling of Chemicals (GHS). In addition,

eChemPortal provides some exposure and use information on chemicals. A brochure providing further details on the eChemPortal project can be downloaded ⁽¹²⁾.

- The International Chemical Control Toolkit (http://www.ilo.org/legacy/english/protection/safework/ctrl_banding/toolkit/icct) provides a scheme for protection against hazardous chemicals in the workplace for small and medium-sized enterprises in developing countries, and covers pesticides and common solvents. It provides guidance sheets for specific tasks involving handling of dangerous substances, such as mixing, sack filling or the maintenance of local exhaust ventilation.
- The German Federal Institute for Occupational Safety and Health (BAuA) has developed an easy-to-use workplace control scheme for chemicals that covers fire and explosion risks and duties under CLP, the EMKG (<http://www.baua.de/en/Topics-from-A-to-Z/Hazardous-Substances/Hazardous-Substances.html>).
- The Substitution Support Portal (SUBSPORT: <http://www.subsport.eu/>) contains 28 lists of substances with (recommended) restrictions in use and a database of substitution cases, as well as training materials to support practical implementation of substitution at the shop-floor level.
- The International Labour Organization has published an instruction module for health and safety committees, available at: <http://actrav.ilo.org/actrav-english/telearn/osh/kemi/ciwmain.htm>.
- There are also many sources and systems from industry sector groups or national governments and institutes in Member States, offering guidance, descriptions and links. For example, Romania has the 'Employer's Guide on the Reduction in Workers' Exposure to Hazardous Chemicals at the Workplace'.

Checklist for information to workers

Do you know:

- about the risk assessment of your workplace?
- what hazards you are being exposed to?
- how you may be affected?
- what you have to do to keep yourself and others safe (i.e. how the risks are to be controlled)?
- how to check and spot when things are wrong and to whom you should report any problems?
- about the results of any exposure monitoring or health surveillance?
- about preventive and protective measures to be taken in case of maintenance work?
- about first aid and emergency procedures?

Checklist for good communication between the employer and the workers

Is there a list of dangerous substances used or produced in every workplace? This should include products brought in by subcontractors and may involve cooling media, pesticides, technical oils, cleaning agents or fuel.

- Is there a safety data sheet readily available for each hazardous chemical used? Is any other guidance on worker protection available?
- Has the information from the safety data sheet and any other guidance been translated into

⁽¹²⁾ <http://www.oecd.org/env/ehs/risk-assessment/oecd%20brochure-1c%204-12->

workplace instructions that give practical information on how to handle and use chemicals in the daily routine?

- Are we aware of the flow of chemical substances through the company? How much is being purchased and by whom? How much is being stored on individual occasions? Where do the chemicals go? Who decides on what is purchased and who is involved?
- Is each container for a hazardous chemical (e.g. vats, bottles, storage tanks) labelled with the identity of the product and appropriate hazard warnings relating to both the physical hazards (e.g. explosion risk) and health hazards?
- Has a risk assessment been carried out and its findings communicated?
- Are workers asked regularly about potential health and safety problems?
- Have all relevant information, instructions and training on the dangerous substances in the workplace been provided to workers, including the precautions they should take to protect themselves and other employees?
- Do all workers know:
 - how to make full and proper use of all the control measures provided?
 - to whom they should report problems and defects with any control measures?
 - how to carry out the foreseen maintenance and functionality checks, especially of local exhaust ventilation and other protective devices?
 - what they should do in the event of an accident, incident or emergency involving hazardous substances?
 - how to handle waste?
- Are workers involved in regular updates of risk assessment and regularly retrained?:

Further information

Examples of successful communication on risks and factsheets on dangerous substances are available at: <http://osha.europa.eu/en/publications/factsheets>.

The website of the Agency also contains frequently asked questions on, for example, REACH, CLP and other materials referenced below.

Case Studies of Practical Solutions. Available at: https://osha.europa.eu/en/practical-solutions/case-studies/index_html/practicalsolution?SearchableText=&is_search_expanded=True&getRemoteLanguage=en&subcategory2=dangerous_substances&subcategory%3Alist=dangerous_substances&nace2=&multilingual_thesaurus2=&submit=Search

Danger: Chemicals! Do You Know What These Pictograms Mean? (poster in 24 languages). Available at: <https://osha.europa.eu/en/publications/promotional-material/clp-poster/view>

Danger: Chemicals! The Hazard Pictograms Explained (leaflet in 24 languages). Available at: https://osha.europa.eu/en/publications/promotional_material/clp-leaflet/view

Dangerous Substances and Risk Assessment (PowerPoint presentation in 22 languages). Available at: https://osha.europa.eu/en/topics/ds/materials/en_ds.ppt

E-fact 26 – Dangerous Substances in HORECA. Available at: <https://osha.europa.eu/en/publications/e-facts/efact26/view>

E-fact 41 – Cleaners and Dangerous Substances. Available at: <https://osha.europa.eu/en/publications/e-facts/efact41/view>

E-fact 66: Maintenance and hazardous substances. Available at: <https://osha.europa.eu/en/publications/e-facts/efact66/view>

E-fact 67: Maintenance and hazardous substances – Maintenance in the chemical industry. Available at: <https://osha.europa.eu/en/publications/e-facts/efact67/view>

EU-OSHA website section on CLP. Available at: <https://osha.europa.eu/en/topics/ds/clp-classification-labelling-and-packaging-of-substances-and-mixtures>

- EU-OSHA website section on REACH. Available at: <https://osha.europa.eu/en/topics/ds/reach>
- European Commission, Changes to Chemical Labels and SDS, CLP OSH Training, 2012. Available at: <https://osha.europa.eu/en/topics/ds/materials/clp-training.pdf>
- European Commission, Changes to Chemical Labels and SDS – Speaker's Notes, 2012. Available at: <https://osha.europa.eu/en/topics/ds/materials/clp-speakers-notes.pdf>
- European Commission, CLP OSH Guidance, 2012. Available at: <https://osha.europa.eu/en/topics/ds/materials/clp-osh-guidance.pdf>
- European Commission, CLP OSH Leaflet, 2012. Available at: <https://osha.europa.eu/en/topics/ds/materials/clp-leaflet.pdf>
- European Commission, *CLP Pocket Card*, 2012. Available at: <https://osha.europa.eu/en/topics/ds/materials/clp-pocket-card.pdf>
- Factsheet 33 – An Introduction to Dangerous Substances in the Workplace (in 22 languages). Available at: <https://osha.europa.eu/en/publications/factsheets/33/view>
- Factsheet 34 – Elimination and Substitution of Dangerous Substances (in 22 languages). Available at: <https://osha.europa.eu/en/publications/factsheets/34/view>
- Factsheet 44 – How to Convey OSH Information Effectively: The Case of Dangerous Substances. Summary of a report (in 22 languages). Available at: <https://osha.europa.eu/en/publications/factsheets/44/view>
- Forum 12 – Working with Dangerous Substances: The European Policy Challenge (in five languages). Available at: <https://osha.europa.eu/en/publications/reports/12/view>
- Frequently Asked Questions on CLP and REACH. Available at: https://osha.europa.eu/en/practical-solutions/faqs?category=dangerous_substances&subcategory=dangerous_substances::clp_reach
- Guidance for employers on controlling risks from chemicals. Interface between Chemicals Agents Directive and REACH at the workplace, European Commission 2010, <https://osha.europa.eu/en/topics/ds/materials/reach-guidance-employers.pdf>
- Napo in Chemicals – Danger!* Available at: http://www.napofilm.net/en/napos-films/multimedia-film-episodes-listing-view?set_language=en&filmid=napo-012-danger-chemicals
- Practical Solutions – Risk Assessment Tools*. Available at: https://osha.europa.eu/en/practical-solutions/risk-assessment-tools/index_html/practical-solution?SearchableText=&is_search_expanded=True&getRemoteLanguage=en&subcategory2=dangerous_substances&subcategory%3Alist=dangerous_substances&nace2=&multilingual_thesaurus2=&submit=Search
- Report – How to Convey OSH Information Effectively: The Case of Dangerous Substances*. Available at: <https://osha.europa.eu/en/publications/reports/312/view>