

Cleaners and dangerous substances

Cleaning is a multi-million Euro industry employing millions of workers across Europe. Cleaners work in all industry sectors and workplaces, from hotels to hospitals and factories to farms. They work inside and outdoors, including in public areas.

Cleaners may either be employed directly, working in their employer's premises, or they may work in a location run by a third party. They may be employed by public services, private enterprises, or they may be self-employed. Cleaners may also be employed by a contractor, working at several locations over the course of a week.

Cleaners often work "invisibly" at night or in the early morning, sometimes alone. They are found in every setting and the work they do is essential¹.

Most cleaners are women and work part time. A significant proportion of workers come from ethnic minorities². Staff turnover is generally high, caused by a high level of temporary work and short fixed-term contracts³. These demographic and employment models make it difficult to ensure the safety and health of cleaning workers.

About this E-Fact

Cleaners are best defined by task rather than as a sector or group. Common tasks are surface cleaning – mopping, dusting, vacuuming, polishing floors and work surfaces – and routine housekeeping. While cleaning work can include tasks such as window and street cleaning, the focus of this E-fact is on the prevention of harm to paid workers carrying out general cleaning.

This E-Fact is intended to inform employers, supervisors, workers and their representatives, particularly those in small and medium enterprises (SMEs), about the dangers of cleaning work and how they can be prevented. As cleaners work in all types of workplace, it is not possible for all issues to be covered.

Preventing harm from dangerous substances

The safety and health of cleaners has to be managed by their employers. This requires the employer to evaluate the dangers facing the cleaning workers, identify and implement solutions, and then check to see that the measures put in place are working.



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The first stage of this is to assess the dangers facing the worker. This can be done by:

- Making a list of the substances used, how much is used and in what way
- Collecting information about these substances, for example from the safety data sheets (SDS). The SDS of a cleaning product contains information on which dangerous substances are present in the cleaning products. A supplier of a hazardous chemical product is obliged to provide the SDS on the first delivery or on request.
- Assess the exposure of the workers to the dangerous substances, looking at the type, intensity, length, frequency, and occurrence of exposure, including if working with a combination of substances increases the risk or changes the nature of the danger.
- Rank the severity of the risks identified and use this to draw up an action plan to protect the workers⁴

When deciding on what action to take, consider:

- Does a substance have to be used at all? For example, can a different cleaning method be used that does not require use of chemicals?
- Can a non- or less-dangerous substance be substituted for the one currently in use?
- What information do the cleaners need to work safely and how is this information and training going to be provided to all exposed workers in a form that will be understood and acted upon? Just giving the SDS may not be enough. Can the workers understand the labels on the containers of cleaning products?
- Ensuring that work is supervised so that the dangerous substances are handled correctly; for example that the correct dosing is used in cleaning machines
- Ensuring that work with dangerous substances is carried out in well-ventilated rooms
- Put in place measures that protect everyone first rather than individual protective measures such as gloves
- Only as a last resort should personal protective equipment (PPE) such as gloves be provided, but if they are needed, then the appropriate type should be provided free to all who need them, and be maintained properly.
- What should happen in the event that a cleaner suffers an injury or ill-health, for example suffering a needlestick injury?



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How do I prevent diseases and damage from cleaning products?

If you are a **worker**, you have an obligation to follow safe working procedures at all times and to take all reasonable precautions to prevent personal injury or injury to the people around you. Your responsibilities as a worker are to:

- follow all safety rules and instructions concerning the safe use of cleaning products;
- take part in any training programme offered by your employer or request training if none is offered;
- make sure that you are well trained and aware of the risks from the cleaning products you use;
- ensure that the correct product is used, use the cleaning product in the correct concentration and never mix cleaning products;
- read the instructions and make sure you understand them;
- use less toxic cleaning products whenever possible;
- wear goggles to protect your eyes when using corrosive cleaning products;
- wear proper gloves to protect your hands; if you don't know which gloves are suitable, ask your safety representative;
- make sure that the room is well ventilated; avoid working with strong chemicals in poorly ventilated spaces;
- store and handle cleaning products correctly in the original containers; never put cleaning products into food or drink containers because this may lead to accidental intake by eating or drinking.

Dangerous substances in cleaning products

Cleaning products can contain dangerous substances that may enter the body through inhalation and skin contact. If exposure is too high for too long, there is a high risk of developing breathing problems or skin disease such as eczema.

Cleaning products have been developed to remove dust and dirt easily, to dissolve the greasy dirt, and for disinfection and other surface maintenance^{5,6}. These products can contain different types of chemicals that may harm health, some of which are described^{7,8,9}.

Acids and bases such as hydrochloric acid, sulfamic acid, formic acid, sodium hydroxide, and ammonium hydroxide are found in cleaning products for bathrooms and in products to remove lime, concrete, and cement. They can cause irritation and severe burns of the skin, and eyes, and if their fumes are inhaled irritation and burns to the respiratory system.



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Organic solvents and detergents such as white spirits, turpentine, acetone, aromatic hydrocarbons, and alcohol that are found in degreasing products used on floors and other surfaces can cause irritation of the skin, respiratory system (through inhalation of vapours), and a toxic effect on the nervous system, brain, kidneys, and liver.

Disinfectants such as formaldehyde, glyoxal, and quaternary ammonium compounds can cause allergic reactions and burns to the skin and mucous membranes.

Fragrances and colouring agents found in many types of product can cause allergic reactions.

How do I recognise dangerous substances?

Dangerous substances have to be labelled with symbols, harmonised across Member States, to allow the dangers to be recognised easily. These include:



Figure 1: Corrosive



Figure 2: Irritant



Figure 3: Toxic

How can I be exposed?

A dangerous substance can enter the body when a cleaning product comes into contact with skin or eyes, or when the substance is inhaled or swallowed. The type and amount of exposure depends on the type and concentration of substances in a cleaning product and how and where they are used. Cleaning agents are often only available as concentrates and have to be diluted onsite for use. Using cleaning products at a higher concentration or mixing different products is very dangerous and can cause severe accidents such as burns and intoxication.¹⁰

Skin diseases and eye damages

Many cleaners suffer from skin problems. Constant contact with water damages the protective skin barrier and enables dangerous substances to penetrate into deeper skin layers¹¹, and some chemicals may cause skin irritations, inflammation and allergies, severe skin and eye burns¹².



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Asthma and respiratory problems

Long-term studies have shown that cleaners are at increased risk of developing asthma, chronic bronchitis and other respiratory problems¹³. If sprays are used during cleaning, or mists are created, for example when using a pressure-washer, there is an increased risk of inhaling substances. This heightened exposure increases the risk of asthma or chronic bronchitis¹⁴. Mixing cleaning substances can produce gases that lead to severe health effects; this can occur when mixing bleaching and toilet cleaning products.

Providing information

The German statutory accident insurance institutions (Hauptverband der Berufsgenossenschaften HVBG) have developed product codes for chemical cleaning products. These product codes (GISCODE) enable employers and safety representatives in the cleaning sector to obtain information on chemical cleaning products about hazards and protection measures. They allow employers to compare the different risks posed by exposure to various chemical substances without having specialist knowledge. The product codes support employers to substitute dangerous cleaning products with less toxic alternatives.ⁱ

Other hazardous substances in the environment

Dangerous substances may not just be present in the cleaning products being used, the dirt being cleaned may also be dangerous. The employer is responsible for ensuring that the cleaners are protected from these risks, and may have to liaise with the person(s) controlling the place being cleaned to ensure that this happens.

The nature of the dangers present will depend on the type of premises being cleaned – hospitals will have different risks from woodworking factories. It is impossible to make an exhaustive list of all substances to which cleaning workers might be exposed, but here are some examples:

- Substances from industrial activities such as exhaust fumes from diesel engines, wood dust, welding fumes and dust from construction work.
- After an event such as a fire, hazardous substances might be present in the air or cover the surfaces of a building. A thorough risk assessment should be carried out before work starts to identify the potential dangers present
- Following badly performed maintenance work, such as a worker removing wall or ceiling panels, asbestos might be released into the environment. Exposure to asbestos can lead to severe health problems such as mesothelioma;



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- Legionella is a bacteria present in low concentration in soil and water that causes Legionnaires' disease and Pontiac fever. The bacteria enter the body through breathing in mist droplets containing the bacteria. Carrying out cleaning with spray equipment such as pressure washers can create such mists that may be inhaled. Where the water is between 20 and 50°C., the bacteria is able to multiply.
- In hospitals, other health care premises and in public spaces and vehicles cleaners may suffer needlestick injuries (for example, where a "sharp" is hidden in some other rubbish). Needle stick injuries can cause infection from several viruses and bacteria.¹⁵ The Human Immunodeficiency Virus (HIV) and hepatitis B (HBV) or C (HCV) are the commonest risks.¹⁶ HIV causes AIDS and the hepatitis viruses cause inflammations of the liver.
- Antineoplastic drugs used hospitals and other health care premises can cause short-term and long-term harm to people who inadvertently come into contact with them, such as cleaners who are handling contaminated waste.

Wet work

Wet work covers cleaning activities where the skin is exposed to water for a prolonged time. Cleaners may be exposed to wet work through contact with (diluted) cleaning product and by wearing impervious gloves for a prolonged period. Impervious gloves do not allow transpiration fluid to evaporate, resulting in a wet skin.¹⁷ Water is not always needed for cleaning; there are floor-cleaning methods that do not use water such as a dry micro fibre mop.¹⁸

What are the risks of wet work?

Wet work can cause work-related skin diseases such as eczema and dermatitis. Eczema is a form of dermatitis or inflammation of the upper layers of the skin. The term eczema is broadly applied to a range of persistent or recurring skin rashes characterised by redness, swelling of the skin, itching and dryness, with possible crusting, flaking, blistering, cracking, oozing or bleeding. Water, soap and cleaning products can dehydrate the skin if exposure is too high for too long. The consequence is the reduction of the natural skin protection, which can cause eczema.¹⁹

Dermatitis can be defined as an inflammation of the skin, either due to direct contact with an irritating substance or to an allergic reaction. Skin irritations might be triggered by substances, which seem to be relatively harmless. This is due to the extensive contact with them or a mixture of several substances. Damaged skin such as skin that is dehydrated after prolonged wet work can absorb dangerous substances in cleaning agents, which can result in local inflammation, but also cause allergic reaction.^{20,21}



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How can harm from wet work be prevented?

Does wet work have to be carried out? Can it be substituted using techniques such as membrane cleaning using microfibre cloths? If wet work has to be carried out then the correct protective equipment, including personal protective equipment such as gloves should be used. Skin protection products such also recommended.

The proper use of water for cleaning

While the use of hazardous cleaners can be reduced, water remains the basic working substance. The following points should be considered:

- Do you really need to use as much water?
- Are there other cleaning methods or equipment that reduce the need for water?
- Are there other cleaning methods or equipment that reduce or even prevent direct skin contact with water?
- Can you protect the skin in a better way?

Using gloves

Using personal protective equipment (PPE) such as gloves should be the last resort. If gloves have to be used, then they must be used properly. Incorrect use of gloves might do more harm than good. Workers may not be protected by their gloves when:

- the gloves do not fit (allowing water into the glove)
- the gloves are worn for too long (allowing the hands to get sweaty)
- the wrong gloves are used (so they do not protect the hand)
- the wrong glove material is used such as latex gloves.

How to use gloves:

- wear gloves only when it is necessary for the work
- use cotton gloves under the impervious gloves to absorb sweat when you need to wear gloves for a long period
- dry hands very carefully before wearing gloves
- don't use powdered gloves
- don't use natural rubber latex gloves
- change gloves if they are damaged or wet inside. |

Skin care and protection products

Besides using gloves, skin problems can be reduced by constant and careful skin care and protection. The employer should provide for adequate skin protection, cleansing and care products. It is important to use the proper products, depending on the job and on the type of skin. A skin protection



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plan should be formulated and posted on a visible place. There are many plans publicly available that can be used as templates and adapted to your own working situation^{22,23}.

Skin care products such as pre-work creams, skin cleaning products and after-work creams help to keep the skin in good condition and retain its protective function. Pre-work creams provide a barrier between water or chemicals and the skin, and can make the cleaning of your hands easier so that you don't have to use powerful hand cleaning substances. After work creams rebuild the moisture content of the skin and help to reduce skin diseases such as dermatitis.²⁴

Employers should ensure that cleaners have all the information they need, in adequate format and posted on visible places. It is important for cleaners to be continuously trained in the proper use of gloves and skin protection.

Failure to manage skin care can have devastating effects on workers. For example, after working 16 years as a building cleaner a worker developed extreme skin irritations on her hands. The symptoms included vesicles, redness, scurf, fissures and burst skin and she was diagnosed with toxic contact eczema. By using protective gloves and following a skin protection plan, the irritations disappeared and she was able to work normally.²⁵

Case study: Preventing skin diseases

The German Accident Insurance Associations for the Building Industry (Berufsgenossenschaften der Bauwirtschaft) developed a programme to prevent skin diseases. The programme involves an intensive individual consultation, technical and organisational measures, PPE and skin-friendly working methods. After some months the skin irritations of 90% of the concerned workers were reduced and in 23% cases had even disappeared. The number of occupational diseases was reduced by almost 80%.

Legislation

Laws to protect workers exist in all Member States. Many of these laws come from European directivesⁱ that set minimum standards of protection. This legislation sets out requirements for worker protection and how the protection should be achieved. These directives include:

- 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work.

ⁱ Access to all EU legislation, including the directives referred to here in all official languages can be found at: <http://eur-lex.europa.eu>



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- 89/391/EEC, the “framework directive” on the introduction of measures to encourage improvements in the safety and health of workers at work
- 89/654/EEC on measures designed to improve the working environment in order to guarantee a better standard of health and safety protection
- 89/655/EEC on the minimum safety and health requirements for the use of work equipment by workers at work.
- 91/383/EEC on safety and health at work of workers with a fixed-duration employment relationship or a temporary employment relationship,
- 92/85/EEC on safety and health at work of pregnant workers and workers who have recently given birth or are breastfeeding
- 94/33/EC of 22 June 1994 on the protection of young people at work

As Member States may have additional requirements, it is important that you are aware of the legislation applicable in your own Member State by consulting with the relevant authority.

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