Dangerous substances in HORECA

1. Introduction

The hotel, restaurant and catering sector (HORECA) covers a wide range of businesses, including hotels, pubs and restaurants, contract caterers, fast food takeaways, cafes, and bistros.

Hazardous and dangerous substances can lead to injury or illness if people come in contact with them or do not use them properly. The danger of a substance depends on its type, what it is made of, the way it enters the body and the amount that enters the body. Harm to health may occur suddenly or over a longer period of time. Some people are more susceptible than others.

In the HORECA sector, many substances pose a risk to employees. Cleaning and disinfecting often demand the use of hazardous substances. Handling food and biological waste, often combined with damp work, is risky and can lead to allergic reactions and skin diseases such as dermatitis. Employees are also exposed to cooking fumes and second-hand smoke.

2. Rights and duties

All employees have the right to a safe and healthy job. An employer has to conduct a risk assessment, and inform employees about the hazards and risks of their jobs and the workplace. He has to put in place prevention measures, appoint people who can be called when something goes wrong and offer training.

Employees also have duties in the workplace. They have to perform their tasks without putting others at risk, and follow safety rules and instructions. They also have to report all dangerous situations to their employer and take part in risk assessments.

Do you have enough information?

Ask yourself what you have to do and work out the best way to do the job. What are the risks and how can you avoid them?

European Directives are transposed into national legislation by the Member States, which may also have their own legislation. It is important, therefore, to ensure you are aware of the relevant legislation in your own country.

3. Dangerous substances — chemical and biological substances

In kitchens and in the catering trade generally workers are exposed to a variety of hazardous substances. This table provides a basic overview of the chemical and biological substances that pose a risk to a worker's health and safety, information on how to recognise possible harmful effects and recommendations for proper controls and preventive work practices.

CHEMICAL SUBSTANCES			
Hazards and risks	**Possible harmful effects**	**Measures for the improvement of safety and health**	**Jobs and tasks**
Products, that contain dangerous materials (can be identified by the label): • cleaning agents • dishwashing products • disinfectants, sanitisers • vinegar essence • insecticides	Skin contact may cause skin diseases such as dermatitis and allergic reactions Vapours/fumes may cause headache or respiratory diseases Long-term exposure may cause chronic (ongoing) effects	• Ask for proper training • Use less dangerous substitutes (eg products for final consumers). • Use safety data sheets (SDS) to develop operating instructions • Use ventilation or open windows • Use of product bundles with pouring spouts and taps, dosage of the agents in accordance with guidance. • Use personal protective equipment such as protective gloves and eye protectors • Cleaning agents	Cleaning floor or equipment (deep fat fryers, machinery, cooking units) Cleaning (hotel rooms, bathrooms) Dishwashing Laundry work Cleaning drain pipes

CHEMICAL SUBSTANCES			
Hazards and risks	**Possible harmful effects**	**Measures for the improvement of safety and health**	**Jobs and tasks**
		should be kept only in admitted and marked containers, by whose form or designation the contents cannot be mistaken with food • Never mix cleaning agents	

Hazards and risks	Possible harmful effects	Measures for the improvement of safety and health	Jobs and tasks
Cooking vapours/fumes Burnt food	Respiratory diseases	Reduce heat with engineering and administrative controls	Cooking
Second-hand Smoke	Respiratory diseases, lung cancer	Closed, separate smoking rooms, without serving food and drinks, ventilation, smoke-free restaurant	Serving food and drink, bar keeper
CO2	Asphyxiation, unconsciousness and death	Know the hazards, provide a risk assessment and an emergency arrangement	Changing empty dispense-gas bottles, routine maintenance

BIOLOGICAL SUBSTANCES			
Hazards and risks	**Possible harmful effects**	**Measures for the improvement of safety and health**	**Jobs and tasks**
• Risk of infection by micro organisms (viruses,	Skin diseases such as dermatitis and allergic reactions,	• Use protective equipment such as gloves • Skin protection • Disinfection of the	Cooking Cleaning (floor, equipment,

BIOLOGICAL SUBSTANCES			
Hazards and risks	**Possible harmful effects**	**Measures for the improvement of safety and health**	**Jobs and tasks**
bacteria, parasites) • Dripping water off frozen poultry • Blood of slaughtered animals • Needles found while cleaning	respiratory diseases	hands • Regular checking for infestation of pests and mould spores and tackling them • Regular cleaning according to the cleaning plan • Do not touch needles, report this to your supervisor	machinery, cooking units) Cleaning (hotel rooms, bathrooms)
Water, humidity and wet work	Skin diseases such as dermatitis and allergic reactions	• Wear appropriate gloves and protect your skin • Dry your hands before putting on the gloves • Avoid or reduce contact with water	Cleaning floors or kitchen equipment Cleaning rooms, baths Dishwashing Laundry work Cutting and preparing food
Contact with food, pesticides and preservative agents	Skin diseases, dermatitis, allergic reactions, respiratory diseases	• Wear gloves and protect your skin • Dry your hands before putting on the gloves • Avoid or reduce the contact • Use other PSA such as respiratory protection	Cutting and preparing food
Natural rubber latex (NRL)	Development of allergy to NRL	Substitution of powdered latex gloves with low protein powder-free NRL gloves or latex-free gloves	Cleaning floors or kitchen equipment Cleaning rooms, bathes Dishwashing Laundry work

BIOLOGICAL SUBSTANCES			
Hazards and risks	**Possible harmful effects**	**Measures for the improvement of safety and health**	**Jobs and tasks**
			Cutting and preparing food
Infestation of pests and mould spores • of work and storage spaces (e.g. scullery, cold storage room…) • of food waste	Skin diseases, dermatitis, allergic reactions, respiratory diseases	• Regular cleaning, disinfection and pest control according to the cleaning plan • Ventilation, aspiration • Closed containers for the accumulation of organic wastes • Cooled rubbish storage	Cleaning
Impurities of the air conditioning system such as viruses, bacteria or mould spores	Respiratory diseases	• Periodic maintenance and cleaning of the air conditioning system and the extractor hood • Regular exchange/ cleaning of the filters • Regular control of the suction range of the air conditioning system for contamination	Cleaning
Insect bites		• Use of fly screens and insect traps	Service staff

When handling any products and substances you should pay attention to the label. If it shows one of the following signs, you should ask for special instructions and for safer alternatives:

Toxic (T)	**Very toxic (Tx)**	**Corrosive (C)**)	**Explosive (E),**	**Harmful (Xn)**	**Irritant (Xi)**
					

4. Work-related skin diseases

Occupational skin diseases (OSD) are among the most common occupational diseases. Compared to other occupations, employees in the kitchen and catering trades are at a high risk of developing OSD. The consequences of developing an OSD are that the employee is forced to give up work in the HORECA sector. Cooking and service tasks involving direct contact with customers cannot be done with an obvious skin disease.

Skin diseases often cause the skin to lose its natural protective quality; for example:

- physical effects such as abrasion, impact and UV radiation
- chemical effects of acids or caustic solutions
- biological effects of different pathogens such as bacteria, viruses or moulds.

Repetitive activities — such as frequent hand washing, unprotected handling of detergents and disinfectants or using aggressive food ingredients — can abrade the skin and damage its protection barrier. This is the most frequent cause of occupational eczemas. They occur mostly on the hands, but also on lower arms.

Allergic hand eczema is another type of work-related skin disease. With an allergy, the immune system reacts to certain, normally harmless materials, such as asparagus, salmon or garlic, as if they were dangerous pathogens. It develops a kind of memory on the material (allergen). This process, which is also called sensitisation, goes unnoticed by humans. On renewed contact with the now well-known material, there is a reaction with symptoms that include redness, vesicles formations and itching. It is not possible to predict whether a person will develop an allergy or which kind of allergy it might be.

Causes of occupational skin diseases

Work with frequent water contact / humidity work

Regular contact with water dries the skin, which gradually loses its protective function. If moisture resistant gloves are worn for a longer time, the horny (outside) layer of the skin swells. The skin may therefore be abraded more easily, and substances may penetrate and damage the skin.

Frequent handling with affecting substances:

- corrosive and grease-emulsifying substances contained in cleaning agents
- substances containing alkaline solutions
- acidic substances such as fruit essences and leaven.

Disturbing its natural pH-value slows the recovery of the skin. It may further result in acute damage to and irritation of the skin surface.

Handling with substances, which can cause an allergy
If the skin is already damaged, allergenic substances penetrate more easily. By contact with the immune system of the human body it leads to inflammation.

Prevention measures

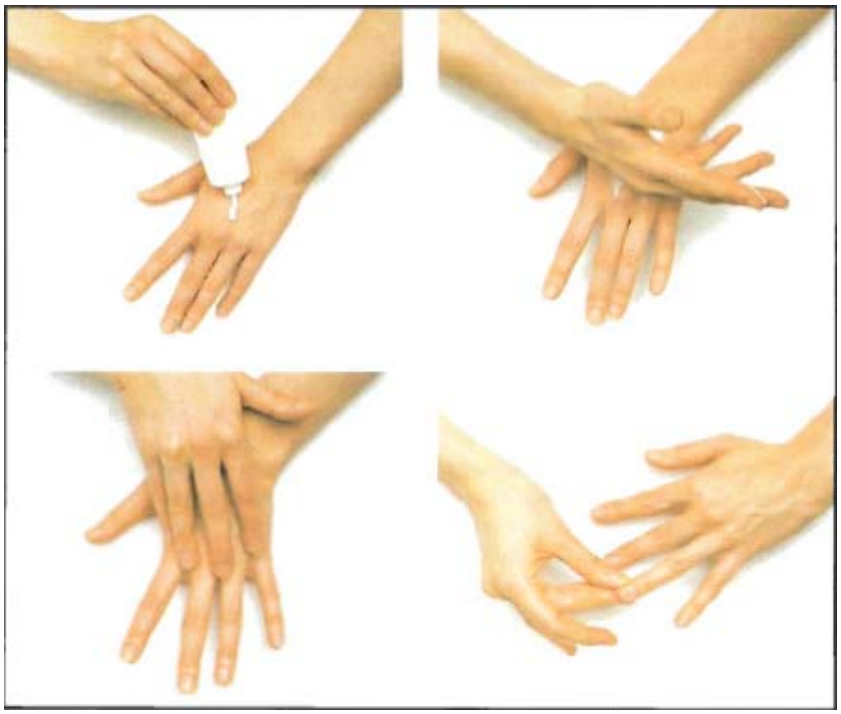
In order to prevent work-related skin diseases, employers are obliged to carry out a risk assessment at all workplaces. This risk assessment covers chemical, physical as well as biological effects. If the employer links a skin affection to a particular activity, he has to take appropriate protective measures.

In this context, action should be taken in the following order:
- application of less hazardous substitutes (if possible)
- implementation of working procedures protecting the skin (technical and organisational measures)
- clarification and instruction of the employees in handling hazardous working substances and adequate application of personal protection equipment (PPE)
- development and implementation of a skin protection and hygiene plan.

Selection of skin protective products

Cleaning, which is also kind to the skin, can be efficient. Skin care products aims to support the regeneration of the skin barrier.

Skin cleaning and care products:
- should not contain perfumes
- should not contaminate food
- has to match the existing skin hazards
- has to be geared to the activity.



Recommended application of skin protection and care products (Source: BGN)

Hand disinfection

Hand disinfection with a suitable product is normally sufficient to kill germs and pathogens on the skin surface. The instructions for use, such as the time necessary to allow the product to work, have to be followed. In practice, extra skin cleaning is only necessary if there is a visible soiling of the skin.

The following two points should be considered when selecting hand disinfectants:

- which are the most effective?
- preparations based on alcoholic solutions are better.

Protective gloves

Protective gloves should only be used if all other technical and organisational measures to reduce skin hazards have been tried. The length of time you wear them should be minimised — only wear protective gloves during activities that directly endanger the skin. Select the appropriate gloves for the particular working process.

A wedding was celebrated in a pavilion at a local sport club. After the employer failed to return from changing a carbon dioxide (CO2) gas bottle, the waitress found him unconscious in the cellar. Two guests, who were asked for help, went into the cellar and lost consciousness too. Two other guests, who tried to enter the cellar through a second door, got out just in time. The tragic outcome: three persons died and two were seriously injured.

The following is recommended:

- select appropriate gloves and change gloves in time in order to minimise the formation of wetness on the skin
- for cleaning and disinfection work, chemical protection gloves must be worn. When handling food, attention has to be paid to the fact that the glove does not release toxicologically precarious ingredients such as softeners
- each user has to have his or her own gloves
- the glove must correspond to the size and shape of the hand of the user
- do not use damaged gloves
- before using again, turn the protective gloves inside out and hang them to dry
- do not reuse disposable gloves.

Putting on protecting gloves before handling corrosive substance
(Source: BGN)

Glove selection – the risks of using natural rubber latex gloves

There are health risks associated with exposure to natural rubber latex (NRL). Latex allergy is a reaction to certain proteins in the rubber. The range of reactions associated with this allergy includes skin rashes, hay fever-like symptoms, asthma and anaphylaxis, which has resulted in fatalities. This may not only affect employees in the hospitality sector who wear NRL gloves, but possibly also customers who eat food that has been in contact with NRL gloves.

There are synthetic alternatives available, such as blue vinyl single-use gloves that minimize the risk of a NRL allergy and are an equally effective barrier.

Example: handling carbon dioxide

Using pressurised gas to dispense drinks is common throughout the HORECA sector. In many restaurants and pubs the gas installation and bottles are located in poorly ventilated cellars.

Nitrogen, carbon dioxide and, under specific circumstances, compressed air are used as dispense gases. Carbon dioxide is the most commonly used. It is an odourless, colourless gas that displaces oxygen.

Table: Hazards and effects during increasing CO2 concentration

CO_2 - proportion in the ambient air	Hazards and effects during increasing CO_2 concentration
approx. 0.5 - 1 Vol.-%	In case of short-time inhalation, there is generally no special disturbance of the bodily functions.
approx. 2 - 3 Vol.-%	Increasing provoking of the respiratory centre and an increase of the pulse frequency.
approx. 4 - 7 Vol.-%	Aggravation of the above complaints, blood circulation problems in the brain, headache, a rising feeling of dizziness, nausea and ear rushing.
approx. 8 - 10 Vol.-%	Aggravation of the above complaints followed by cramps unconsciousness and rapid death.
above 10 Vol.-%	Death occurs at short notice.

What should employers do?

- Learn to know the hazards and provide a risk assessment. This must evaluate the hazards to all staff entering or working in the cellar, including employees, self-employed workers, contractors and visitors.
- Access to confined spaces should be restricted to designated personnel only. Employees who operate the dispense gas installation should be trained to follow the suppliers' instructions.
- Place appropriate warning signs outside areas where high concentrations of the gas can accumulate.
- Deliveries should be arranged to keep the number and the size of pressurised gas bottles at a minimum.
- Inspect and maintain all piping, tubing, hoses and fittings at regular intervals, and maintain the system in accordance with the manufacturer's instructions (weekly visual inspections). An annual inspection should be carried out by a professional contractor.
- To guard against a significant leak of dispense gas, provide adequate ventilation to refresh the atmosphere or install a gas monitoring system with a warning alarm. The gas monitoring system should work continuously and be designed to warn a person via an audible or visible alarm before he or she enters the danger area.
- Install new carbon dioxide receptacles at ground level in an open area. If possible, relocate existing fill stations to above-grade locations.

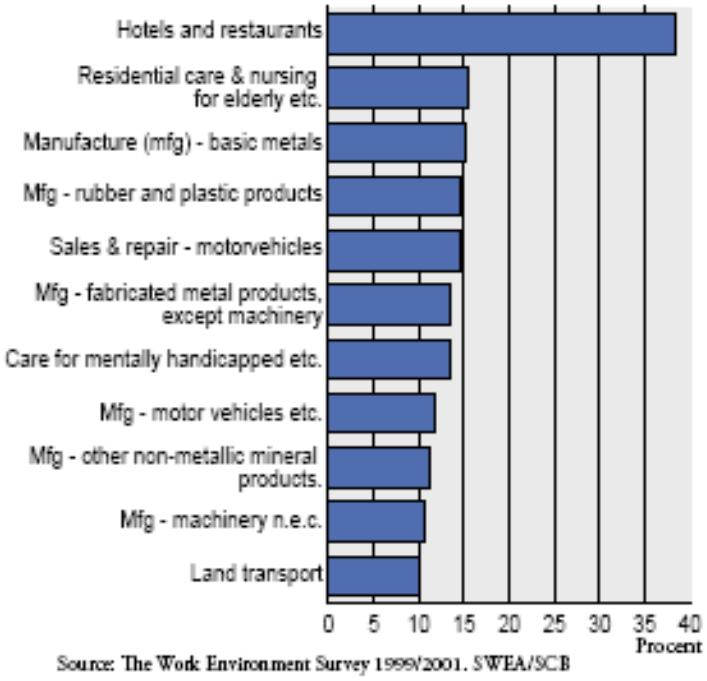
- An emergency arrangement should be provided and the staff should be trained in these procedures.

Example: second-hand smoke, first -hand problem

Second-hand smoke is a dangerous substance with a widespread impact in hotels, restaurants and bars, especially for service staff and bar tenders. According to Swedish statistics, more than 35% of the employees in this sector are exposed, which is far over average.

Working in a restaurant or bar exposes employees to high levels of smoke for many hours, often in closed with poor ventilation.

Figure 2. Exposure to environmental tobacco smoke. The eleven industries with the highest percentage of employees stating that they are exposed for at least a quarter of working time. Both sexes



Source: The Work Environment Survey 1999/2001. SWEA/SCB

Tobacco smoke is carcinogenic. This means there is no safe level of exposure to second-hand smoke.

The inhalation of second-hand tobacco smoke increases your risk of developing respiratory diseases, heart and cardiovascular diseases, and lung cancer. It also affects fertility.

The risk of developing heart and cardiovascular diseases by exposure to second-hand smoke over four hours in a day is 25-30% higher than normal.

Tobacco smoke is a carcinogenic substance, but not classified as such in all EU countries. The restriction of exposure to second-hand smoke by stricter legislation is currently under discussion in many Member States. The regulations are different in European countries. For a short description of the situation for each country, see: http://www.no-smoke.org/pdf/internationalbarsandrestaurants.pdf

What can you do?

The most effective way to protect workers from second-hand smoke is to have smoke-free areas. New research shows that non-smoking areas, which are not separated from other rooms, offer only partial or no protection at all. Good ventilation systems can improve the situation.

To measure the risk of second-hand smoke, the nicotine content in the air can be measured. Individual exposure can be measured using the cotinine content in the urine.

Smoke-free restaurants in Finland

Finland was the first country in Europe to define second-hand smoke as a workplace carcinogen.

In Finland, second-hand smoke has been classified as a dangerous substance causing cancer since 2000. Restaurants and bars had to establish separate areas for smokers and use ventilation systems. A stricter law will come into force in 2007 when smoking will be allowed only in separate smoking rooms. In these rooms, which have to be installed by 2009, drinks and food are not served. Working in these rooms is allowed only in some circumstances such as cleaning.

The law has to be put into practice in collaboration of the employers, the occupational safety and health representatives in the company, employees and the regional health inspection.

The new law establishes regular risk assessment by the employers. In some cases, control measures of the nicotine content in the air and cotinine content in the urine can be required. Authorities have already published already fact sheets and leaflets on how to arrange, equip, locate and ventilate smoking rooms.

Since 2000, the nicotine concentration in the air of restaurants and bars has decreased slowly. After the new law is established in 2007, a faster reduction of tobacco smoke exposure is expected.

Further information

For further information in English on topics covered in this summary see:

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