

# Hygiene of the working environment

One is bound to the environment, one is constantly interacting with it. Man and the environment form a dynamic system linked by the exchange of substances (food and water intake, air), the environment thus influences man mainly through its effect on his state of health, but also on other aspects of life. Hygiene uses so-called **hygiene limits**, which are values of concentrations (e.g. for chemicals) or intensities (e.g. for noise, vibration, physical stress) to which almost all persons can be exposed without adversely affecting their health.

## Work hygiene

The field of occupational hygiene is concerned with the assessment of work and its effects on the illness of the employee.

The basic activity of the branch within the framework of state health supervision is **control of the fulfilment of legal obligations in the field of occupational health protection**, which are mainly requirements for the design of workplaces, including lighting, ventilation, ensuring satisfactory microclimatic conditions at the workplace, compliance with hygienic limits for physical factors, chemical pollutants and Dust in the working environment, as well as compliance with limits for physical load, fulfilment of ergonomic requirements for the workplace and workplace, compliance with the principles for working with biological agents, equipping workplaces with sanitary and auxiliary facilities, supplying workplaces with water, as well as ensuring factory preventive care.

In this context, the effect of **physical factors** is evaluated, e.g. noise, vibration, non-ionizing radiation, microclimatic conditions, **chemical factors** (chemical pollutants), **biological factors** (bacteria, viruses) in the working environment on the health status of workers and assessing **technical, organisational and alternative measures** implemented by the employer to reduce the effects of risk factors in the working environment.

The employer is required by law to carry out **assessments of work environment factors** and to classify work into **categories** according to the results of the assessment. The employer shall submit a proposal for the classification of work into categories 3 and 4, together with a proposal for occupational health protection measures, within the prescribed time limits, to the public health protection authority for consideration, which shall issue a decision on the classification of work into these categories and shall determine the minimum time limits and scope of medical preventive examinations, the minimum scope and time limits for monitoring factors of working conditions, if any, and the method of monitoring the burden of the organism with risk factors of working conditions.

In the case of work classified as **Category 2** (together with the data relevant to that classification), the employer must immediately notify the public health authority of that fact. In this case, the public health authority shall not issue a decision on the classification of the work in Category 2.

Another activity of the branch is **control of the handling of hazardous chemicals and preparations** including the negotiation of written rules for handling and the testing of competence for the handling of highly toxic substances and preparations.

The professional activity of the Department of Occupational Hygiene includes **verifying the conditions of occurrence of disease** for the purpose of assessing occupational diseases.

The Department's employees base their preventive hygiene supervision (when assessing project documentation) and routine hygiene supervision (inspection activities at workplaces) on the following valid legal regulations:

- act no. **258/2000** Coll., on the protection of public health, as amended
- decree no. **432/2003** Coll., laying down the conditions for the categorisation of work, limit values for biological exposure test indicators, conditions for the collection of biological material for biological exposure tests and the requirements for reporting work with asbestos and biological agents
- act no. **262/2006** Coll., of the Labour Code
- act no. **309/2006** Coll., regulating further requirements for occupational safety and health in employment relationships and for ensuring safety and health in activities or services outside employment relationships (Act on ensuring further conditions for occupational safety and health)
- government regulation no. **361/2007** Coll., laying down conditions for occupational health protection
- government regulation no. **148/2006** Coll., on the protection of health against the adverse effects of noise and vibration
- government regulation no. **1/2008** Coll., on the protection of health against non-ionising radiation.

## History

The emergence of occupational medicine as a specialised field dates back to 1700, when **Bernardo Ramazzini** published a treatise on the diseases of artisans in Pavia, Italy. At that time, the prevention of occupational diseases was not yet common; it was more or less a matter of diagnosis and therapy.

In the Czech Republic, this issue was dealt with by **prof. J. Teisinger**, who in 1952 founded the Institute of Occupational Hygiene and Occupational Diseases, currently the Centre of Occupational Medicine, so he was one of the founders of occupational medicine in the Czech Republic.

# Characteristics and descriptive terms

**Occupationography** is a descriptive method that gives the characteristics of an occupation and allows a more detailed classification of the workload. **Workload** is a factor or set of factors acting on the human body in the work process. **Time analysis of work** is an overview of the distribution and duration of work operations and tasks during a shift, it allows time evaluation of the workload. **Categorization of workplaces** – the Czech Republic has a system of work categorization (by the implementing decree to the Public Health Protection Act), which divides them into four categories according to risk. The categorisation of work enables a summary assessment of the level of employee burden by factors which, from the health point of view, determine the quality of working conditions and which are characteristic of the work at a particular workplace and the degree of protection of the health of workers.

**The following risk factors are assessed:** dust, chemicals, noise, vibration, non-ionizing radiation and electromagnetic fields, physical stress, working position, heat stress, cold stress, psychological stress, visual stress, working with biological agents and working in elevated air pressure.

**Three main indicators are used:** the levels of working conditions, the physiological and psychological response of the body and the health status of workers.

## General characteristics of load grades

**Stage 1 load level** – *minimal health risk* – the factor does not occur at work or the factor load is minimal, optimal working conditions in terms of exposure to the factor (health risk is minimal even for handicapped persons, the influence of the factor is insignificant from the health point of view)

**Stage 2 load level** – *tolerable level of health risk* – from a health point of view, the level of factor load is tolerable, the level of load and factors does not exceed the limits set by the regulations (the influence of the factor is acceptable for a healthy person, an adverse effect of the factor on the health of susceptible individuals cannot be ruled out, i.e. full working comfort for all workers is not always guaranteed).

**Stage 3 load level** – *significant health risk* – the level of the load exceeds the established exposure (load) limit values, alternative technical and organisational measures must be implemented at the workplaces. Characterised by:

1. there are working conditions at the workplace with adverse health effects and the pollutants monitored exceed the permissible values
2. the physiological and psychological response of the organism indicates a load that already leads to isolated functional disorders; restitution does not occur until the beginning of the next shift.
3. the health status of workers is characterised by the rare occurrence of occupational diseases or the risk of occupational diseases

**Stage 4 load level** – *high level of health risk* – the level of the burden highly exceeds the established exposure limit values, a set of preventive measures must be observed at workplaces (occupational health damage is more frequent)

1. there are conditions at the workplace which have an adverse effect on health; harmful substances consistently exceed the permissible values in the range set out in the annex.
2. physiological or psychological response of the organism indicates exhaustion of compensatory mechanisms, requires a long period of rehabilitation or reassignment of the worker.
3. the health status of workers is characterised by recurrent occupational diseases.

If carcinogens are present, they are classified as Category 4 regardless of local conditions.

## Use of categorisation data

1. for **overview and inclusion** of healthy workers and workers with reduced working capacity.
2. as a **basis for exercise** of sanitary surveillance.
3. for **determining the content and timing** of preventive health examinations of workers in hazardous workplaces. On the basis of the categorisation, nationwide measures have been taken for employees in Category 4 - spa care, leave, etc.

Workplaces 3 and 4, as well as workplaces with carcinogenic substances and ionising radiation risks, located in the controlled zone, are declared as hazardous workplaces. Workplaces at risk are those where there is an increased risk of occupational injury, occupational diseases, industrial poisoning, mental health hazards or other health damage. These workplaces are declared by the health service authorities on their own initiative or at the suggestion of the organisation.

## Links

## References

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- TUČEK, Milan. *Hygiena a epidemiologie*. - edition. Univerzita Karlova, nakladatelství Karolinum, 2018. ISBN 9788024639338.