

## Management of preventive measures and injuries in the workplace

**Prof. Ass. Dr. Sherif Sejdiu**  
*College "Business" Pristina/ Kosovo*

**Prof. ass. dr. Fadil Osmani**  
*University "Kadri Zeka" Gjilan/Kosovo*

**PhD (C.) Bahri Rexha**  
*College "Business" Pristina/Kosovo*

### Abstract

The key purpose of this paper is to present some assessments identifying them with risks in the workplace in the Republic of Kosovo and assessing their degree of risk, and identifying opportunities and needs for prevention, risk reduction, response, recovery and avoiding the consequences of injuries at work. The continuous and increasing evolution of natural and industrial hazards, the emergence of new hazards of modern society make it necessary to adapt the structures of defense services at work and apply precautionary measures. Both in every country and in Kosovo, regardless of their status. In order to improve the skills of operational units that are called to intervene against various risks, it is necessary to have a training structure and an operational organization that can do a theoretical-structural training in general and in particular a practical training which will enable a coverage of all existing risks by covering these services with tools and equipment as we have proposed during various researches.

**Keywords:** Prevention, Measures, Management, Risk, Injury, Caution, etc.

### Introduction

In terms of protection at work, many definitions are given, but general introduction. Protection at work is a science in itself which is characterized by the fact that the main target is the human factor.

Occupational safety includes all the provisions, technical, health and social measures that aim to provide the most appropriate conditions to prevent accidents at work, occupational diseases and some other general diseases related to the work environment, which have for the purpose of protecting the life and health of workers. The notion of protection at work in the broadest sense refers to the system of measures and means for the protection of workers, both in terms of labor legislation and in terms of application of technical, organizational and other measures in order to protect life and health of workers. Degradation of the environment (hereinafter: the environment) comes as a result of direct or indirect impact of pollutants as well as through human activities that have detrimental consequences on the quality of the environment and the health of citizens. The impact of human activities on the environment has reached critical thresholds under constant threat by also changing

natural climatic cycles. It is clear that the environment every day sends us signals of the danger that threatens us from its degradation. Taking care of it is the mission of every citizen and institution. In Kosovo, environmental protection is required by the legal framework.

Based on the Law Law no. 04 / L-161 16 May 2013 Promulgated by decree no. DL-026-2013, dated 31.05.2013 by the President of the Republic of Kosovo Atifete Jahjaga, is the obligation of the employer to take all necessary measures to prevent and eliminate any risk at work, including risks to safety and health, as well as the risks to employees exposed to the particular conditions they must face.

Risk assessment document - a document that describes the characteristics of the work process, identifies the source of risk, determines who can be endangered, what is endangered and how it comes to risk, risk assessment for safety and health in the workplace and determines the necessary and indispensable measures that should be taken and implemented in practice, in accordance with the reassessment will be drafted in a period of six months (after 6 months). Workplace risk assessment; Diseases caused by chemical agents; Workplace accidents etc.

### **Opportunities for injury prevention at work**

Risk assessment in the workplace is done in order to carry out both preventive activities in work processes and production methods, carried out by the employer who must take precautions as follows:

- Carried out the assessment of unavoidable risks,
- Has fought the risk from the beginning or the source which is based on the proposed measures and does not pose a risk,
- Has exceeded the causes of risk in certain parameters,
- Has adapted the work to the individual, especially in relation to the characteristics of the workplace and work environment based on relevant qualifications,
- The choice of equipment, working methods and work process is made to facilitate monotonous work and to reduce its effects on health,
- Applied adaptation to technical progress and replacement of hazardous conditions, with non-hazardous or less hazardous conditions,
- Develops a comprehensive preventive policy dealing with technology, work organization, working conditions, social relationships and the impact of factors related to the work environment,
- Has achieved an advantage in the field of collective security in relation to individual security,
- Provides appropriate guidance for safe and healthy work, for the employee and their placement in conspicuous places and in a language he / she understands.
- For the employees in the three positions mentioned above, the employer has provided additional activities from fire safety and health at work, must provide training and necessary tools for work.

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### **Diseases caused by chemical agents**

One of the main and most harmful agents in work environments is chemical dust which is present in all environmental parts both in the external environment and in the work environment. The presence of dust in the work environment and its chemical content poses a risk for the occurrence of occupational diseases, which has dangerous consequences for the life and health of the worker, but also for the facilities and equipment for work.

For this, in the world, a multitude of experts deal with the study of creation, presence, quantity, its relationship with air, chemical composition, granulation, explosiveness, compounds that can be created in the environment with the participation of other chemical components.

Today on earth, there are numerous sources of dust, such as: quarries for the production of rock fractions, various factories, thermal power plants, cement plants, wood processing plants, chemical plants, surface mines, and other plants, whatever form or combination. This paper provides general knowledge of the origin of dust, such as its creation in various technological processes, properties, hazards to health, explosiveness, and other characteristics of dust.

#### **Chemical dust as a chemical ingredient for many diseases in the workplace**

By the term dust we mean all fine dispersible solid particles which may remain in the air. There are many sources of dust. Stable dust together with air, forms a dispersion system in which the air is between the dispersion and the dust dispersion phase.

In atmospheric air, which has significant amounts of dust, as well as in various

technological processes, there are amounts of dust particles, even in more pronounced amounts due to the possibility of poor ventilation. these particles are presented in size and shape various, which can stay in the air for a very long time especially those particles of small fractions that are determined by microscopy whose dimensions are presented in the work.

Analyzing the shape, weight and some other characteristics of the dust we find that the dust has the ability to place-station it in different planes and to move it. Its displacement is carried out by air flow, even greater distances, which depends on the parameters of granulation and meteorological conditions which will be presented below. The ability of dust to stay long or short depends on the degree of crushing, its shape, specific mass as well as humidity, temperature and air movement. Some conditions must be met for dust displacement, such as suitable weight, shape, air flow etc.

### **Diseases caused by chemical agents**

The most common diseases in the workplace, whether industrial or administrative, are powders of various powders, powders are usually small particles of rock that are formed during the technological process. This dust has the property of rising in the air, and then by its weight and size a part is layered on the floor, ceiling, page, armature of other workshops, while the part of the dust with the weight and size of small particles stays and is carried by a middle to middle, depending on humidity, temperature and speed of air movement.

Depending on the degree of fineness of the rocks, dust suspensions in the air are divided into three classes:

*a. Dust with particles of dimensions over 10  $\mu\text{m}$  (micrometers)*

It is a powder which is visible to the eye, and in the middle of the air it is sedimented (layered) according to Newton's Law, the particles of this dust are not subjected to diffusion or coagulation and can easily remain (stopped) by filters of different types, cyclones etc., these particles listed above are not considered too dangerous to human health and are called aerogels.

*b. Dust with particles of dimensions from 10 to 1  $\mu\text{m}$  (micrometers)*

Such particles cannot be seen with the naked eye but only under the flux of light, by means of a microscope and other apparatus that serve to increase small masses. In the midst of smooth air flow, they sediment at a constant velocity, subject to Stokes' Law ("the sedimentation velocity is proportional to the specific mass and square of the particle diameter").

These particles occasionally coagulate, remain in paper filters but do not undergo diffusion, are considered very dangerous to human health because they enter his body through inhaled air and remain - layered in the alveoli of the lungs and after a Occasionally there is an occupational disease, and we call this powder an aerosol.

*c. Dust with particles of dimensions less than 1  $\mu\text{m}$  (micrometers)*

These particles are detected only by ultra-microscopes, they do not even layer in calm air, but are found in continuous motion, subject to the Laws of thermal motion (Brownian motion). hence this type of aerosol is called smoke.

Dust particles are usually irregularly shaped, resulting in the fine-grained fineness of many rocks.

Research has proven that particles with a size of 1 to 0.1 micrometers which are found in the airspace do not sink but through air currents stay and are transported over long distances. During this way of spreading dust meets various objects, buildings, slopes, mountains and everything that is on the ground and a part is usually folded or glued (layered) for it. In order for dust particles in the air to stay flowing, certain conditions must be met, such as: shape, smoothness, density, humidity, air temperature, speed of air movement and others.

These dust particles in the air are harmful to the health of the worker for two reasons:

1. Are harmful to the health of the worker (poisonous and aggressive),
2. They are explosive.

Particles smaller than 10 micrometers are harmful, and particles of lead dust, mercury, arsenic and others are particularly toxic.

Explosive are dust particles e. g. of coal, where with the creation of certain conditions, have great affinity for explosion, these particles have a diameter of about 1mm.

### **Dust generation**

Dust from technological processes is created during the operational works in the exploitation of useful minerals, such as the preparation of the middle for the foreseen operations of cutting / grinding /, loading, transportation, separation and other technological processes of mineral enrichment. However, even after the application of the dust crushing technique and the technical methods of dusting, a considerable amount of dust is reported both in the working environment and outdoors.

Based on the character of the dust source, two groups are distinguished:

The first group includes all technological processes related to ore and rock crushing. The other group includes ventilation currents, air waves, during the execution of mining operations in quarries, transport, and other technological processes, where as the main source of dust is calculated drilling holes for minimization, loading work, transport and others.

In quarries and surface mines we distinguish two main sources of dust:

- Source of dust from technological processes;
- Source of natural dust.

Technological processes at the source of dust include all technological operations of work mentioned above, while natural all processes where the creation of dust during previous works and previously layered dust (erosion, floor planes, sterilizers - waste, traffic routes, etc.). A special feature is the dispersive content of the separated powder which is determined in many ways and is presented with the content of particles with different diameter of the aerosol powder.

The smallest particles of useful minerals and rocks, act in the human body in a harmful way to his health, some powders act in a toxic way, such as. lead, zinc, mercury, and arsenic dust. Coal dust and some minerals from other rocks are generally not poisonous, but as such when found even in small amounts of its concentration, however, are harmful, irritating the throat and airways, and in this way, they cause

various lung diseases that take the general name pneumoconiosis, (from the Greek pneumonia - lungs while kinos - powder).

We distinguish several forms of pneumoconiosis diseases:

a / Anthracosis, lung disease caused by coal dust.

b / Silicosis, the most dangerous disease among lung diseases, caused by the presence of dust with higher or dominant content of free silicon dioxide (SiO<sub>2</sub>).

c / Silicate, a disease of the lungs caused by silicate dust (SO<sub>2</sub>), bound in the form of sulfuric acid salts, including basalt, talc, other gneiss powders.

d / Asbestosis, lung disease caused by asbestos dust.

e / Siderosis, a lung disease caused by powders that contain iron oxides.

In the technical-medical literature we also find other forms of pneumoconiosis named as manganese, beryllium, talkies, anthracosis-silicosis and others.

The harmful action of mineral dust depends on many factors, especially on the content of free SiO<sub>2</sub>, the size of the particles, and their concentration form.

The higher the content of free SiO<sub>2</sub> in the powder, and the concentration above the maximum allowable concentration (KLM) the greater the risk to the health of workers, ie the possibility of developing occupational disease is greater. Also, the size of the particles and their shape, in the dust content play an important role in the appearance and development of pneumoconiosis (occupational disease). Dust with particles of 2 to 5 micrometers, which stratify at a slower speed, when the movement of the air cools.

These particles are considered the most dangerous for the appearance of silicosis, because during respiration these particles remain in the alveoli of the lungs and over time dissolve creating silicic acid (H<sub>2</sub>SiO<sub>3</sub>), which destroys the lung tissue, turning it into a fibrous state.

The more the fibrous lung is involved, the more it reduces the elasticity of the lungs and with this the breathing becomes difficult, up to total neutralization, which means death from silicon tuberculosis. Silicosis as a disease, based on medical achievements to date, is an incurable disease, nor can it be transformed into a smaller stage. Dust with a diameter of less than 2 micrometers are particles, which can be said to be, not very dangerous, because they enter together with the air into the alveoli of the worker lungs, but have no affinity to stop in these alveoli, (have weight and very small size) and emerge from the alveoli and thus do not cause disease, these dust particles do not layer at all.

### **Poisonous mineral powders**

Toxic mineral powders in the human body, act in a much more dangerous way than harmful mineral powders, e. g. Arsenic dust acts in human blood destroying red blood cells, mercury and manganese dust, causes very serious diseases of the nervous system, lead dust as soon as they reach the alveoli, forms digestion which has the ability to attach to blood circulation involving the entire human body.

## Radioactive powders

Radioactive powders are considered extremely dangerous to the human body. If these dusts penetrate the human body together with the air then the human body will always be exceed with radioactive influences. These radioactive powders appear in the ores of uranium, cobalt, nickel, and others. Diseases presented by radiation of mineral dusts, are distinguished from diseases of other dusts as harmful and poisonous.

## Workplace accident management

### General EU directives on occupational safety

Occupational safety and health are preventive measures taken aimed at improving conditions during the work process, preserving life, health integrity, physical and mental protection of employees involved in the production process.

Occupational health objectives aim to:

- 1- In the promotion and maintenance at a high level of physical, mental and social well-being of employees in all professions.
- 2- In the prevention of diseases that come as a result of the working conditions of the employees.
- 3- Protecting workers from the risks arising from factors harmful to health in relation to work.
- 4- In providing a suitable job for each employee, which suits his physiological and psychological abilities "Adaptation of the workplace with the employee and the employer with his workplace".

Why are occupational safety and health important?

According to statistics every year in the European Union, more than 5500 people lose their lives as a result of accidents at work. It is very difficult to determine the impact of occupational diseases on health and on this issue, there is no data consensus. However, estimates by the International Labor Organization (ILO) suggest that 159,000 people in the EU die each year as a result of occupational diseases.

Various companies in EU countries lose about 143 million working days each year from accidents at work. Estimates vary, but such accidents and ill health cost the EU economy at least 490 billion euros a year. Risk forecasting, implementation of effective safety measures and continuous follow-up with their rigor are important for reducing these figures (EU-OSHA Healthy Workplaces 2012-13).

Every year, more than two million women and men die as a result of accidents and work-related illnesses. Workers suffer approximately a loss of 270 million euros each year related to accidents and another 160,000,000 related to incidents and diseases being in the workplace.

Hazardous substances kill 440,000 workers a year - asbestos takes 100,000 lives a year A worker dies every 15 seconds worldwide. 6,000 workers die every day. More people die in the workplace compared to those killed in wars. "It is impossible to achieve absolute job security.

## Impact of timely planning on disasters

### **“Prevention is better than cure”**

Prevention is the cornerstone of the European approach to occupational safety and health. In practice, this means analyzing work processes to identify long-term and short-term risks, and then acting to avoid or mitigate them as much as possible. Prevention of injuries and diseases from occupational health risks is based on two basic concepts:

1- Work environment and technology manufacturers should be designed so that health risks are identified or minimized to a minimum.

2- Employees should be aware of the risks in the workplace, be treated, educated, made aware to behave safely and use personal protective equipment at work.

The experience of many countries around the world has shown that focusing on improving the work environment and avoiding risks at work is more than just telling employees to be careful.

A healthy and safe work environment protects your health and life

### **Recommendation**

Protection of workers in the workplace and the role of the employer in protection from injury and the implementation of precautionary measures against occupational hazards. The purpose of this research was to find the most appropriate ways and activities in the development of precautionary measures of protection at work, avoiding risks before accidents occur, safety at work with adequate equipment of workers, working hours in accordance with labor laws, permanent care of health workers, systematic health checks.

### **Conclusions**

Kosovo is a democratic country that aims to build a stable free market economy. The road to integration into the big European family has not been easy at all. However, our country has undertaken many commitments to build a work process worthy of all active persons, free from discrimination by respecting the rights of employees and giving priority to cooperation between the subjects of the employment relationship and the state, as a third factor. . The state in this trinomial has the main role, as a legislator, enforcer of laws to protect the interests of employees, and as an employer. Our entire society has the right to implement protection measures at work.

The employer has the obligation and responsibility:

- To organize and ensure the implementation of legal provisions for safety at work, protection of employees' health and the working environment through officials and heads of sectors. - Make a detailed risk assessment for each job;

- To provide financial means and the purchase of tools and equipment for protection at work;

- To provide all expenses for the treatment of the injured at work and occupational disease;

- To equip the employee with PPM (personal protective equipment) which is intended for protection against exposure to injuries and risks at work;
- To bear the costs and will replace personal protective equipment at regular intervals and whenever necessary.

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