Decision No. (78) of 2020 regarding Health Regulations for the Initial and Preventive Medical Examination for Workers Susceptible to Occupational Diseases

Minister of Health:

Having reviewed the Social Insurance Law promulgated by Legislative Decree No.(24) of 1976, as amended;

Law No. (38) of 2009 Establishing the National Health Regulatory Authority, amended by Law No. (32) of 2015;

Labour Law for the Private Sector promulgated by Law No. (36) of 2012, as amended;

Legislative Decree No. (21) of 2015 regarding the Private Health Institutions, amended by Law No (1) of 2019,

Public Health Law, promulgated by Law No. (34) of 2018, in particular Article (75) thereof;

Decision No. (3) of 2001 regarding Periodical Medical Examination for Workers susceptible to Infection by Occupational Diseases;

And Decision No. (2) of 2019 regarding the Classification of Private Health Institutions and Health, Technical, and Safety Requirements to be Fulfilled in their Facilities Equipment;

And after coordination with the Minister concerned with Labour Affairs;

And upon the submission of the Undersecretary of the Ministry of Health;

Hereby Decides:

Article (1)

The words and expressions used in this Decision shall have the meanings assigned in the Public Health Law promulgated by Legislative Decree No. (34) of 2018.

The occupational disease in the provisions of this Decision shall mean the disease of which a worker becomes infected with as a result of carrying out the work as what is specified by the Table of Occupational Diseases No. (3) attached to the Social Insurance Law promulgated by Legislative Decree No. (24) of 1976.

Article (2)

It shall be prohibited for any employer to employ any person nominated for work except after conducting initial medical examinations for the candidate in order to verify his health and psychological fitness to do the work.

Initial medical examinations shall be conducted in health institutions licensed to practice these examinations, provided that these examinations shall take into account the nature of the work and the type of occupational disease to which the candidate is exposed, all in accordance with the regulation of initial medical examinations contained in Annex No. (1) attached to this Decision.

Article (3)

The The employer shall periodically conduct preventive medical examinations for workers susceptible to occupational diseases, in accordance with the periodic medical examinations stipulated in Annex No. (2) attached to this Decision.

Article (4)

The employer shall provide all the facilities and data required by the body responsible for the preventive medical examination on the dates it specifies. The employer shall be obligated to pay the worker during the times of the medical examination process.

Article (5)

The employer shall observe strict confidentiality with the results of initial and preventive medical examinations. The circulation of this information shall only be permitted among those concerned. Granting the worker a copy of his data shall be permitted at a written request from him.

Article (6)

The employer shall keep a record within the establishment, recording the result of the initial and preventive medical examinations for each worker.

Article (7)

The worker shall comply to notify the employer when he feels any illness related to the occupation, and the employer shall refer him to the health institutions authorised to do the necessary examinations.

Article (8)

The employer shall remove the worker with an occupational disease from the source of the injury, whenever his continued work poses a danger to his health, either by granting him sick leave or changing his workplace.

The concerned administrative authorities, after coordination with the employer, shall be permitted to recommend that the worker be assigned another job that is commensurate with his health condition, provided that it is far from the source of the occupational disease he suffers from.

In all cases, it shall not be permitted for the employer to return the worker suffering with an occupational disease to work except after a test proves that he is medically fit to perform the work.

Article (9)

Decision No. (3) of 2001 regarding the Periodic Medical Examination of Workers Susceptible to Occupational Diseases shall be repealed.

Article (10)

The Undersecretary of the Ministry of Health and those concerned -each within his jurisdiction- shall implement this Decision, and it shall come into force from the day following the date of its publication in the Official Gazette.

Minister of Health

Faeqa bint Saeed Al Saleh

Issued on: 4 Rabi' Al-Akhir 1442 A.H. Corresponding to: 29 November 2020

Annex (1)

Regulation of the Initial Medical Examination (Prior to Practising the Occupation)

First: Initial medical examination:

The initial medical examination shall be carried out prior to the employment of the worker or his placement in a workplace with health hazards.

This examination shall provide integrated information that enables the doctor or the administration to know the health status of the worker, and the extracted data shall be used to follow up the worker's health condition in subsequent years. This examination shall enable the administration to place workers in jobs that suit the limits of their physical and mental abilities.

The required information shall be recorded on the pre-employment examination form, the design of which shall vary from one occupation to another, however it shall include a questionnaire about the medical, occupational and social history of the worker under examination.

In addition to the initial medical examination of different body systems, one or more special examinations shall be performed depending on the economic activity of the institution, for example:

1. Examination for respiratory functions.

2. Chest examination with x-ray.

3. Hearing examination.

4. Examination of the urinary bladder cells.

5. Examination of the immune status and antibiotic level.

Second: Objectives of the initial medical examination:

1. Identifying the health status of the work candidate.

2. Determining the indicators of the worker's physical, psychological and mental fitness to carry out an occupation.

3. Ensuring that his health or the health of others is not jeopardized as a result of his occupation.

4. Following up on the worker in subsequent years by comparing his health fitness indicators.

5. Enabling the administration to place workers in jobs commensurate with their abilities and energies.

6. Discovering the incidence of any chronic diseases that are subject to increase, multiplication or potential risks in any of the occupations.

Third: Components of the initial medical examination:

1. Reviewing the personal and family medical history.

2. Physical examination (general physical).

3. Performing some routine laboratory tests, such as blood count and urine test.

4. Conducting more detailed systemic examinations or some other laboratory tests, when a health problem is discovered in the nominated worker as a result of certain needs of a specific occupation.

5. Health problems that the candidate may suffer from for work and affect his ability or cause danger to him or others:

a. Uncontrolled hypertension, unstable diabetes (in air and sea occupations, public service drivers, truck and cranes drivers).

b. Colour blindness, epilepsy (in occupations requiring colour recognition and traffic lights).

c. Having any chronic diseases that may be subject to increase, multiplication, or potential risks in an occupation.

Fourth: General considerations for initial medical examinations:

1. Initial medical examinations shall be carried out by specialized doctors to carry out occupational health duties and shall be fully aware of the occupational factors and dangers in all economic activities and establishments, and have knowledge of all the physical and mental needs of various occupations and jobs, in addition to their ability to use the techniques, equipment and tools of the integrated medical examination of the individuals who undergo these examinations, in addition to their knowledge of methods of recording, maintaining and retrieving data and information.

2. In all cases, doctors with other technical specialities, for example (ear, nose and throat, ophthalmologists, surgeons, neurologists and psychiatrists) can be used whenever there is a need for further examinations or specialized research.

3. The employer shall be informed of the results of the medical examinations of his workers in a manner that does not affect the

confidentiality of personal information related to the health of these workers, in the form of general statements about the fitness of these workers to carry out the duties of their occupations (or jobs), without mentioning specific health details.

4. Preventing any attempt to use workers' health data and records to exercise any kind of discrimination, persecution or penalties, whatever their purpose.

Fifth: Special medical reasons for the unfitness of the job candidate for the nominated occupation:

The special medical reasons for the worker's unfitness for the nominated occupation (job) shall be the reasons closely related to the expected occupational hazards in specific occupations or jobs.

Sixth: The following Table shows the pollutants of the work environment (occupational hazards) and the works in which these pollutants are present, the laboratory and physical tests that need to be focused on, with a statement of medical anti-fitness to join these jobs:

Table of Pollutants of the Work Environment (Occupational Hazards) and the Works in which these Pollutants are Present, the Laboratory and Physical Tests that Need to be Focused On, with a Statement of Medical Anti-fitness to Join These Jobs

Pollutants / Work Environment Conditions

Works in which these Pollutants are Present

Laboratory and Physical Tests

Medical Anti-fitness (Indication) to Join These Jobs

Nitric acid, ammonia, nitric oxides (nitrogen)

Its production, various uses, and actions that lead to its secretion and spread.

- Chest x-ray

- Measuring respiratory functions

Diffuse sub-atrophic changes of all parts of the upper respiratory tract, hyperplastic laryngitis.

Chronic bronchitis, bronchial asthma, bronchiectasis.

Acrylic and methacrylic acids and their complex etheric and nitrile compounds

Production and uses of acrylonitrile, methylmethacrylate, ethyl acrylate, and others.

General blood count, red blood cells, bilirubin measurement.

Diffuse sub-atrophic changes of all parts of the upper respiratory tract, hyperplastic laryngitis.

Chronic bronchitis, bronchial asthma, bronchiectasis

Aminonitric, aminonitrosal and aromatic aminonitrochlorous compounds

Production and use of trinitrotalol, dinitrophenol, dinitropenazole, aniline, fexofen, dinitrilchlorobenazole and others, orotropin.

Production and use of criosol and picric acid.

Red blood cells, reticulocytes, bilirubin, urine and sediment examination.

When haemoglobin is less than 130 g/litre in men, 120 g/litre in women.

Chronic diseases of the liver and biliary tract.

Cataracts when exposed to trinitrotalol.

Chronic diseases of the outer part of the eye.

Allergic diseases, including skin diseases.

Chronic cystitis (due to aniline exposure)

Fatty amino compounds and their aniline derivatives and other amino compounds.

Its production and use.

All white blood cells and their types (pigmented), red blood cells and reticulocytes.

Diffuse sub-atrophic changes of all parts of the upper respiratory tract, hyperplastic laryngitis.

Chronic bronchitis, chronic pneumonia.

Chronic relapsing dermatitis.

Barium and its compounds.

Production and use of liquid barium compounds

Production and use of non-liquid barium compounds.

Chest x-ray (when working in dirt/dust)

Chronic bronchitis, bronchial asthma, chronic pneumonia.

Aromatic amino compounds –benzidine and its compounds– dianzidine – Taloidin and its compounds– Naphthylamine.

Their production and uses, including laboratory work, and the use of pigments based on these materials.

Inflammation of the urinary tract and kidney.

Various cancers.

Benzyl and its derivatives (talool – glycolyl – sterol, etc.), aromatic halogen derivatives, halogenated benzyl and chlorinated benzylidene.

Their production and uses, including charitable works.

Production and use of benzene derivatives and their analogues, isopropylbenzene, sterols and thalol.

Red blood cells, reticulocytes, white and formula, platelets

Women shall be prohibited from working in jobs related to benzene production.

Haemoglobin of less than 130 g/litre in men, 120 g/litre in women. Red blood cells of less than 4.5 million, platelets of less than 180,000.

Benign tumours of the reproductive system when working with benzene.

Menstrual disorder accompanied by uterine bleeding.

Addiction to alcohol and drugs.

Nitrogenous pigments – antrahenic and phthalocyanolophilic pigments.

Its production and uses.

Red blood cells, reticulocytes.

- Chronic relapsing skin diseases.

- Relapsing chronic liver diseases.

Beryllium and its compounds.

The production and use of metallic beryllium and its compounds, the manufacture of fillings, the mechanical manufacture of ceramics from oxyberyllium, the production of alloys containing beryllium.

white and formula, chest x-ray, lung functions.

- Allergic diseases.

- Chronic bronchitis – chronic pneumonia.

- Chronic relapsing skin diseases.

- Diffuse sub-atrophic changes of all parts of the upper respiratory tract

– Excessive laryngitis.

- Chronic diseases of the anterior part of the eye (eyelid – tear ducts).

Beta naphtol

Its production and use.

Urine and sediment.

- Chronic kidney diseases.

- Chronic relapsing skin diseases.

Bromine and its compounds.

Its production and use.

Chest x-ray.

Diffuse sub-atrophic changes of all parts of the upper respiratory tract.

Chronic bronchitis – bronchial asthma.

Chronic pneumonia.

Chronic relapsing dermatitis.

Fatty halogenated hydrocarbon compounds.

Its production and use, including laboratory work, dichloroethane – carbon tetrachloride, vinyl chloride, methylene chloride, methyl chloride, chloroform, bromoethyl, trichloroquine, chloride, chloroform, bromoethyl, trichloroquine.

Bilirubin in the blood.

Polyneuritis.

Chronic hepatitis and biliary tract infection.

Respiratory, circulatory system infection.

Chronic diseases of the anterior part of the eye.

Follicular dermatitis.

Alcoholics.

Hydrazine and its compounds.

Its production and use.

Bilirubin in the blood.

Chronic hepatitis and biliary tract infection.

Chronic relapsing dermatitis

Respiratory, circulatory system diseases.

Dimethyl formamide, dimethyl acidamide and other fatty acids.

Its production and use.

Bilirubin in the blood.

Chronic peripheral nervous system inflammation.

Chronic relapsing dermatitis.

Isocyanogen

Its production and use.

Red, white and pigmented cells.

Multiple sub-atrophic changes of the upper respiratory tract. Hyperplastic rhinitis and throat.

Allergic diseases, including skin diseases.

Synthetic (manufactured) fibres.

Mechanical process of fibre manufacturing:

Fibre dyeing.

Thermal stabilization.

Preparing and using dyeing materials.

White and pigmented cells.

Multiple sub-atrophic changes of the upper respiratory tract. Hyperplastic rhinitis and throat.

Allergic diseases.

Chronic relapsing dermatitis.

Cadmium and its compounds.

Its production and use

Chest x-ray, lung functions (in work exposed to dirt and dust), urine and sediment examination.

Multiple sub-atrophic changes of the upper respiratory tract. Deviated septum with changes in lung functions.

Chronic bronchitis, bronchial asthma, chronic pneumonia.

Chronic nephritis.

Coke gas and other products of converting coal into coke

- Production of coke and coke gas, capturing the products of converting coal into coke, refining the captured hydrocoke, preparing black coal in conversion plants.

- Works related to the manufacture of concrete asphalt for paving roads, using materials for converting coal into coke.

Lung functions, chest x-ray, red blood cells, platelets.

Multiple sub-atrophic changes of the upper respiratory tract.

Chronic bronchitis – bronchial asthma, chronic pneumonia.

Haemoglobin less than 130 g/litre in men and 120 g/litre in women.

Red blood cells of less than 4.5 million.

Platelets of less than 180,000.

Chronic relapsing dermatitis.

Chronic diseases of the anterior part of the eye.

Organic flint compounds and oils composed of them (oil based) (silicones, including silanes).

Its production and use

White and pigmented cells.

Multiple sub-atrophic changes of the upper respiratory tract, Hyperplastic rhinitis and throat.

Chronic bronchitis – bronchial asthma, chronic pneumonia.

Chronic diseases of the anterior part of the eye.

Lithium and its compounds.

Its production and use

Red blood cells, white and pigmented cells, urine and sediment, ECG.

General medical anti-fitness (indication)

Manganese and its compounds

- Production and use of oxidized manganese, welding alloys, smelting of manganese steel and other metals containing manganese.

- Obtaining raw materials, preparing them, and using them as grinding materials for inorganic manganese compounds.

Chest x-ray, lung functions (in work exposed to dirt and dust), white and pigmented cells, it is possible to titrate manganese in the blood.

Chronic diseases of the peripheral nervous system.

Chronic bronchitis – chronic pneumonia.

Allergic diseases.

Diseases of the central nervous system.

Methanol

Its production, use and processes that result in its spread.

Myopia examination

Optic nerve and retinal diseases.

Addiction to alcohol and drugs

Arsenic and its compounds

Extraction – production - use.

Organic and inorganic arsenic compounds.

The processes that result in its spread.

Urine arsenic determination, urine and sediment examination, chest x-ray

Multiple sub-atrophic changes of the upper respiratory tract.

Deviated septum with changes in lung functions.

Chronic bronchitis, bronchial asthma, chronic pneumonia.

Chronic diseases of the peripheral nervous system.

Chronic relapsing dermatitis.

Benign tumour in any area.

Nickel and its compounds

Its production and use.

- Chest x-ray,

- Lung functions (in work exposed to dirt and dust)

- White and pigmented cells.

Hyperplastic rhinitis and throat (when working in places where nickel is produced by electrical methods).

Allergic diseases.

Benign tumours in any area.

Chronic lung diseases (when working in nickel production).

Respiratory and circulatory system diseases.

Organic accelerators for rubber tempering, rubber tempering inhibitors and others

Production and use of captusa, texa, tiuram, nuzone

White and pigmented cells, bilirubin in the blood.

Chronic bronchitis, chronic pneumonia.

Allergic diseases

Bergdahl

Production and use

Clinical surveillance

Multiple sub-atrophic changes of the upper respiratory tract.

Chronic bronchitis, bronchial asthma, chronic pneumonia.

Chronic relapsing dermatitis.

Pesticide

Their production and use in agricultural work such as chlorine and organic phosphorus compounds, carbamyl acid esters, inorganic mineral

compounds, and others. It also includes conservation and pre-treatment of cotton.

- Measuring the effectiveness of cholinesterase yeast in the blood when using organic phosphorus compounds and some carbonated metallic acids – and comparing it to the effectiveness before the exposure of the agent to pesticide.

- Urine mercury titre (while working with organic mercury compounds).

- Methemoglobin measurement when using nitrophenol compounds.

- Bilirubin, urine and sediment when using any compound of pesticide.

Chronic peripheral nervous system diseases.

Chronic hepatitis and biliary tract.

Allergic diseases, including skin diseases.

Multiple sub-atrophic changes of the upper respiratory tract.

Acoustic neuritis.

Chronic diseases of the anterior part of the eye.

Platinum metals (gold – silver – and their compounds and mixtures).

Their production and use

White and pigmented cells, lung functions, chest x-ray.

Allergic diseases, including skin diseases.

Chronic diseases of the anterior part of the eye.

Chronic bronchitis, chronic pneumonia.

Hydrogen carbon (saturated and unsaturated).

- Repairing wells and equipment when drilling for oil.

- Sulphur and high sulphur oil refining. Natural gas. Pyroenzole (fiery bisole).

- Selective cleaning of oils.

- Cleaning oil and gas from hydrogen sulphur.

- Cleaning of oil-bearing vessels, tanks, reservoirs.

- Production of various artificial substances (phenol, acetone, fatty artificial acids and alcohol).

- Service auxiliary operations at sales stations, sampling.

- Laboratory monitoring of manufactured and semi-manufactured materials.

- Extraction and refining of ozokerite.

- Re-installation of road and air transport oils.

- Processes that result in or use saturated and unsaturated hydrogen coal (production of polyethylene – diphenyl – isoprene).

- Using gasoline as a solvent.

- Making bitumen, oils, paraffin and their uses.

- Service auxiliary processes at sales stations, sampling, laboratory monitoring of semi-finished and manufactured materials.

White and pigmented cells, chest x-ray, lung functions.

Hyperplastic laryngitis

Chronic bronchitis – bronchial asthma, chronic pneumonia.

Chronic nephritis.

Chronic skin infections, including pre-cancerous.

Chronic hepatitis and biliary tract.

Chronic inflammation of the anterior part of the eye

Chronic inflammation of the peripheral nervous system.

Addiction to alcohol and drugs.

Rare earth elements (metals)

Industries that lead to the spraying of rare earth elements and their compounds.

Red blood cells and platelets.

- Chronic bronchitis

– Bronchial asthma

- Chronic pneumonia.

Mercury and its compounds

- Its extraction, detection and other processes related to extraction, cleaning and separation from mixtures.

- Its use for the extraction of vacuum gases for gold and other metals.

- Manufacture of mercury scales, luminescent lamps (such as fluorescent) and other physical, optical and chromatic devices and organic mercury compounds.

- Manufacture of things that contain mercury electrolysis.

- Work in contact with devices where mercury is open (not closed).

Manufacture of mercury jingle (mercury crackers).

- Working with mercury rectifiers, electrical transformers and hoods.

Its use as a catalyst in chemical processes.

- Use of organic mercury compounds.

- Work in contact with devices where mercury is closed.

- Use of mercury jingle in underground works.

- Its use in dental clinics as a mercury filling.

- Manufacture of pharmaceutical compounds and cosmetics containing mercury.

- Chronic diseases of the peripheral nervous system.

- Teeth and jaws diseases (gingivitis – stomatitis – inflammation of the membrane around the tooth).

Lead and its inorganic compounds.

- Smelting lead from ore and concentrates.

- Acquiring lead alloys.

- Filtering or purifying lead.

- Obtaining dried lead balls. Pure white aspidage solution.

- Painting the antiques with lead.

- Mechanical and manual lead preparation.

- Agglomeration, supply of loading chairs.

- Manufacture of lead batteries.

- Tempering in lead bathtubs.

- Production of paint – glass paints – spray fluids containing lead.

- Production and preparation of leaded glass and fibreglass.

- When lead paint is used frequently.

- Production of lead artefacts.

Manufacture and use of crystal glass cement.

- Discovery of lead ore, cracking, mixing and other processes related to the diffusion of dust containing lead sulphide.

- Decentralized works with little lead, such as welding and in printing presses.

Red blood cells, red dotted reticulocytes, aminofolic acid, carbroporphorin in urine.

- The amount of haemoglobin is less than 130 g/litre in men and 120 g/litre in women.

- Chronic inflammation of the peripheral nervous system.

- Relapsing chronic liver diseases.

Selenium and tellurium and their compounds

Production and use

Chronic bronchitis,

Chronic pneumonia, bronchial asthma.

Chronic relapsing dermatitis.

Sulphur and its compounds.

Production and use of organic sulphur compounds and sulphuric effects, sulphuric methyl compounds, sulphuric acid, and oxides of processes that produce sulphur, anhydride sulphur oxide and hydrogen sulphur.

- Chest x-ray

– Lung functions.

Multiple sub-atrophic changes of the upper respiratory tract.

Chronic bronchitis – chronic pneumonia – bronchial asthma.

Chronic diseases of the anterior part of the eye.

Allergic diseases including skin diseases when working in contact with methyl sulphate compounds.

Carbon sulphide

Production and use. Processes through which it is spread.

ECG

Chronic diseases of the peripheral nervous system.

Respiratory and circulatory system diseases.

Chronic diseases of the anterior part of the eye.

Cyanur compounds (hydrogen cyanuric acid and its compounds – cyanimide and others).

Its Production and use.

- Respiratory and circulatory system diseases.

- Chronic diseases of the anterior part of the eye.

Synthetic rubber.

Industrial production **and** preparation of rubber.

Red, white and pigmented cells, platelets, bilirubin in the blood when in contact with sterols and chloroprene

Allergic diseases including skin diseases

Manufactured cleaning materials (synthetic)

Production of sulfanol alkylamide – sodium sulphate and others

White and pigmented cells.

Allergic diseases including skin diseases.

Multiple sub-atrophic changes of the upper respiratory tract.

Chronic bronchitis – chronic pneumonia.

Manufactured resinous and plastic materials, the basis of which is sterols

- Manufacture of plastics and semi-plastics for sterols, polyethylene resin varnishes, adhesives and glass plastics

– Resin and plastic recycling

– Use of resin, varnish, adhesives.

Red blood cells, platelets, white and pigmented cells

1. Haemoglobin of less than 130 g/litre in men and 120 g/litre in women, white blood cells of less than 4.5 million and platelets of less than 180,000.

2. Allergic diseases.

Manufactured resinous and plastic materials, the basis of which is phenol and formaldehyde

Manufacture of resin and varnish, adhesives and others. Re-manufacture of pressurized pellets and materials. Use of varnish adhesives.

White and pigmented cells, chest x-ray, lung functions.

Deviated septum with reduced nasal respiratory functions, multiple sub-atrophic changes of the upper respiratory tract.

Chronic bronchitis, chronic pneumonia.

Allergic diseases.

Chronic diseases of the anterior part of the eye.

Manufactured resinous and plastic materials, the basis of which includes organic flint compounds (silaxones)

Resin Industry – varnish, liquid silicon. Recycling of plastics and compressed materials – use of varnishes, plastics, etc.

White and pigmented cells, chest x-ray, lung functions

Sub-atrophic changes of the upper respiratory tract, hyperplastic laryngitis.

Chronic bronchitis

Bronchial asthma

Chronic pneumonia.

Allergic diseases.

Manufactured resinous and plastic materials, the basis of which is isocyanogen

Manufacture of polyurethane, benopolyurethane and others. Re-manufacturing and reuse

White and pigmented cells, chest x-ray, lung functions

Allergic diseases

Manufactured resinous and plastic materials, the basis of which is organic fluorine and its compounds

Manufacture of plastics (fluoroplast) and semi-plastics (recycling of fluoroplast by thermal and mechanical methods)

Chest x-ray, lung functions

Sub-atrophic changes of the upper respiratory tract, deviated septum with reduced nasal respiratory functions, hyperplastic laryngitis.

Chronic diseases of the peripheral nervous system.

Chronic bronchitis, bronchial asthma, chronic pneumonia.

Chronic relapsing skin diseases.

Chronic diseases of the anterior part of the eye

Manufactured resinous and plastic materials, the basis of which is vinyl chloride and vinylidene chloride

Manufacture of plastics and semi-plastics, pierre chlorphenyl – adhesives, varnishes and others. Re-manufacture of resin and plastic. Use of adhesives, varnishes

Red blood cells, white and pigmented cells. Bilirubin in the blood, bone x-ray

Endartitis, cataract, Raynaud's disease, peripheral vasoconstriction.

Chronic diseases of the peripheral nervous system.

Allergic diseases.

Pre-cancerous diseases

Manufactured resinous and plastic materials, the basis of which includes acrylic and metacrylic acids

Manufacture and re-manufacture of plastics and semi-plastics. Use of emulsifiers, varnishes and dyes

Red, white and pigmented cells

Chronic bronchitis – chronic pneumonia.

Diffuse sub-atrophic changes of the mucous membrane of the upper respiratory tract, hyperplastic laryngitis.

Allergic diseases.

Manufactured resinous and plastic materials, the basis of which includes amino acids and amino parents

Manufacture and re-manufacture of polyamides. Use of adhesives and other materials

Red, white and pigmented cells

Sub-atrophic changes of the upper respiratory tract, hyperplastic laryngitis.

Chronic blocking bronchitis, chronic pneumonia.

Bronchial asthma.

Allergic diseases.

Manufactured resinous and plastic materials, the basis of which is epichlorohydrin

Manufacture and use of epoxy resin and plastic (compounds)

Chest x-ray, lung functions, white and pigmented cells

Allergic diseases

Manufactured resinous and plastic materials, the basis of which is fibrous and unsaturated hydrogen carbon (polyethylene – polypropylene)

Manufacture and use of plastics and semi-plastics

White and pigmented cells.

Allergic diseases.

Shale (mud stone)

Its manufacture and use, industries related to its spread

White and pigmented cells, chest x-ray, lung functions

Sub-atrophic changes of the upper respiratory tract, hyperplastic laryngitis.

Allergic diseases.

Skin diseases related to increased sensitivity to sunlight.

Pre-cancerous skin diseases.

Seborrhoea, diseases of the follicular system of the skin.

Chronic diseases of the anterior part of the eye.

Antimony and its compounds

Its extraction, recycling, use

Chest x-ray

Sub-atrophic changes of the upper respiratory tract, hyperplastic laryngitis.

Chronic relapsing bronchitis.

Chronic relapsing skin diseases

Thallium and its compounds

- Its manufacture and use, the manufacture of hard glass, the manufacture of sensitive photovoltaic cells.

Chest x-ray, renal functions, liver functions

Neurological diseases of the peripheral nervous system.

Periodontitis – stomatitis – inflammation of the membrane around the tooth.

Chronic diseases of the anterior part of the eye.

Sub-atrophic changes of the upper respiratory tract, hyperplastic laryngitis.

Tetra-ethyl lead

- Production of tetra-ethyl lead and ethanol.

- Mixing of ethanol with fuels (gas)

- Use of ethylbenzene: Such as testing, repair, assembly, washing of aircraft and car engines, filling of aircraft, cars.

- Filling of gasoline for non-automated fuel stations, cleaning of equipment and empty tanks in oil bases, and oil depots.

Neuropsychiatric clinical examination

Chronic diseases of the nervous system.

The following metals and their compounds:

Cobalt, vanadium, molybdenum, titanium, tungsten (wolfram), zirconium.

- Extraction and use of cobalt and its compounds.

- Extraction of pentoxy vanadium, production of ferrovanadium, recycling of vanadium containing impurities.

- Production and use of molybdenum, tungsten and their compounds.

Re-manufacture of titanium.

- Obtaining metallic titanium and its compounds.

- Extraction and use of mixtures (tungsten – cobalt). (Titanium – Cobalt). Mineral grains of zirconium and its compounds.

– White and pigmented cells.

– Chest x-ray,

– Lung functions,

– ECG when working with cobalt.

Sub-atrophic changes of the upper respiratory tract, hyperplastic laryngitis.

Chronic bronchitis, chronic pneumonia.

Allergic diseases.

Myocardial infarction when working with cobalt.

Aerosols and Aerosol dyes

Production of Aerosol and Aerosol dyes, fur decoration

White and pigmented cells.

Allergic diseases including skin diseases.

Sub-atrophic changes of the upper respiratory tract, hyperplastic laryngitis.

Chronic bronchopneumonia and bronchial asthma.

Chronic diseases of the anterior part of the eye.

Pharmaceutical compounds

Manufacture and preparation of usable compounds: Morphine and its derivatives. Vitamins – sulpha compounds, antineoplastic compounds, hormonal compounds, sedative compounds, blood fluidizing compounds, antiseptic compounds. Use of compounds in anaesthesia and resuscitation. Preparation of medicines in pharmacies.

White and pigmented cells, red blood cells, bilirubin in the blood

Decreased sense of smell.

Disorder of equilibrium function including Mannier's disease.

Allergic diseases including skin diseases.

Chronic diseases of the anterior part of the eye.

Hormonal imbalance

Addiction to alcohol and drugs.

Phenol and its derivatives

Its production and use.

Respiratory functions

Chronic diseases of the upper and lower respiratory tract.

Allergic diseases including skin diseases.

Chronic diseases of the anterior part of the eye.

Formaldehyde and other fatty aldehydes.

Its production, use and the processes that lead to its spread

- White and pigmented cells,

- Lung functions

Chronic diseases of the upper and lower respiratory tract.

Allergic diseases including skin diseases.

Chronic diseases of the anterior part of the eye.

Phosphorus and its compounds

- Production and use of yellow phosphorus and its compounds, and organic phosphorus compounds.

- Production and use of red phosphorus, its extraction, manufacture and use of phosphates.

- Jaw x-ray

- Calibration of serum choline esters when working with organophosphorus compounds

Oral and gum diseases (gingivitis, inflammation of the membrane around the tooth – tooth decay).

Sub-atrophic changes of the upper respiratory tract, hyperplastic laryngitis.

Chronic bronchopneumonia – bronchial asthma.

Chronic diseases of the anterior part of the eye.

Chronic diseases of the peripheral nervous system.

Chronic diseases of the musculomotor system, especially bone.

Chronic diseases of the liver and biliary tract.

Phthalic acid, phthalic anhydride and their derivatives

Production and use

Clinical monitoring

Chronic diseases of the peripheral nervous system.

Sub-atrophic changes of the upper respiratory tract, hyperplastic laryngitis.

Chronic bronchopneumonia, bronchial asthma, Allergic diseases including skin diseases when working with phthalic anhydride.

Chronic diseases of the anterior apparatus of the eye.

Fluorine and its compounds

Production and use of fluorine and its compounds, electrolytic aluminium extraction, processes that produce fluorine and its compounds

Chest x-ray, lung functions, femoral x-ray

Sub-atrophic changes of the upper respiratory tract, hyperplastic laryngitis. Deviated septum with disruption of nasal respiratory functions.

Chronic diseases of the peripheral nervous system.

Chronic bronchitis and pneumonia – neurological asthma.

Oral and gum diseases (gingivitis – inflammation of the membrane around the tooth).

Chronic relapsing skin diseases.

Chronic diseases of the anterior part of the eye.

Chronic diseases of the musculomotor system, especially bone.

Chlorine, its compounds and chlorine-containing mixture

Their production and uses, processes that produce chlorine

Chest x-ray, respiratory functions test

Sub-atrophic changes of the upper respiratory tract, hyperplastic laryngitis.

Chronic bronchitis abd pneumonia – neurological asthma.

Chronic diseases of the anterior part of the eye.

Chronic relapsing skin diseases.

Furan and their compounds: Furfural – tetrahydrofuran

Its production and uses

Clinical monitoring

hyperplastic laryngitis.

Chronic diseases of the anterior part of the eye.

Chronic relapsing skin diseases.

Chlorine naphthalene and its compounds
(Halofax). Naphthalenes: Naphthalene, naphthalene chloride and its compounds, hydroxynaphthalene, naphthol

Its production and uses

White and pigmented cells, bilirubin in the blood

Chronic diseases of the peripheral nervous system.

Chronic diseases of the liver and biliary tract.

Chronic diseases of the anterior part of the eye.

Chronic relapsing skin diseases.

Chromium, chromic acid and their compounds

Production and use, including things that contain chromium in an additional compound form

White and pigmented cells, chest x-ray, respiratory functions

Sub-atrophic changes of the upper respiratory tract, deviated septum with disruption of nasal respiratory functions.

Allergic diseases including skin diseases.

Chronic bronchopneumonia diseases.

Chronic diseases of the anterior part of the eye.

Presence of a tumour anywhere.

Copper sulphate (zinc) and its compounds

Production and use of zinc and its compounds, galvanizing works for steel and iron, painting operations and protection of ship bases and underground tanks, manufacture of zinc sheets for ceilings, manufacture of dry batteries, manufacture of metal alloys, manufacture of dyes and paints

Chest x-ray

Sub-atrophic changes of the upper respiratory tract, deviated septum with disruption of lung functions.

Allergic diseases including skin diseases.

Chronic bronchopneumonia, bronchial asthma.

Tin and its compounds

Production and use of tin and its compounds, mirror silvering processes, manufacture of cigarette wrapping paper, chocolate and soap, pharmaceutical industries, manufacture of cosmetic tools, processes of manufacture of conserves and beverage packaging, manufacture of mineral mixtures

Chest x-ray

Sub-atrophic changes of the upper respiratory tract, deviated septum with disruption of lung functions.

Allergic diseases including skin diseases.

Chronic bronchopneumonia, bronchial asthma.

Copper and its compounds

Production and use of copper and its compounds, electrical industries, manufacture of household appliances, chemical and pharmaceutical tools, copper alloy industry

Chest x-ray

Sub-atrophic changes of the upper respiratory tract, deviated septum with disruption of lung functions.

Allergic diseases including skin diseases.

Chronic bronchopneumonia, bronchial asthma.

Aluminium and its compounds

The production and use of aluminium and its compounds, the manufacture of aluminium alloys, the manufacture of wire and cable, rotary mills, the use of the final form of aluminium in construction work, the use of aluminium sheets in the food industry, the use of aluminium foil in canning

Chest x-ray

Sub-atrophic changes of the upper respiratory tract, deviated septum with disruption of lung functions.

Allergic diseases including skin diseases.

Chronic bronchopneumonia, bronchial asthma.

Antibiotics

Its production and use in medical and pharmaceutical works

White and pigmented cells, urine and sediment

Sub-atrophic changes of the respiratory tract.

Allergic diseases.

Chronic frequent bronchitis, chronic pneumonia.

Candidiasis – Mycosis.

Chronic diseases of the urinary system.

Fungi and its residue, vitamin protein concentration, pheasant feed, composite feed

Production and use of synthetic microbiological products.

White and pigmented cells.

Allergy diseases.

Chronic bronchopneumonia.

Sub-atrophic changes of the upper respiratory tract.

Mycosis – Candidiasis.

Yeast compounds. Biostimulants

Its production and use in medical and pharmaceutical works. Agribusiness and others in the agriculture sector

White and pigmented cells.

Allergy diseases.

Sub-atrophic changes of the upper respiratory tract.

Allergens, during treatment and diagnosis, blood compounds, biological immune compounds

Its production

White and pigmented cells.

Allergy diseases

Microbial substances, parasitic carriers, infectious or parasitic biological agents (germs, fungi, viruses – ricketsiae – parasites).

Work with microbial substances, parasitic carriers and infectious patients. Work in hospitals, clinics, dispensaries and medical centres. Works that require contact with animals infected with these diseases and trading with them or parts of them, including the work of raising cows and sheep and selling and trading their products and waste. Manufacture of milk and dairy. Slaughterhouses and meat preservation industry. Working in tunnels, sewage and mines. Work in places of water marshes, water sources and rivers. Work in places where these diseases are found and settled.

White and pigmented cells, faeces, conducting qualitative tests according to the nature of exposure

The reasons for the general medical unfitness (indication), but in places where infection can occur, work is prohibited for ages less than (18) years, as well as the work of pregnant and breastfeeding women.

Frictional materials (abrasive) or compounds containing abrasive materials (inhaled dusts).

- Production, manufacture and use of abrasive materials (corundum) (aluminium oxide crystals) and electro-crystalline materials.

- Monocrystalline (Natural white, chromic). Carbide, boron and its oxides, the manufacture and use of flint carbide and others.

- Chest x-ray

- Respiratory functions test

Sub-atrophic changes of the upper respiratory tract. Deviated septum with disruption of nasal breathing.

Chronic diseases of the respiratory tract – Pulmonary tuberculosis.

Chronic diseases of the anterior part of the eye.

Chronic relapsing skin diseases.

Allergic diseases, especially in works related to organic (animal-vegetable) dusts, polymeric materials, and mineral sensitizers.

Flint and its association with free silica or silicon dioxide (silice).

Any work that requires exposure to newly generated dust with silica or materials containing silica, such as work in mines and quarries, stone carving or grinding, in the manufacture of stone sharpeners and polishing metals with sand. Manufacture of flint**,** aerosol, carbide. Glass. Silomin. Manufacture of cement.

- Chest x-ray

- Respiratory functions test

Sub-atrophic changes of the upper respiratory tract. Deviated septum with disruption of nasal breathing.

Chronic diseases of the respiratory tract – Pulmonary tuberculosis.

Chronic diseases of the anterior part of the eye.

Chronic relapsing skin diseases.

Allergic diseases, especially in works related to organic (animal-vegetable) dusts, polymeric materials, and mineral sensitizers.

Metals and their alloys.

The process of polishing and abrasive metals and their alloys, processes of metal dusting caused by mineral grains and the manufacture of mineral artefacts.

- Chest x-ray

- Respiratory functions test

Sub-atrophic changes of the upper respiratory tract. Deviated septum with disruption of nasal breathing.

Chronic diseases of the respiratory tract – Pulmonary tuberculosis.

Chronic diseases of the anterior part of the eye.

Chronic relapsing skin diseases.

Allergic diseases, especially in works related to organic (animal-vegetable) dusts, polymeric materials, and mineral sensitizers.

Silicates and compounds containing them:

- Asbestos and asbestos-containing materials

- Other silicates and compounds containing them

- Exploration and drilling operations and asbestos industry

- Production and manufacture of synthetic asbestos

- Production and manufacture of antiques of amianti cement, amianti rubber and others

- Manufacture and production of fibreglass and metal. Aminate cement. Pottery – Thermal clay. Bauxite. Aswane stone. And other industries

- Chest x-ray

- Respiratory functions test

Sub-atrophic changes of the upper respiratory tract. Deviated septum with disruption of nasal breathing.

Chronic diseases of the respiratory tract – Pulmonary tuberculosis.

Chronic diseases of the anterior part of the eye.

Chronic relapsing skin diseases.

Allergic diseases, especially in works related to organic (animal-vegetable) dusts, polymeric materials, and mineral sensitizers.

Charcoal dust

- Extraction, manufacture and use of coal.

- Production and use of black coal aerosols and synthetic graphite – coke.

- Manufacture and use of natural and synthetic diamonds.

- Chest x-ray

- Respiratory functions test

Sub-atrophic changes of the upper respiratory tract. Deviated septum with disruption of nasal breathing.

Chronic diseases of the respiratory tract – Pulmonary tuberculosis.

Chronic diseases of the anterior part of the eye.

Chronic relapsing skin diseases.

Allergic diseases, especially in works related to organic (animal-vegetable) dusts, polymeric materials, and mineral sensitizers.

Organic (animal-vegetable) dusts

Textile, Kurd and storage works for cotton, wool, linen and hemp. Tobacco grain industry. Grinding. Leaf production – natural silk and others

- Chest x-ray

- Respiratory functions test

Sub-atrophic changes of the upper respiratory tract. Deviated septum with disruption of nasal breathing.

Chronic diseases of the respiratory tract – Pulmonary tuberculosis.

Chronic diseases of the anterior part of the eye.

Chronic relapsing skin diseases.

Allergic diseases, especially in works related to organic (animal-vegetable) dusts, polymeric materials, and mineral sensitizers.

Inorganic light carrier dusts

Production and use

- Chest x-ray

- Respiratory functions test

Sub-atrophic changes of the upper respiratory tract. Deviated septum with disruption of nasal breathing.

Chronic diseases of the respiratory tract – Pulmonary tuberculosis.

Chronic diseases of the anterior part of the eye.

Chronic relapsing skin diseases.

Allergic diseases, especially in works related to organic (animal-vegetable) dusts, polymeric materials, and mineral sensitizers.

Welding dusts. (Manganese containment (20% and more) nickel, chromium, fluorine compounds, beryllium, lead).

Arc, mountainous, gaseous and flammable welding, close welding of floating metal alloys. Electric welding for metals.

Medium and high containment metal welding on steel. Copper nickel (electrical conductors), beryllium and its alloys.

- Chest x-ray, femoral x-ray

- Respiratory functions.

- White and pigmented cells when using (chromium, nickel, cobalt, beryllium, manganese).

Red blood cells. Basophilia punctata. Reticulocytosis. Aminolevulic acid, coproporphorin urine (when using lead).

Sub-atrophic changes of the upper respiratory tract. Deviated septum with disruption of nasal breathing.

Chronic diseases of the respiratory tract – Pulmonary tuberculosis.

Chronic diseases of the anterior part of the eye.

Chronic relapsing skin diseases.

Allergic diseases, especially in works related to organic (animal-vegetable) dusts, polymeric materials, and mineral sensitizers.

Welding dusts **(**contain manganese (up to 20%) iron oxides, aluminium magnesium, titan – copper, zinc, molybdenum, vanadium – volg.

- Arc, mountainous, gaseous and flammable welding, close welding of floating metal alloys. Electric welding for metals.

- Welding of alloys containing coal and zinc steel. Aluminium, copper, titan.

- Welding of ferrous and vanadium ferrous vectors.

- Chest x-ray, femoral x-ray

- Respiratory functions.

- White and pigmented cells when using (chromium, nickel, cobalt, beryllium, manganese).

Red blood cells. Basophilia punctata. Reticulocytosis. Aminolevulic acid, coproporphorin urine (when using lead).

Sub-atrophic changes of the upper respiratory tract. Deviated septum with disruption of nasal breathing.

Chronic diseases of the respiratory tract – Pulmonary tuberculosis.

Chronic diseases of the anterior part of the eye.

Chronic relapsing skin diseases.

Allergic diseases, especially in works related to organic (animal-vegetable) dusts, polymeric materials, and mineral sensitizers.

Ionizing radiation. Radioactive materials. Sources of ionizing radiation.

All works related to radioactive materials and ionizing radiation sources

Haemoglobin. Red blood cells, platelets, white and pigmented cells.

- ECG.

- Respiratory functions and chest x-ray

Haemoglobin of less than 130 g/litre for men, 120 g/litre for women, white blood cells of less than 4.5 million. Platelets of less than 180,000.

Endartitis, cataract, Raynaud's disease, peripheral vasoconstriction.

Recurrent and relapsing pre-tumorous diseases, malignant cancers.

Benign tumours and diseases that prevent the use of special clothing and special fat for exposed areas of the skin.

Radiology disease of the second degree to the fourth degree or with persistent complications.

Chronic suppurative sinusitis, chronic otitis media

Chronic fungal diseases of the skin.

The degree of vision of not less than (5) in an eye and (2) in the other eye without correcting myopia up to 10. Hyperopia 8. Deviation of not a less than 3.

Cataract.

Non-ionizing radiations – a – Laser radiations

All kinds of business with laser

- Red blood cells, platelets, white and pigmented cells.

- ECG

Chronic relapsing skin diseases.

The degree of vision of less than (6) in the eye and less than (5) in the other eye without correction. Myopia of not less than 6. Deviation of not less than 3. Composite disease of myopia, extension and deviation of eyesight of not more than 3.

Cataract and its kinds.

b– 1 Electromagnetic radiations. Electromagnetic field with frequencies from 30 – MHz up to 300 MHz, ultraviolet, infra-red and others.

b– 2 Less than 30 MHz.

All types of works with electromagnetic sources

- Red blood cells, platelets, white and pigmented cells.

- ECG.

Cataract and its types.

c– Continuous and constant electromagnetic radiations.

All types of works with continuous and constant electromagnetic radiation sources

Red blood cells, platelets, white and pigmented cells. ECG

Cataract and its types

Industrial vibration

All types of work related to the impact of:

a– Localized vibration.

b– General vibration.

Cold test. Sensitivity to vibration (tolerance).

Balance device check at general vibration effect.

Endartitis, cataract, Raynaud's disease, peripheral vasoconstriction.

Chronic diseases of the peripheral nervous system.

Balance system diseases, especially Meniere's disease.

Gynecological anomalies – chronic diseases of the uterus and its relapsing adnexa.

Severe myopia of more than 8 without correction.

Industrial noise

All works that produce industrial noise that affect the tension of the auditory system:

a– From 81 until 99 dB.

b– 100 dB and above.

Audiogram, balance organ test

Hearing loss, even for one ear and for any reason.

Acoustic arteriosclerosis and chronic diseases of the auditory system.

Balance system disorder for any reason – Meniere's disease.

Hypertension.

Ultrasound (contact transmission).

Work with all ultrasound based devices

Cold test, vibration sensitivity

Chronic diseases of the peripheral nervous system.

Endartitis, cataract, Raynaud's disease, peripheral vasoconstriction.

High air pressure

Working under high air pressure (divers – pressurized room – diving works).

Chest x-ray, balance organ test. ECG

Diseases of congenital malformations of the musculomotor system caused by accidents.

Chronic ear infections, tympanic membrane atrophy, acoustic canal inflammation.

Chronic diseases of the upper respiratory tract and respiratory tracts.

Balance system disorder. Meniere's disease.

All eye diseases leading to visual disturbance – the degree of vision of less than (8) in an eye and less than (5) in the other eye without correction.

Chronic diseases of the peripheral and central nervous system.

Cardiovascular diseases without compensation.

Cardiovascular diseases without compensation.

Asphyxiating hernias.

Hypertension.

Addiction to alcohol and drugs.

Hypothermia (coldness)

Working at a low temperature for the atmosphere of workplaces and production below the permissible limit.

Cold test

Chronic diseases of the peripheral nervous system.

Endartitis, cataract, Raynaud's disease, peripheral vasoconstriction.

Varices related to severe varicose veins, thrombophlebitis.

Hyperthermia and strong influence of radiant humid heat

All works in which the temperature is high for the atmosphere of the workplaces and production of more than the permissible limit

Clinical monitoring

The degree of vision with correction of less than (5) in one eye and less than (2) for the second eye.

Cataract and its types.

Chronic relapsing skin diseases.

Strong effect (tension) on the eyes. Eye strain

All works related to eye strain and tension.

Delicate works: Assumption from 0.3mm up to 0.15mm.

Straining work for sight (assumption from 0.5 mm up to 1 mm), and works that require sitting in front of the screen and receiving information.

Measuring the degree of visibility

The degree of vision with correction of less than (1) at the initial examination. Less than (8) in one eye and less than (5) in the second eye.

Abnormal refractions, myopia of more than (2) during the initial examination. Deviation of more than (0.5) during the initial examination. Myopia of more than (6) during the periodic examination. Deviation of more than (2) during periodic inspection.

Lack of vision with both eyes.

Lower level of eye conditioning than adults.

Lagophthalmos.

Chronic diseases of the anterior part of the eye.

Optic nerve and retinal diseases.

Glaucoma.

Physical (physiological) strain:

Physical strain

- Works that require carrying and transporting weight by hands or works that require great effort.

- Works carried out continuously of more than 30 kg for men, more than 7 kg for women, with the change of work, that is, work in two types more than 10 kg carrying weight upwards more than 1.5 m. Over 7 kg.

- The total weight transferred or carried by hands in one shift: Men: 12 tons. Women 5 tons.

o If the weight is carried or transferred from the level of the work surface.

o If the weight is carried or transferred from a surface level below the work surface or from the ground: Men 5 tons. Women 2 tons.

- Works that require a long time to stay in a binding position, including standing. Works that require local muscular effort, especially the muscles of the upper limbs and shoulder.

- Keeping the weight on the scale periodically,

o With both hands: Men over 10 kg, and women: Over 7 kg.

o With one hand: Men over 5 kg, and women over 3 kg.

- Works that periodically require the clear curvature of the body (with the naked eye more than 30 degrees from the body column) and that is more than 300 times in one shift.

- Works that require 50% of one shift time to remain in a binding position (kneeling, squatting, lying, leaning forward, hanging, standing.)

Muscle strength measurement, neurography, spine x-ray

Diseases of the musculomotor system with dysfunction:

Chronic diseases of the peripheral nervous system.

Endartitis, cataract, Raynaud's disease, peripheral vasoconstriction.

Varices related to varicose veins of the legs, thrombophlebitis, haemorrhoids.

Severe herniated bowel prolapse, rectal prolapse.

Gynecologic anomalies, gynecologic prolapse.

Chronic inflammatory diseases of the uterus and its recurrent adnexa.

Physical (physiological) strain

Works requiring vocal tract strain (vocal chords) teachers, lecturers, artists (acting in the theatre etc.) anchors, telephone exchange workers

Laryngoscopy

Chronic diseases related to vocal system dysfunction (laryngitis, pharyngitis, etc.).

Annex (2)

Regulation of the Preventive Medical Examination of Workers Susceptible to Occupational Diseases

First: Preventive Medical Examination (Periodic):

Preventive medical examination shall mean the periodic examination of employees at regular intervals (annual, semi-annual or otherwise).

Second: Objectives of the Preventive Medical Examination (Periodic):

The periodic medical examination shall aim at early detection of occupational diseases and the impact of work environment pollutants on the health of the worker, measuring personal exposure to occupational risks and assessing the extent of health damage to workers with chronic diseases resulting from certain risks.

This examination shall also aim to test the efficiency of the prevention methods applied to the workers of the establishment and to detect recent signs of some general non-occupational diseases that may hinder the worker from continuing his work in the establishment, in order to take the means to stop the disease or prevent its impact or transmission to other workers in the future.

Third: Types of Preventive Medical Examination (Periodic):

1- Examination of workers directly susceptible to occupational diseases: It shall be intended to investigate and detect subtle changes in bodily functions caused by long-term exposure to various contaminants in the work environment, for example:

a- Examination of workers susceptible to diseases related (connected) to the occupation: Such as the investigation of some infectious diseases, the study of visual impairment and the investigation of spinal injuries.

b- **Examination of elderly workers**: To screen for the most common diseases in old age, such as joint or cardiovascular diseases.

c- **Special examination for women and pregnant women:** This shall be to ensure that pregnant women do not deal with some pollutants that lead to deformity in the embryos, such as ionizing radiation and lead compounds.

2- Medical examinations in emergency or special cases: These examinations shall be in the event that workers in various economic activities (establishments) are exposed to emergency conditions or special operating conditions that may increase the likelihood of its impact on their health, which necessitates the adoption of a policy commensurate with these conditions and the taking of medical procedures and examinations "unrelated to periodic occupational medical examinations" for these workers in the event of their injury, for the following reasons:

a- Ensuring that they are not affected by special and emergency operating conditions.

b-- Preserving their rights to treatment, rehabilitation and compensation for occupational injuries and diseases that may affect them.

c- Taking measures to prevent the recurrence of exposure to emergency or special cases, or to prevent any of their fellow workers from being affected or injured as a result of exposure to similar cases.

3- Examinations of exposure and screening, and periodic examinations of workers susceptible to occupational hazards and diseases.

Fourth: Table of Preventive (Periodic) Medical Examinations to be Carried Out for Workers Susceptible to Occupational Diseases and Hazards.

The following table shall detail the preventive and periodic medical examinations to be carried out for workers susceptible to occupational diseases and hazards, with reference to the recommended examinations in the conditions of screening, taking into account the importance of the need for periodic review of these examinations in order to take the recommended examinations based on the proof and evidence emerging in the diagnosis and proof of occupational diseases.

Occupational Diseases/Exposure Examinations

Exposure Examinations (Indications)

Screening Examinations

Body systems to be Examined Clinically and in Laboratories

Periodic Examinations

Repeating Periodic Examinations

Observations

Occupational Diseases Caused by Exposure to Conditions and Substances Appearing in Work Activities

Diseases caused by Chemicals

Diseases caused by beryllium or its compounds

- Beryllium in urine (above 2 mcg/g creatinine).

- Bronchoscope

- Broncho-alveolar lavage to perform beryllium lymphocyte proliferation test (BeLPT)

[1]

- Beryllium in urine (above 2 mcg/g creatinine).

- Respiratory system

- Ear, nose and throat

- Eye

- Skin (contact dermatitis)

- Chest examination with x-ray

- Evaluation of respiratory functions.

- Count of the white blood cells and examine them after the pigment.

Every three years

TLV for beryllium is 2.0 mcg/m3

Diseases caused by cadmium or its compounds

- Cadmium in urine (above 3 mcg/g creatinine)

- Cadmium in the blood (above 5 mcg/litre)

- Not more than 5 mcg/m3 in the air to work 8 hours a day

- Urine test of low molecular weight proteins 300 mcg/g creatinine

- Cadmium in urine (above 3 mcg/g creatinine)

- Cadmium in the blood (above 5 mcg/litre).

- Circulatory system (blood pressure).

- Respiratory system.

- Liver.

- Musculoskeletal system.

- Eyes and nose inflammation

- Nausea and vomiting.

- Detection of prostate and lung cancer

- Full urine test in addition to its low molecular weight protein content (higher than 300 mcg/g creatinine)

- 3mcg Cd/gram creatinine in urine and 5mcg Cd/litre whole blood

- Chest examination with x-ray,

- Evaluation of respiratory functions.

- Analysis of liver functions.

One to two years and upon leaving the job

Diseases caused by phosphorus or its compounds

- Blood phosphate

(3-45 mg/100ml)

- Phosphate in urine (0.3-1 g/day)

They are not recommended because the relationship to exposure is not specific)

- Garlic odour from the mouth, with faecal and vomit discolouration of green/blue phosphorous, and smoke in the faeces and mouth

- Teeth and jawbones

- Liver.

- Circulatory system.

- Eye

- Skin

- Full blood panel.

- Jaw and teeth x-ray.

- Analysis of liver functions

- Infections and eye irritation

- Tooth decay and bone erosion

- Liver and kidneys dysfunction:

a- Appearance of biomin in the urine,

b- Increase of gamma GT

c- Increase of ALT

One to two years and upon leaving the job

Diseases caused by chromium or its compounds

- Chromium in a urine sample at the end of the week's shift (higher than 30 mg/g creatinine)

- Chromium in the whole blood sample (higher than 0.37 mg/litre).

- Chromium in the plasma (more accurate than in the whole blood sample).

- Like the respiratory system

- Ear, nose and throat

- Eye

- Skin

- Chromium in a urine sample at the end of the week's shift (higher than 30 mg/g creatinine)

- Chromium in the whole blood sample (higher than 0.37 mg/litre).

- Respiratory system

- Ear, nose and throat

- Eye

- Skin

- Chest x-ray, and lung functions.

- Full blood panel.

- Full urine test

- Analysis of liver and kidneys functions.

One to two years and upon leaving the job

Diseases caused by manganese or its compounds

There is no recommendations for specific limits as indicators associated with the occupational exposure ratio.

Normal limits for the ratio of manganese in urine, whole blood and plasma are usually less than 3 mcg/g creatinine, 10 mcg/litre and 1 mcg/litre, respectively.

[2]

- Level of manganese in blood and urine

- Nervous system

- Psychological evaluation

- Respiratory system

- Chest x-ray,

- Evaluation of respiratory functions.

- Full blood panel.

- Full urine test.

Once a year

Diseases caused by arsenic or its compounds

- Arsenic in urine (35 mcg/litre

- Arsenic in urine

- Respiratory system

- Ear, nose and throat

- Eye

- Nervous system

- Liver.

- Skin: For eczema and allergies

- Blood vessels

- Chest x-ray, and lung functions.

- Full blood panel.

- Neurotransmission velocity test.

- Skin examination: Spots or keratosis

- Spit examination for cancer cells.

Six months to one year and upon leaving the job

The worker shall be made aware of the harmful effects of smoking cigarettes and the extent of the risk in case of exposure to arsenic at work.

Diseases caused by mercury or its compounds

- Mercury in the whole blood sample at the end of the week’s shift (higher than 15 mcg/litre).

- Mercury in urine before prior to work shift (above 35 mcg/g creatinine)

- Mercury samples in hair are used extensively as a biomarker of exposure.

- Mercury in whole blood sample

- Full urine test

- Kidneys functions

- Nervous system

- Psychological evaluation

- Kidneys

- Eye

- Respiratory system

- Skin

- Nervous system

- Psychological evaluation

- Kidneys

- Eye

- Respiratory system

- Skin

- Chest x-ray, and lung functions.

- Full blood panel.

- Nerve conduction velocity test.

- Skin examination: Spots or keratosis

- Spit examination for cancer cells.

Six months to one year and upon leaving the job

Diseases caused by lead or its compounds

- Lead in the whole blood sample (above 400 mcg/litre).

- Lead in urine (above 200 mcg/litre) in cases of exposure to organic lead compounds.

- Blood lead test

- Digestive system and blood

- Nervous system

- Urinary system and kidneys

- Psychological evaluation

- Circulatory system (blood pressure)

- Blood panel (haemoglobin ratio).

- The percentage of protoporphyrin zinc in the blood (at least one month after joining work).

- Analysis of kidney functions (urea and creatinine).

- Full urine test (at the end of the shift).

- Testing the speed of nerve conduction and electromyography.

Once a year and upon leaving the job

The worker shall be prevented from working in jobs that are likely to expose to lead if its percentage in blood exceeds 500 mcg/litre. The worker shall not be reinstated to the same job unless this percentage becomes less than 400 mcg/litre in two consecutive measurements separated by a month. The analysis shall be repeated to confirm after two months.

Diseases caused by fluorine or its compounds

- Teeth.

- Bones.

- Respiratory system.

- Liver.

- Kidneys.

- Pelvic bones x-ray.

- Chest x-ray, and lung functions.

- Full urine test.

- Analysis of kidney functions (urea and creatinine).

- Analysis of liver functions.

One to two years and upon leaving the job

Diseases caused by carbon disulfide or its compounds

- Heart

- Respiratory system

- Psychological evaluation

- Skin

- Eyes

- Respiratory system (chest x-ray and respiratory functions)

- Heart (ECG)

- Eyes

- Skin

- Affected sense of smell

- Full blood panel.

- Psychological evaluation

- High level of sulphide and thiosulfate in the total blood sample (no reference level)

Six months to one year and upon leaving the job

Diseases caused by halogen derivatives of aliphatic and aromatic hydrocarbons

Dinitrophenol and its analogues and substitutes of its analogues and salts derived from those substances

The presence of a substance or one of its reactants (its biological representation) in the urine and blood

- Skin

- Eye

- Digestive system

One to two years and upon leaving the job

Chlorinated naphthalene

Naphthol in urine

- Skin

- Eye

- Respiratory system

One to two years and upon leaving the job

Chloroform - trichloromethane

- Eyes.

- Skin

- Liver.

- Kidneys.

- Nervous system.

- Respiratory system

- Full urine test.

- Analysis of kidney functions (urea and creatinine).

- Analysis of liver functions.

One to two years and upon leaving the job

Carbon tetrachloride

- Carbon tetrachloride in exhaled air **(not agreed on recommendations for specific limits).**

- The level of ethylene tetrachloride in the blood expresses recent exposure.

- The level of trichloroacetic acid in the urine at the end of the work shift shall be taken as a product of the metabolism of the specified substances.

- The level of ethylene tetrachloride in the blood expresses recent exposure.

- The level of trichloroacetic acid in the urine at the end of the work shift shall be taken as a product of the metabolism of the specified substances.

- Liver

- Kidneys.

- Liver functions

- Protein in urine

One to two years and upon leaving the job

Trichloroethylene

The results of the liver ultrasound examination can be taken as evidence of its early impact after excluding other causes

- Eyes.
- Skin
- Liver.
- Kidneys.
- Nervous system.
- Respiratory system
- Heart
- Full urine test 0α1microglobin
- Analysis of kidney functions (urea and creatinine).
- Analysis of liver functions
- ECG
- Psychological evaluation.

One to two years and upon leaving the job

Tetrachloroethane

The results of the liver ultrasound examination can be taken as evidence of its early impact after excluding other causes

- Eyes.
- Skin
- Liver.
- Kidneys.
- Nervous system.
- Respiratory system

- Heart

- Full urine test 0α1microglobin

- Analysis of kidney functions (urea and creatinine).

- Analysis of liver functions

- ECG

- Psychological evaluation.

One to two years and upon leaving the job

Methyl Butyl Ketone

Hexanedione in urine

- Skin

- Eye

- System

One to two years and upon leaving the job

Diseases caused by benzene (benzole) and its analogues

-

- Urinary metabolites

-

- Respiratory system.

- Eyes

- Nervous system.

- Skin.

- Liver.

- Heart.

- Blood

- Full blood panel.

- Lung functions.

- Analysis of liver functions.

- ECG.

Six months to one year and upon leaving the job

Diseases caused by nitrogenous and amino benzene (benzole) derivatives and their analogues

13.1 Benzol amino derivatives

Example: Aniline

Percentage of aminophenol in urine at the end of the work shift (higher than 50 mg/litre)

[3]

- Urine test ttMA

- Blood test

Urine screening

ttMA and haematological data

- Eyes.

- Respiratory system.

- Heart.

- Liver.

- Kidneys.

- Blood

- Urine examination for blood or cancer cells.

- Full blood panel.

- The percentage of methaemoglobin in the blood.

- Analysis of kidney functions (urea and creatinine).

- Analysis of liver functions.

One to two years and upon leaving the job

13.2 Benzol nitrile derivatives

Example: Nitrobenzene

- The percentage of nitrophenol in the urine at the end of the work shift at the end of the week (higher than 5mg/g creatinine

The percentage of methaemoglobin in the blood at the end of the work shift of more than 1.5% of the total haemoglobin

- Skin

- Eyes.

- Respiratory system.

- Heart.

- Liver.

- Kidneys.

- Percentage of methaemoglobin in the blood

- Full blood panel.

- Analysis of kidney functions (urea and creatinine).

- Analysis of liver functions.

One to two years and upon leaving the job

Diseases caused by nitroglycerin and other nitric acid esters

Nitroglycerin shall be measured at least 3 times in the daily duration of exposure and the highest measurement shall be taken as the percentage of exposure

Available ratio 2mg/m^3 of air

Ethylene glycol dinitrate 1mg/m^3 of air

- ECG

- Pre-work examination and periodic examination of the circulatory system, blood, skin and nervous system

- Circulatory system (blood pressure and ECG)

- Nervous system.

- Skin.

- Headache

- Arrhythmia

- Constant sensation of vomiting

- Peripheral neuropathy

- Severe cardiogenic shock

- ECG.

- Full blood panel.

- Percentage of methaemoglobin in the blood

- Dermatological examination

One to two years and upon leaving the job

Diseases caused by alcohol, glycols and ketones

Ethanol in whole blood (above 300 mg/litre).

Ethanol in urine at the end of the work shift.

Ethanol in exhaled air.

- Ethanol in whole blood (above 300 mg/litre).

- Ethanol in urine at the end of the work shift.

- Ethanol in exhaled air.

- FVC FEV1

- Skin

- Eyes.

- Respiratory system.

- Liver.

- Nervous system

- Destruction of the optic nerve, especially with methanol

Psychotherapy

- Digestive system

- Analysis of liver functions.

- Analysis of oxalate salts in urine

Every two years and upon leaving the job

-The exact relationship between exposure level and amount excreted is unknown

Diseases caused by asphyxiating gases, such as carbon monoxide, hydrogen sulphide, hydrogen cyanide and their derivatives

Evidence in blood of the inhaled substance

- Nervous system.

- Heart

- Respiratory system

- Full blood panel.

- ECG

- Nerves

One to two years and upon leaving the job

a- Carbon monoxide poisoning in every work that requires exposure to carbon monoxide. This includes: its preparation, use or generation, such as in garages, brick and lime kilns, fire fighting, etc.

- Carboxyhaemoglobin in the blood (above 3.5% of the total haemoglobin) urine at the end of the work shift.

Carboxyhaemoglobin ratio with exhaled air (above 20 ppm) urine at the end of the work shift.

- Percentage of carboxyhaemoglobin in the blood

- Nervous system.

- Heart

- Respiratory system

- Psychological evaluation

- Percentage of carboxyhaemoglobin in the blood.

- ECG.

- One to two years and upon leaving the job

- The percentage of carboxyhaemoglobin in the blood of workers shall be checked at any time when there is a suspicion of increasing the percentage of exposure to carbon monoxide.

- As well as the percentage of methaemoglobin in the blood and cyanide in case of exposure to smoke

b- Hydrogen sulphide poisoning in every work that requires exposure to hydrogen sulphide. This includes: its preparation, use or generation as occurs in petroleum refining, tanneries, carbon disulfide and sewage preparation, fire fighting, etc.

- Depends on the date of exposure with rapid deterioration of the condition

High level of sulphide and thiosulfate in the total blood sample (no reference level)

- Heart

- Respiratory system

- Psychological evaluation

- Skin

- Eyes

- Respiratory system (chest x-ray and respiratory functions)

- Heart (ECG)

- Eyes

- Skin

- Affected sense of smell

- Full blood panel.

- Psychological evaluation

One to two years and upon leaving the job

c- Nitrogen dioxide

- Eyes

- Respiratory system.

- Heart.

- Chest x-ray, and lung functions.

Once a year

d- Phosgene or its compounds

In every work that requires for exposure to phosgene. This includes: Its preparation, use or generation as occurs in the production of dyes and pesticides, chlorine combustion processes, or welding

- Eyes.

- Respiratory system.

- Skin.

- Chest x-ray, and lung functions.

- Examination of gases in the blood.

- ECG.

- Blood panel (number and types of white blood).

Due to the low ability of phosgene to dissolve in water, exposure to levels that are not high does not cause severe irritation in the mucous membranes and the upper respiratory tract, and when it reaches the lungs, it gradually turns into hydrochloric acid, which causes severe damage and tissue damage

e- Hydrogen cyanide poisoning in every work that requires exposure to hydrogen cyanide. This includes: its preparation, use or generation as occurs in the recycling of plastics or when mixing acids with cyanide salts

- High blood cyanide level (0.5 – 1 mg/litre)

High blood cyanide level: (0.5 – 1 mg/litre)

- Heart

- Respiratory system

- Psychological evaluation

- Respiratory system (chest x-ray and respiratory functions)

- Heart (ECG)

- Full blood panel.

- The level of oxygen saturation in the blood (increase)

- One to two years and upon leaving the job

- The percentage of carboxyhaemoglobin in the blood of workers shall be checked at any time when there is a suspicion of increasing the percentage of exposure to carbon monoxide.

- As well as the percentage of methaemoglobin in the blood and cyanide in case of exposure to smoke

Diseases caused by acrylonitrile

Percentage of cyanide and cyanomethaemoglobin in the blood.

Percentage of mercaptoyuric acid in urine.

- 2 Cyanoethyl mercapturic acid in urine

- Acrylonitrile in blood

- Eye

- Blood

- Respiratory system

- Blood count

- Respiratory functions

Once a year

Diseases caused by nitrogen oxides

Oxides in exhaled air-

Eye

Respiratory system

Skin

Once a year

Diseases caused by vanadium or its compounds

Vanadium in the blood

Vanadium in urine

Eye

Respiratory system

Skin (with green tongue)

- Vanadium in urine, blood and kidney functions

- Respiratory functions

Every two to five years and upon leaving the job

Diseases caused by antimony or its compounds

Percentage of whole blood antimony **(not agreed on recommendations for specific limits).**

Percentage of full urine antimony **(the level of antimony in the urine expresses proximal exposure).**

- Eyes

- Respiratory system.

- Skin.

- Heart.

- Nervous system.

- Psychological evaluation.

- Chest x-ray, and lung functions.

- ECG.

- Full urine test in addition to its low molecular weight protein content.

- Spit examination for cancer cells.

- Testing the speed of nerve conduction and electromyography.

Once a year

Diseases caused by hexane

2,5 hexandrone in urine by the end of the work shift **(not agreed on recommendations for specific limits).**

- Hexandione in urine at the end of the work shift

Nervous system.

Eyes.

Respiratory system.

Skin.

Hearing

- Testing the speed of nerve conduction and electromyography.

- Chest examination with x-ray and respiratory functions.

- Skin sensitivity test.

- Hearing tests

Once to twice a year

Diseases caused by mineral acids (allergic contact dermatitis

Eye

Skin

Once a year

Diseases caused by pharmaceutical substances

a- Antibiotics, sulfa compounds and antiseptic compounds

- Bronchial asthma

- Skin sensitivity

- Immune system dysfunction

- Respiratory functions

- SGPT liver enzyme, taking into account the absence of other diseases that cause its increase

- Respiratory system

- Skin

- Liver

- Lung functions

- Clinical detection of skin allergies

-

- Specific challenge test to the drug, but it should be done in hospital with ICU

b- Antineoplastic cancer drugs,

2- Urinary Thioethers are glutathione conjugated metabolites of alkylating agents, which have been evaluated as an indirect means of measuring exposure.

- CD4

- Chromosomal aberration tests
- Increase in sGPT
- ALT
- CBC
- Immune system
- Liver: Cellular destruction
- Blood
- Respiratory system: Constriction of airways
- Genetic effects
- Contact dermatitis.
- Decrease in CD4
- Increased liver enzymes
- Chronic anaemia and all types of anaemia
- Respiratory functions disorder
- Disruption of liver enzymes
- Genetic examination dysfunction
- Foetal deformity
- Non-viral hepatopathy
- Narcotic drugs such as morphine and its derivatives, sedative compounds and substances used in anaesthesia and in resuscitation, Metabolites in urine
- Liver enzymes: sGPT, ALT
- Full blood panel.

- Liver

- Blood

- Nervous system

- Increased liver enzymes

- Chronic anaemia and all types of anaemia

- Hormonal compounds

- Appearance of changes in the skin or vital functions, such as the ability to reproduce

- Measure the level of ethynyloestradiol in the blood serum.

Measurement of LH

sGPT in the absence of another disease that causes increased liver enzymes such as hepatitis

- Early detection of tumours

- Measuring the percentage of male and female hormones

- Liver

- Gynaecomastia in males and menstrual disorders in females.

- Blood-thinning compounds.

Measuring the elements of clotting and bleeding in the blood serum

Kidney diseases

Blood diseases

Liver diseases

5. Skin

Measuring the elements of clotting and bleeding in the blood serum

- Therapeutic nitroglycerin compounds.

- Nitroglycerin shall be measured at least 3 times on the day of exposure and the highest measurement shall be taken as the exposure rate

- The available ratio is 2 mg/m3 of air

- Ethylene glycol dinitrate 1 mg/m3 of air.

Methaemoglobin percentage in the blood

ECG

Circulatory system (low blood pressure and ECG)

Nervous system.

Skin.

Headache

Arrhythmia

Constant sensation of vomiting

Peripheral neuropathy.

- Low blood pressure

- ECG.

- Full blood panel.

- Percentage of methaemoglobin in the blood

- Dermatological examination.

Diseases caused by nickel or its compounds

Whole blood nickel **(not agreed on recommendations for specific limits).**

Plasma nickel **(not agreed on recommendations for specific limits).**

Urine nickel **(not agreed on recommendations for specific limits).**

- Whole blood nickel

- Respiratory system.

- Ear, nose and throat

- Skin.

- Nervous system.

- Psychological evaluation.

- Chest x-ray, and lung functions.

- Spit examination for cancer cells.

- Full blood panel.

- Testing the speed of nerve conduction and electromyography.

Every two to five years and upon leaving the job

Medical files of exposed workers shall be kept for a minimum period of 40 years.

Diseases caused by thallium or its compounds

Thallium in urine

Skin

Heart

Central and peripheral nervous system

Respiratory system

Eye

Alopecia

Diseases caused by osmium or its compounds

- Eye

- Skin

- Respiratory system

- Respiratory functions

- Examination of eyesight

Diseases caused by selenium or its compounds

Selenium in blood - urine - nails – hair

- Eye

- Skin

- Respiratory system

- Liver

- Blood

- Liver functions (prothrombin)

- Nails

Interaction with other chemical: Arsenic, cadmium, fluoride, iodine, mercury, methionine and vitamin E, sulphate

Diseases caused by copper or its compounds

Full blood copper (not agreed on recommendations for specific limits).

Plasma copper (not agreed on recommendations for specific limits).

Copper in urine (not agreed on recommendations for specific limits).

Respiratory system.

Ear, nose and throat

Eye.

Skin.

Kidneys.

Liver.

- Full blood panel.

- Percentage of methaemoglobin in the blood

- Chest x-ray, and respiratory functions.

- Analysis of kidney functions (urea and creatinine).

- Full urine test in addition to its low molecular weight protein content.

- Analysis of liver functions.

Masks consistent with the concentration of copper fumes shall be induced.

Diseases caused by platinum or its compounds

- Skin

- Respiratory system

Respiratory functions

Diseases caused by tin or its compounds

- Tin, organotin compounds in blood, urine (sample of the first urine in the morning), faeces and any tissue in the body of the exposed person. [4]

(Scientists have found that the hair content of tin corresponds to past or chronic exposure).

- Skin.

- Respiratory system.

- Eye.

- Nervous system.

- Psychological evaluation.

- Kidneys.

- Liver.

- Reproductive functions

- Immune system

- Shrinkage of the weight and size of the thymus gland

- Loss of lymphocytes.

- Chest examination with x-ray and respiratory functions.

- Analysis of kidney functions (urea and creatinine).

- Full urine test in addition to its low molecular weight protein content.

- Analysis of liver functions.

- Full blood panel.

- Sputum imaging cytometry for early diagnosis of lung cancer.

Diseases caused by zinc or its compounds

- Eyes.

- Respiratory system.

- Nervous system.

- Psychological evaluation

- Heart.

- Chest examination with x-ray and respiratory functions.

- Examination of gases in the blood.

- Testing the speed of nerve conduction and electromyography.

- ECG.

- Blood panel (number and types of white blood cells).

- The appearance of zinc in nails and hair expresses prolonged exposure to zinc.

Diseases caused by phosgene

- Eyes.

- Respiratory system.

- Skin.

- Chest x-ray, and lung functions.

- Examination of gases in the blood.

- ECG.

- Blood panel (number and types of white blood cells).

Due to the low ability of phosgene to dissolve in water, exposure to levels that are not high does not cause severe irritation in the mucous membranes and the upper respiratory tract, and when it reaches the lungs, it gradually turns into hydrochloric acid, which causes severe damage and tissue damage

Diseases caused by eye allergens such as benzocquinone

- Eye

- Skin

Diseases caused by ammonia

- Measuring ammonia in blood, urine, saliva or other vital fluids.

[5]

- Eyes.

- Respiratory system.

- Skin.

- Chest examination with x-ray and respiratory functions.

- Examination of gases in the blood.

- ECG.

- Blood panel (number and types of white blood cells).

The ATSDR list 500 ppb for acute and 300 ppb for chronic exposure to ammonia in air

Diseases caused by isocyanate

Dimethylaniline in urine

- Skin

- Eye

- Respiratory system

Respiratory functions

One to two years and upon leaving the job

Diseases caused by pesticides

- Measuring the effectiveness of choline esterase yeast in the blood when using a mixture of organic phosphorus compounds and some carbonated metallic acids and comparing it to the effectiveness prior to the exposure of the worker to pesticides.

- Measuring the effectiveness of choline esterase yeast in the blood when using a mixture of organic phosphorus compounds and some carbonated metallic acids and comparing it to the effectiveness prior to the exposure of the worker to pesticides.

Every six months

a- Organochlorides

Concentration of the pesticide in any of the body fluids or tissues

- Nervous system, especially convulsions

Concentration of the pesticide in any of the body fluids or tissues

b- Organophosphates

- Cholinesterase in the blood

- Cholinesterase in the blood

- Examination of the pupil

- Increased liver enzymes

- Neuromuscular system

- Liver

- Cholinesterase in the blood

c- Pyrethroids

- Nervous system

- Skin

- Eye

d- Zinc phosphide

- Enzymes of liver and kidneys in severe acute cases

- Chronic exposure

- In severe acute cases, liver, kidneys and stomach are affected

- Enzymes of liver and kidneys in severe acute cases

e- Anticoagulants

- Subcutaneous bleeding

- Internal bleeding

- Bleeding in the eye

- Rare renal haemorrhage

Indicators of clotting

- Skin

- Blood

- Kidneys

- Subcutaneous bleeding

- Internal bleeding

- Bleeding in the eye

- Rare renal haemorrhage

f- And other pesticides

- Measuring mercury in urine (while working with organic mercury compounds).

- Measure methaemoglobin and bilirubin in urine while using nitrophenol compounds.

- Measuring mercury in urine (when exposed to organic mercury compounds).

Measure methaemoglobin and bilirubin in urine while using nitrophenol compounds.

Every six months

Diseases caused by sulphur oxides

Sulfonate in the plasma

- Skin

- Eye

- Respiratory system

- Teeth

- Respiratory functions

- Tongue

- Nasal septum

Once a year

Diseases caused by organic solvents

Urine organic solvent test

- Skin

- Eye

- Liver

- Kidneys

- Blood panel

- Bumin in urine

Diseases caused by products containing latex

- Skin

- Ig E, IgA, IgG

Diseases caused by chlorine

- Teeth mottling

- Eyes.

- Respiratory system.

- Skin.

- Chest x-ray, and lung functions.

- Examination of gases in the blood.

- ECG.

- Blood panel (number and types of white blood cells).

Once a year

Diseases caused by other chemicals at work that are not mentioned in the previous Clauses, and where there is a direct relationship that has been scientifically proven or determined in ways appropriate to the possibilities (circumstances) and national applications, that there is a causal relationship between exposure to these chemicals that appear in work activities and the disease(s) suffered by the worker.

Vinyl chloride monomer

Monomer in the blood

- Skin

- Eye

- Respiratory system

Palm x-ray

(Raynaud's hand and feet)

One to two years and upon leaving the job

Acrylamide monomer

Percentage of acrylamide in the blood or urine **(not agreed on recommendations for specific limits).**

Results of the representation of mercapturic acid.

- Eyes

- Skin.

- Nervous system.

- Liver.

- Kidneys

- Reproductive system and functions

- Analysis of liver functions.

- Full urine test in addition to its low molecular weight protein content.

- Nerve conduction velocity test.

Methyl bromide

Blood bromide

- Eye

- Respiratory system

- Nervous system

Once a year

Dioxan-Diethylene dioxide

Dioxane and HEAA in urine

- Eye

- Respiratory system

- Skin

- Nervous system

- Digestive system

- Liver functions

- Urine test

- Respiratory functions

- Pressure measurement

Once a year

Phenol derivatives such as chlorophenol

Porphyrin in urine

- Eye

- Skin (Chlor acne)

- Urine test

- Respiratory functions

Once a year

Diseases caused by physical conditions and materials

Noise-induced hearing impairment

Audiogram (decrease of more than or equal to 10 dB in either ear for average frequencies of 2, 3, 4 kHz)**

Audiogram

- Ears

- Circulatory system (blood pressure).

- Audiogram (decrease equal to or greater than 10 dB in either ear for average frequencies of 2, 3, 4 kHz)**

- Auditory brainstem response to noises

First after one year and then every three years and upon leaving the job / every five years if the exposure to noise is less than 90 dB

*Workers exposed to noise of more than 85 dB (average adjusted working hours) shall be examined prior to employment and periodically (annually).

**Cases showing decreased hearing shall be followed up and subjected to a hearing conservation program.

Diseases caused by vibrations (affecting muscles, tendons, bones, joints, peripheral blood vessels or peripheral nerves

- Peripherals (examination of peripheral vessels, muscles and joints)

- Peripheral nervous system

- Performing a Doppler examination on the blood vessels of the peripherals*

Every five years / every three years for people aged 40 or over and upon leaving the job

*Doppler workers shall not be examined unless the medical examination shows the need for it.

Diseases caused by pressure or air rarefaction

a- Exposure to high air pressure

Human measurements (Anthropometric)

- Ear and sinuses.

- Nervous system.

- Bones and joints.

- Skin.

- Respiratory system.

- Heart.

- Psychological evaluation.

- Chest x-ray, and lung functions.

- Full urine test.

- Full blood panel.

- Normal knee, shoulder and hip joints x-rays*.

- Normal ECG (for those over 35) with exertion (when needed).

Once a year

- Workers shall be clinically examined every month (for workers at an air pressure of more than 1 bar), as well as after the worker suffers from any inflammation or infection of the respiratory system or ears, as well as prior to three days of returning to work after an absence of more than two weeks (decreases to three days if the absence is for a pathological reason).

- The tests mentioned in the impact indicators shall be carried out annually.

- The aforementioned joints shall also be x-rayed prior to retiring from work in a high-pressure environment.

b- Exposure to low air pressure

- Circulatory system

- Respiratory system

- Psychological evaluation.

- Chest x-ray, and lung functions.

Once a year

Diseases caused by ionizing radiations

- Radium disinfection in vital fluids such as blood and urine (by gamma spectroscopy).

- Anorexia, nausea and vomiting

- Diarrhoea and extreme fatigue

- Low white blood cell count

- Bleeding.

- Full blood panel(Lokima)

- Eye (lens).

- Skin.

- Lymph nodes.

- Spleen.

- Liver.

- Respiratory system.

- Full blood panel.

- Liver functions

- Genetic effects: Affected chromosomes and others, such as sister chromatids

MNtest

And specific by macromolecules as DNA adduct

- Once a year

- The worker shall be prevented from being exposed to radiation whenever the blood count shows “pre-leukemic changes”.

- The "personal measure of radiation exposure" for each worker shall be periodically checked, and the periodic examination shall include asking about any accidents or excessive exposures to radiation.

Illnesses caused by the light field, including ultraviolet radiation, visible light, infra-red and laser

The exposure limit in this standard (10 mW/sq. cm.)

- Skin.

- Eyes.

- Nervous system

- Foetal deformity or inability to reproduce

- Genetic analysis and chromosome examination

Once a year

Diseases caused by exposure to extreme temperatures, that is, to heat and cold

a- High heat in any work that requires repeated or continuous exposure to glare, radiation from molten glass, heated or molten metals, or exposure to strong light or intense heat, which leads to damage to the eye or impaired vision.

- Frequent occurrence of symptoms and manifestations of heat exhaustion, rash, fainting, muscle contraction, and heat stroke (nausea and....).

- Heavy sweating

- Muscular contraction

- Tachycardia

- Dizziness

- Fever

- Circulatory system (heart and blood pressure).

- Respiratory system.

- Musculoskeletal system.

- Skin.

- Nervous system.

- Psychological evaluation.

- Eyes

- Blood sugar.

- Percentage of haemoglobin in the blood.

- Kidney functions (urea and creatinine).

- Percentages of elecrolytes in the blood.

- Full urine test.

Five years for people aged up to fifty years and two years for people aged over fifty years

b- Extreme cold, such as working in food storage refrigerators

- Hypothermia

- Dizziness

- Extreme stress

- Affected movement and sensation of hands and feet

- Let-down and numbness

Scratching and burning sensation.

- Heart.

- Chest.

- Skin.

- Blood vessels.

First within six months for people working in temperatures between 25 and -45 degrees Celsius, within three months for people working in temperatures below -45 degrees Celsius, then one year for people

working in temperatures between -25 and -45 degrees Celsius and six months for people working in temperatures below -45 degrees Celsius

Diseases caused by other physical conditions and materials at work that are not mentioned in the previous Clauses, and where there is a direct relationship that has been scientifically proven or determined in ways appropriate to the national possibilities (conditions) and applications, that there is a causal relationship between the exposure to these conditions and the physical materials that appear in the work activities and the illness or diseases suffered by the worker.

Working in conditions of low lighting

- Eye (lens).

- Eye examination (lens).

- Power of eyesight

Biomaterials (biological) and infectious or parasitic diseases

Brucella

Tuberculosis skin test after injection of immunosuppressive microbe parts (antigen).

Blood and/or marrow culture and sensitivity

Anaphylactic test IgM, IgG antibodies with ELISA or the 2-mercaptoethanol assay.

IgM, IgG - antibodies

- Lymph nodes.

- Spleen.

- Heart.

- Joints and bones.

- Nervous system.

- Liver.

- CBC (leucopenia, anaemia)

- ALT, AST

- Hepatic biopsy

Radiologic investigations of infected vertebrae

First within one year and then every three years and after vaccination according to the period of immunity

Health authorities shall be notified when an infection occurs

- Fever, septicemia,

- Myalgia, arthralgia,

Spondyloarthritis

- Orchitis

- Hepatitis

- Optic neuritis

Uveitis

- Endocarditis

- Neurological disorders (neurobrucellosis)

Meningo-encephalitis

Neuro-psychiatric symptoms.

Hepatoviruses

Serological tests for signs of viruses (bodies that stimulate the immune system and bodies).

Hepatitis B - surface antigen (HBsAg).

- Antibodies to hepatitis C.

- Liver.

- Spleen.

- Analysis of liver functions (liver enzymes and bilirubin percentage).

First within one year and then every three years and after vaccination according to the period of immunity

Antibodies to hepatitis C can usually be detected 4 - 10 weeks after the infection occurs. Other types of tests (liver biopsy) may be done to decide on treatment and monitor the hepatitis C infection.

- IgM anti-hepatitis A virus (HAV) antibodies.

- Hepatitis B surface antigen (HBsAg).

- Antibody to hepatitis B core antigen (Anti-HBc).

- Antibody to HBsAg (Anti-HBs.

- Hepatitis B type e antigen (HBeAg).

- Antibodies to hepatitis C.

- PCR for HBV RNA

- PCR for HCV DNA

HIV

Serological tests for the indications of the virus (bodies that stimulate the immune system and immune bodies).

[6]

HIV antibody- test by ELISA

- Lymph nodes.

- Liver.

- Spleen.

- General examination.

- CD4 count

- HIV viral load (PCR or RNA test)

- Chest x-ray

First within one year and then every three years and after vaccination according to the period of immunity

Health authorities shall be notified when an infection occurs.

- HIV antibody tests by ELISA

- Confirmatory test by Western blot or the indirect fluorescent antibody (IFA) test.

Tetanus

- Nervous system

- Facial muscles

- Breathing

- Lower extremity

Facial muscles

First within one year and then every three years and after vaccination according to the period of immunity

Tuberculosis

- Skin test (tuberculin).

- Zeil Nielsen stain for acid fast bacilli.

- Culture for TB

- -PCR-

Tuberculin test

- Chest.

- Quantiferon test

- Chest x-ray

- Spit examination

First within one year and then every three years and after vaccination according to the period of immunity

Toxic or inflammatory synchronizers with bacterial or fungal contaminants

Anthrax

- Taking into account the culture result and sensitivity to secretions or samples taken from the suspect after being dyed with gram dye, in addition to other confirmatory tests.

[7]

- Respiratory system (such as influenza)

- Digestive system (fever, diarrhoea, bloody vomiting)

- Skin (festering boils turning into black-centred ulcers)

- Symptoms of intoxication

- Chest x-ray

First within one year and then every three years and after vaccination according to the period of immunity

If a person is suspected to have died as a result of anthrax, all precautions imposed by the health authorities shall be taken to prevent the skin of those around or dealing with the body of the deceased from coming into contact with the possible secretions from the body orifices of

the deceased, and to deal with the body in accordance with the instructions of the health authorities.

Leptospira

Leptospira in urine

- Liver

- Nervous system

- Blood count

- Urine test

First within one year and then every three years and after vaccination according to the period of immunity

Diseases caused by other biological conditions and materials found at work and not mentioned in the previous Clauses, and where there is a direct relationship that has been scientifically proven or determined in ways appropriate to the possibilities (conditions) and national applications, that there is a causal relationship between exposure to these conditions and biological materials that appear in work activities and the disease(s) suffered by the worker.

Glanders-Sodomonas meliai

- Mallein test (sensitive, specific test)

- Isolating Burkholderia mallei from blood, sputum, urine or skin lesions by culture.

- Mallein test (sensitive and specific test)

- Respiratory system: Trachea, bronchi and lungs:

- Nodular lesions in the lung and ulceration of the mucous membrane of the upper respiratory tract

- Acute: Cough, fever, infectious nasal discharge

- Chronic: Nasal, subcutaneous nodules.

- Fever, chills, sweating.

- Muscle aches

- Chest pain

- Nasal discharge.

- Headache light sensitivity, excessive tearing of eyes.

- Chest x-ray

First within one year and then every three years and after vaccination according to the period of immunity

Chlamydia sitasai-Chlamydiosis transmitted from infected birds or lamb or their residues

-

- Eye

- Respiratory system

- Faeces analysis

- Blood test (immune-fluorescent and PCR)

First within one year and then every three years and after vaccination according to the period of immunity

Q fever-Coxiella burnetii transmitted from infected or residues of animals

- Liver

- Respiratory system

- Heart.

- Serology test

First within one year and then every three years and after vaccination according to the period of immunity

Orf virus transmitted from infected sheep or goats or their corpses

- Upper extremity (palm)

- Lymph nodes

First within one year and then every three years and after vaccination according to the period of immunity

Rickettsia

Skin

Lymph nodes

Blood test

Skin sample (biopsy)

First within one year and then every three years and after vaccination according to the period of immunity

Streptococci-Streptococcus

Serologic test

Anti-streptolysin test

Potentially infected body systems such as blood, respiratory, urinary tract and skin

First within one year and then every three years and after vaccination according to the period of immunity

Radiothermal fungi - Thermophilic actinomycosis

See extrensic allergic alveolitis due to inhalation of organic dust

First within one year and then every three years and after vaccination according to the period of immunity

Malaria

- Blood

- Liver

- Spleen

First within one year and then every three years and after vaccination according to the period of immunity

Amoeba

- Digestive system

- Faeces analysis

First within one year and then every three years and after vaccination according to the period of immunity

2- Occupational diseases according to the organs and systems of the body

Respiratory system diseases

Pulmonary dust diseases (nemoconiosis) caused by fibrosis-causing mineral dust, such as silica dust (silicosis), silica coal (anthraco-silicosis) and asbestos (asbestos)

A chest x-ray with the application of the ILO classification

- Chest examination with x-ray

- Chest CT for early detection

- Chest.

- Heart.

- Abdomen (especially in cases of asbestos).

- Chest x-ray.

- Normal respiratory functions.

- Chest CT*.

- Measurement of the percentage of permeation of carbon monoxide gas to the lung*.

- Measurement of the arterial blood gas*.

- Tuberculosis test (celiacose)

One to three years and upon leaving the job

*These tests shall not be conducted routinely but shall rather be requested to confirm the initial diagnosis and follow-up of infected cases.

**The worker shall be stopped from exposure if he shows symptoms of being affected or if there is a deterioration in the functions of his lungs or in chest x-rays or if the worker has tuberculosis or cancerous tumours.

Tuberculosis associated with silica disease

See previous tuberculosis

One to three years and upon leaving the job

Pulmonary dust diseases (nemoconiosis) caused by non-fibrosis-causing mineral dust

One to three years and upon leaving the job

a- Iron dust disease (siderosis)

Respiratory system

- Chest x-ray

- Sputum examination (siderocytes in sputum)

One to three years and upon leaving the job

b- Barium dust disease

Respiratory system

- Chest x-ray

One to three years and upon leaving the job

Bronchopulmonary diseases due to solid metal dust

Respiratory system

- Chest x-ray

Lung functions

Bronchoalveolar lavage

One to three years and upon leaving the job

Bronchopulmonary diseases due to cotton dust (besenozes), flax, jute, or bagassosis

Respiratory system

- Evaluation of respiratory functions

- Measurement of immunoglobulins

One to three years and upon leaving the job

Asthma crises due to allergens or irritants within the process (batch) at work

• Isocyanates

• Antibiotics

• Formaldehyde

• Detergents and cleaning materials that include yeasts in their composition

• **Flour and grain dust**

- Non-specific bronchial hyperreactivity tests

- Immunological test

IgE specific test

- Specific challenge test using methacholine to establish whether non-specific bronchial hyper-responsiveness(NSBH) exists

It includes:

- Medical history.

- Clinical examination of chest, throat and nose

- Evaluation of respiratory functions including FEV_1.

- If normal breathing functions are present, a non-specific challenge test with methacholine shall be performed to establish whether non-specific bronchial hyper-responsiveness (NSBH) exists

Chest.

Eyes.

Nose and throat.

Skin.

Normal respiratory functions.

Measurement of the maximum flow rate (expiratory).

- One to three years and upon leaving the job

- A detailed medical history shall be taken from the workers, including allergy symptoms, smoking rate, etc.

- Symptoms shall have commenced after joining work

- Symptoms, changes in respiratory functions and NSBH shall be related to the nature of work and the timing of exposure or change in the nature of work.

- Skin and eye exam

Extrensic allergic alveolitis due to inhalation of organic dust or aerosol contaminated with microbes arising from work activities

- History of occupational exposure

- Chest.

- Soreness

- Skin

- Sweat

- Chest examination with x-ray.

- Normal respiratory functions.

- Diffusion capacity.

- Broncho-alveolar lavage: For lymphocytes, for CD_4/CD_8

- One to three years and upon leaving the job

- Chest CT: It shall not be performed routinely but it shall rather be requested to confirm the initial diagnosis and follow up of infected cases.

- Measurement of the percentage of permeation of carbon monoxide gas to the lung: It shall not be performed routinely but in conditions confirming the diagnosis.

- Examination of a lung sample: Poorly defined granuloma

Respiratory obstructive diseases due to inhalation of coal dust, dust resulting from quarries, wood dust, grain dust, agriculture work, animal stables dust, textile dust and paper dust as a result of work activities

-

- Skin

- Respiratory system (nose)

- Mucous membranes

- Ig

- Lung functions

One to three years and upon leaving the job

- Pulmonary diseases due to aluminium

- Percentage of aluminium in blood or urine **(no recommendations for agreed limits).**

- Chest.

- Eyes.

- Skin.

- Nervous system.

- Psychological evaluation.

- Chest examination with x-ray.

- Normal respiratory functions.

One to three years and upon leaving the job

Upper respiratory tract diseases due to allergens or irritants present in work activities

- Chest

- Eye

- Skin and mucous membranes

One to three years and upon leaving the job

Onset of symptoms during exposure or within 48 hours at the latest

Other respiratory diseases not mentioned in the previous Clauses and where there is a direct relationship that has been scientifically proven or determined in ways appropriate to the national possibilities (conditions) and applications, that there is a causal risk relationship between the exposure to these conditions and the substances that appear in the work activities and the disease(s) suffered by the worker.

Skin diseases

Allergic diseases of the skin and contact urticaria due to other substances showing allergies present in work activities and not mentioned in the previous Clauses

- Special qualitative tests, such as patch test, puncture test and patch test with light.

Patch test in case of ntermedia prick test, photo patch tests

Initially within two years and then every five years and upon leaving the job (for substances that do not cause skin cancer) / every two to three years and upon leaving the job (for substances that may cause skin cancer)

No dose/effect relationship in the onset of allergic contact dermatitis

- Causative agents:

* Macromolecule

* Substance of animal or plant origin

* Ntermed salts

* Resins, hardeners

* Dyes and dye ntermediate

* Photo allergens

Diseases of skin irritation due to other skin irritants present in work activities and not mentioned in the previous Clauses

Initially within two years and then every five years and upon leaving the job (for substances that do not cause skin cancer) / every two to three years and upon leaving the job (for substances that may cause skin cancer)

Such as strong alkalis and acids

Vitiligo due to other known substances present in work activities and not mentioned in previous Ckauses

Exposed area of hands and forearms

Initially within two years and then every five years and upon leaving the job (for substances that do not cause skin cancer) / every two to three years and upon leaving the job (for substances that may cause skin cancer)

Agents: Phenols

Catechols, hydroquinone monobenzene

Other skin diseases caused by physical, chemical and biological conditions and materials present in work activities and not mentioned in the previous Clauses, and where there is a direct relationship that has been scientifically proven or determined in ways appropriate to the national possibilities (conditions) and applications, that there is a causal

risk relationship between exposure to these conditions and materials that appear in work activities and the disease(s) suffered by the worker.

Musculoskeletal disorders

Radial styloid tenosynovitis due to repetitive movements, strong extension movements and extreme positions of the wrist

- Joints

- Nervous system (tingling and numbness)

Every five years / every three years for people aged 40 or over and upon leaving the job

- More prevalent in women, blue collar workers

- In checkout operators at supermarkets and stores, poultry processing, electronic assembly line, data processing and telephonist

Chronic inflammation of the inner membranes of the hand and wrist due to repetitive movements, strong extension movements and extreme positions of the wrist

Every five years / every three years for people aged 40 or over and upon leaving the job

Olecranon bursitis due to simultaneous pressure in the elbow area

Every five years / every three years for people aged 40 or over and upon leaving the job

Prepatellar bursitis due to prolonged stay in knee-rest position

Every five years / every three years for people aged 40 or over and upon leaving the job

Epicondylitis due to hard and frequent work

Every five years / every three years for people aged 40 or over and upon leaving the job

Knee cartilage injuries due to prolonged work based on the knee or in a squatting position

Every five years / every three years for people aged 40 or over and upon leaving the job

Carpal tunnel syndrome due to vigorous and prolonged work and work involving exposure to vibrations and extreme positions of the wrist or a combination of those causes

- Tinel sign

Phalen test

Musculoskeletal system, in particular towards the wrists

- Clinical examination

- Examination of the affected wrist with regular radiation to deny any other causes of wrist pain (infections or fractures).

- Electromyography to assess the extent to which the muscles are affected by the wrist.

- Nerve conduction test.

Every five years / every three years for people aged 40 or over and upon leaving the job

- After proving the diagnosis, it shall be necessary to ensure exposure to the causative agents for most of the work period and over several months.

- There shall be no increase in the likelihood of exposure among those who use the keyboard or those who do office work in general.

Other disorders of the motor system caused by conditions in work activities that are not mentioned in the previous Clauses, and where there is a direct relationship that has been scientifically proven or determined in ways appropriate to national possibilities (conditions) and applications, that there is a causal risk relationship between exposure to these conditions that appear in work activities and the disorders suffered by the worker.

Diseases of the shoulder joint, such as rotator cuff syndrome, and tendinitis of the shoulder muscles

Every five years / every three years for people aged 40 or over and upon leaving the job

Hand and forearm diseases, such as subcutaneous cellulitis, tendinitis of the hand and forearm muscles or Inflammation of the sac/bursa membranes

Every five years / every three years for people aged 40 or over and upon leaving the job

Chronic disorders of the lower back vertebrae, including erosive changes of the vertebrae or intervertebral discs

Vertebral examination with x-ray

Every five years / every three years for people aged 40 or over and upon leaving the job

Lumbar intervertebral hernia

Vertebral examination with x-ray

Every five years / every three years for people aged 40 or over and upon leaving the job

Intervertebral slippage

Vertebral examination with x-ray

Every five years / every three years for people aged 40 or over and upon leaving the job

Erosion of the vertebrae and back pain with changes in the cervical vertebrae

Vertebral examination with x-ray

Every five years / every three years for people aged 40 or over and upon leaving the job

Mental and behavioural disorders

Post traumatic stress disorders

Other mental or behavioural disorders caused by conditions present in work activities and not mentioned in the previous Clauses, and where there is a direct relationship that has been scientifically proven or determined in ways appropriate to national possibilities (conditions) and applications, that there is a causal risk relationship between exposure to these conditions that appear in work activities and the disorders suffered by the worker.

Circulatory System Disorders - Cardiovascular

Ischemic heart disease due to increased stress and other physical and neuropsychological burdens

Myocardial infarction, dissection aneurysm,

Heart

Pressure-

- Cardiac ultrasound

- Coronary angiography

Subarachnoid haemorrhage, brain haemorrhage due to psychological stress

Sudden death due to severe psychological stress

Hypertension due to neuropsychological stress

Causes

- Cold work

- Work stress

- Hot and humid environment

- Physical demands

Circulatory-cardiovascular system disorders due to psychological stress

Nervous system disorders

Autonomic neuropathy due to intoxication

WIth esters

Vinyl chloride

See earlier

Unsaturated aliphatic hydrocarbons

See earlier

Including asphyxiating gases

Carbon monoxide

See earlier

Vibrations

See earlier

Every five years / every three years for people aged 40 or over and upon leaving the job

Eye diseases

Chemical eye burn

Occupational cataracts

3- Occupational cancer

Cancer caused by the following substances

Asbestos

Asbestos bodies in spit or bronchial and alveolar washes

Asbestos bodies in sputum or bronchoalveolar lavage

Respiratory system

- Chest x-ray

- Respiratory functions

One to three years and upon leaving the job

Benzidine and its salts

Kidneys.

Liver.

Bladder.

Skin.

Respiratory system.

Respiratory functions.

Chest x-ray.

Full urine test*.

Urine test for cancer cells.

Once a year

*Urine test shall be done monthly.

Bis-chloromethyl ether

Eyes.

Skin.

Respiratory system.

Respiratory functions.

Chest x-ray.

Spit test for cancer cells

Once a year

Hexavalent chromium compounds

See earlier

One to two years and upon leaving the job

Coal tar, coal tar and soot

Measurement of the level of emissions to the air in the worker's breathing environment shall not exceed 0.2 mg/cm3 during a full work shift - 8 hours

- Skin.

- Eyes

- Respiratory system.

- Liver.

- Kidneys.

- Nervous system.

- Chest x-ray.

- Spit test for cancer cells.

- Urine test for cancer cells.

Once a year

Beta-naphthyl amine

Skin.

Bladder.

Full urine test*.

Urine test for cancer cells.

Cystoscope.

Once a year

*Urine test shall be done monthly.

Vinyl chloride

Vinyl chloride in exhaled air **(not agreed on recommendations for specific limits).**

Percentage of digestive product (thiodiglycolic acid) in urine **(not agreed on recommendations for specific limits).**

Percentage of digestive product (thiodiglycolic acid) in urine

Liver.

Respiratory system.

Nervous system.

Bones

Blood circulation

Digestive system

Skin

Analysis of liver functions (liver enzymes (SGPT, SGOT, GGT, 5NT, AP), bilirubin percentage).

Liver ultrasound.

Chest x-ray, and lung functions.

Urine test.

- Once a year

- The carcinogenic effects of vinyl chloride are ascribed to DNA alkylation by reactive metabolites.

- Vinyl chloride and its metabolites have their main effects in the liver (carcinogenic effects), blood, skin, vascular and skeletal systems

- Liver damage including malignant growths, varices in the oesophagus and fundus of the stomach, enlargement of the spleen, thrombocytopenia, circulatory disorders (especially Raynaud's disease), acro-osteolysis, morphological changes in the phalanges of the fingers, scleroderma-like skin changes.

Benzene (benzole)

See earlier

Six months to a year and upon leaving the job

Toxic nitrogenous and amino derivatives of benzene (benzole) and its analogues

See earlier

One to two years and upon leaving the job

Ionizing radiations

See earlier

Once a year

Tar, butamine, mineral oil, anthracene or compounds, products and residues of these substances

Eyes.

Respiratory system.

Skin.

Kidneys.

Chest x-ray, and lung functions.

Spit test for cancer cells,

Urine test for cancer cells and blood.

Once a year

Coke ovens emissions

Measurement of the level of emissions to the air in the worker's breathing environment shall not exceed 0.2 mg/cm3 during a full work shift of 8 hours

Respiratory system.

Skin.

Kidneys.

Chest x-ray, and lung functions.

Urine test for cancer cells and blood.

Spit test for cancer cells,

Nickel compounds

See earlier

Every two to five years and upon leaving the job

Wood dust

Eyes.

Respiratory system.

Skin.

Nose and throat.

Chest x-ray, and lung functions.

Up to 45 years old: Every five years

of 45 years old: Within a year and a half, provided that the beginning of exposure shall be more than 15 years ago

Arsenic and its compounds

See earlier

Six months to a year and upon leaving the job

Beryllium and its compounds

See earlier

Every three years

Cadmium and its compounds

See earlier

One to two years and upon leaving the job

Ereonite

Ethylene oxide

Once a year

Hepatitis B and C viruses

See contagious diseases

First within one year and then every three years and after vaccination according to the period of immunity

Cancer due to other substances at work and not mentioned in the previous Clauses, and where there is a direct relationship that has been scientifically proven or determined in ways appropriate to the possibilities (circumstances) and national applications, that there is a causal risk relationship between exposure to these substances that appear in work activities and the disorders suffered by the worker.

Radon

-

- Alterations of sputum cytology

- Chromosomal aberrations

Respiratory system from the nose to the lungs

- Chest x-ray

Biomarkers of exposure: Presence of radon and its progeny in bone, teeth, blood chain

Silica

See earlier

Every three years and upon leaving the job

Uranium

Uranium in urine

Kidneys

- Kidney functions

- Measurement of pressure

Tanning and leather industry

Mineral oils

- Respiratory system

- Skin

- Peripheral nervous system

- Blood count

- Pressure

- Kidney functions

- In some exposures (delta amino levulinic acid)

Once a year

Ultraviolet radiations

See earlier

Once a year

Alpha-naphthylamine

Once a year

Uramine

Magenta

Once a year

Aniline

Aniline in urine

- Heart.

- Nervous system

- Skin

- Eye

- Liver

- Blood Met Hb

- Liver functions

Aflatoxin

AFMN

+

Guanine in urine

- Liver

- Blood count

- Immune system

- Nervous system

- Kidneys

Aliphatic, aromatic and non-cyclic hydrocarbons

See earlier

One to two years and upon leaving the job

Lead

See earlier

Once a year and upon leaving the job

Trichloroethylene

See earlier

One to two years and upon leaving the job

Benzidine tinctures

See earlier

Once a year

Orthotoledin

Once a year

Anticancer drugs

See earlier

Aluminium production process

See earlier

4- Nitrophenylate

Once a year

Trichloroethylene

One to two years and upon leaving the job

Tetrachloroethylene

See earlier

2, 3, 7, 8 TCDD-chloroethylene-tetrachloro-dibenzodioxin

Formaldehyde

See earlier

Once a year

4- Other diseases

Miners' nystagmus

Visual examination of the eye and field of vision

Eyes

Vision test

Other specific diseases due to occupations or operational processes not mentioned in the previous Clauses, so that there is a direct relationship that has been scientifically proven or identified in ways appropriate to the

national possibilities (circumstances) and applications, that there is a causal risk relationship between the exposure to these substances that appear in work activities and the disorders suffered by the worker.

Varicose veins - lower limbs

Examination of the legs of the targeted workers

Veins of the legs

Examination of the veins of the legs with tests for veins (filling and emptying)

Direct inguinal (femoral) hernia

Examination of the inguinal region of the target workers

Muscles of the inguinal area

Examination of the muscles of the inguinal area

BeLPT measures how specific white blood cells called lymphocytes react to beryllium. A positive test result means that a worker is sensitized.

[1]

Manganese Exposure indicators: 1) 0.1 mg/m3 respirable manganese; 2) Mn can be measured directly in blood, serum, cerebrospinal fluid, faeces, or hair, it has been used as a biomarker of exposure in occupational studies; 3) Toenails and hair have been proposed as exposure biomarkers for longer-term cumulative exposure assessment; 4) Lymphocytic Manganese Superoxide Dismutase Activity

[2]

The initial metabolite of benzene, benzene oxide (BO), reacts with cysteinyl residues in hemoglobin (Hb) and albumin (Alb) to form protein adducts (BO-Hb and BO-Alb), which are presumed to be specific biomarkers of exposure to benzene. benzene in the blood, urine, and

exhaled air; urinary levels of the benzene metabolites trans,trans-muconic acid (ttMA), S-phenylmercapturic acid (SPMA), catechol, benzene triol, and phenol; and protein adducts formed by benzene metabolites. The benzene metabolites were generally much better markers of exposure than benzene in urine, breath, or blood

[3]

OSHA has established workplace exposure limits of 0.1 milligrams per cubic meter of air for organotin compounds and 2 mg/m3 for inorganic tin compounds, except oxides. NIOSH recommends workplace exposure limits of 2 mg/m3 for inorganic tin compounds, except for tin oxides, and 0.1 mg/m3 for organotins, except tricyclohexyltin hydroxide. NIOSH states that a concentration of tricyclohexyltin hydroxide of 25 mg/m3 should be considered as immediately dangerous to life or health.

[4]

The amount of ammonia in collected blood, urine, saliva, or other biological fluid samples can be affected by several mechanisms. For blood samples collected from a healthy person (and stored on ice), the ammonia content should be measured within 30–60 minutes of collection.

[5]

There is a window period with HIV infection, which refers to the time after a person has been infected but before an antibody test result will be positive. Testing for suspected early infections during the window period can be performed using HIV viral load tests or FDA-approved 4th-generation HIV antibody/antigen tests, which detect both HIV antibody and the p24 antigen, which is part of the HIV virus. These tests have the advantage of detecting early HIV infection before antibody development

as well as antibodies that are present when chronic infection has been established.

[6]

Other confirmatory tests include: gamma bacteriophage testing, indirect hemagglutination and enzyme linked immunosorbent assay to detect antibodies.

[7]