

Issued by: Government of the Republic

Type of legal instrument or document: Regulation

Type of text: Original text, consolidated text

Date of entry into force of redaction: 1 July 2000 (introduction of eRT)

End of validity of redaction: Currently valid

Publication notification: RTI, 28.06.2000, 49, 309

Occupational health and safety requirements for the use of lead and its ionic compounds¹

Government of the Republic Regulation No 193 of 20 June 2000

The Regulation is established on the basis of sections 4 (5) and 7 (3) of the Occupational Health and Safety Act (RT I 1999, 60, 616).

1. Scope of Application

(1) The occupational health and safety requirements for the use of lead and its ionic compounds shall apply to operations which may expose workers to lead or its ionic compounds. Operations involving dangerous exposure to lead are:

- 1) Handling of lead concentrate;
- 2) Lead and zinc smelting and refining (primary and secondary);
- 3) Lead arsenate spray manufacture and handling;
- 4) Manufacture of lead oxides;
- 5) Production of other lead compounds, including alkyl lead compounds, which involves release of ionic lead;
- 6) Manufacture and use of paints, colours, enamels and mastics containing lead;
- 7) Battery manufacture and recycling;
- 8) Craftwork in tin and lead;
- 9) Manufacture of lead solder and frequent use of lead solder in an enclosed space;
- 10) Lead ammunition manufacture and use of lead ammunition in an enclosed space;
- 11) Manufacture of lead-based or lead-alloy objects;
- 12) Ceramic and craft pottery industries;
- 13) Crystal glass industries;
- 14) Plastic industries using lead additives;
- 15) Printing work involving the use of lead;
- 16) Demolition and burning of materials containing lead;
- 17) Automobile construction and repair work;
- 18) Manufacture of leaded steel;
- 19) Lead tempering of steel;
- 20) Lead coating;
- 21) Recovery of lead and metallic residues containing lead;
- 22) Other use of lead and its ionic compounds.

(2) The requirements shall not apply to sea and air transport, mining and quarrying of lead-containing ores and the preparation of lead-ore concentrate at the site of the mine or quarry and the use of alkyl compounds of lead.

2. Determination of the concentration of lead in the air of the working environment

(1) The concentration of lead in the air of the working environment shall be determined at least once every three months. The concentration of lead may be determined once a year if the results of the measurements have shown that on the previous two consecutive occasions on which monitoring was carried out:

- 1) the concentration of lead in the air did not exceed $100 \mu\text{g}/\text{m}^3$;
- 2) the conditions of the working environment have not changed;
- 3) the blood-lead level of any worker does not exceed $60 \mu\text{g Pb} / 100 \text{ ml blood}$.

(2) The lead concentration in the air of the working environment shall be measured by a laboratory accredited by the Estonian Accreditation Centre or having a proof of professional competence by atomic absorption spectroscopy or any

other method which gives equivalent results. Air samples are collected from the breathing zone to a filter with a minimum of 95% efficiency for all particles sampled down to an aerodynamic diameter of 0,3 µm, using a pump with capacity at least 1 l/min.

3. Medical examination

(1) The occupational health doctor shall examine the health of each worker exposed to lead:

- 1) before the start of work which exposes the worker to lead and its ionic compounds;
- 2) during the work once a year;
- 3) in other cases provided for in this Regulation.

(2) During the medical examination the occupational health doctor must have the information concerning the lead concentration in the air of the working environment.

(3) Medical examination of workers includes:

- 1) work and health anamneses;
- 2) medical examination in the course of which special attention is paid to haemotopoiesis, gastro-intestinal tract, kidneys, peripheral and central nervous systems which may be damaged by lead;
- 3) blood test together with determination of packed cell volume;
- 4) urine test;
- 5) occupational safety counselling of the worker.

(4) Contraindications to working with lead are:

- 1) thalassaemia;
- 2) G-6-PD- deficiencies;
- 3) anaemia;
- 4) renal deficiencies;
- 5) haematopoietic deficiencies.

4. Biological monitoring

(1) Biological monitoring shall be carried out at least once in six months. Biological monitoring may be carried out once a year if:

- 1) the measurements have shown that on the previous two consecutive occasions on which monitoring was carried out the concentration of lead in the air was between 75 and 100 µg/m³;
- 2) the blood-lead level of any individual worker does not exceed 50 µg Pb / 100 ml blood.

(2) As a result of biological monitoring the blood-lead level of any individual worker is determined.

(3) If necessary, the following is determined:

- 1) delta aminolæ vulinic acid in urine (hereinafter: ALAU) by using the Davis method or other equivalent method;
- 2) zinc protoporphyrin in blood (hereinafter: ZPP) by using haematofluorimetry or other equivalent method;
- 3) delta aminolæ vulinic acid dehydratase in blood (hereinafter: ALAD) by using European standardized method or other equivalent method.

(4) If the blood-lead level greater than 40 µg Pb / 100 ml, ALAU is less than 20 mg/g creatinine, ZPP is greater than 20 µg/g haemoglobin and ALAD is less than 6 European units (EU), the following measures shall be implemented:

- 1) the employer shall in cooperation with the occupational health doctor remove the reasons for exceeding the above levels;
- 2) a further determination of the PbB level in the blood of the worker concerned shall be made within three months;
- 3) the occupational health doctor may assign the worker concerned may to other work where the concentration of lead in the air is smaller;
- 4) all workers working in similar conditions must undergo medical examination.

(5) The data of workers' medical examination and biological monitoring are confidential and shall be retained by the occupational health service office for 40 years after the worker's last exposure to lead.

5. Increase of lead concentration in the air of the working environment

(1) If the concentration of lead in the air of the working environment exceeds $75 \mu\text{g}/\text{m}^3$ the employer shall:

- 1) inform workers immediately;
- 2) identify the reasons for the increase in the concentration of lead;
- 3) organise biological monitoring and medical examination of workers;
- 4) implement measures to reduce the concentration of lead in the air;
- 5) measure the concentration of lead in the air in order to verify the efficiency of the measures implemented.

(2) Where the measures mentioned in subsection 1 can not be implemented within one month, work may not be continued in the affected area until adequate measures have been taken for the protection of the workers concerned, in the light of the opinion of the occupational health doctor.

(3) Where a work process causes temporary significant increase in the concentration of lead in the air of the working environment and the lead concentration cannot be reduced by common protective equipment the employer shall issue the workers with relevant individual protective equipment for temporary use and establish the procedure for the use of the equipment.

(4) In the case of incidents likely to lead to significant increase in the concentration of lead in the air of the working environment:

- 1) workers shall be immediately evacuated from the affected area;
- 2) only workers whose presence is required to carry out the necessary repairs may enter the affected area on condition that they use suitable protective equipment.

6. Informing workers

(1) The employer shall inform workers about:

- 1) the potential risks to health from lead exposure, including the potential risks for the foetus and infants being breast-fed;
- 2) the statutory limits of lead concentration in the air of the working environment established by the means of a regulation of the Minister for Social Affairs on the basis of section 11(1) of the Chemicals Act v (RT I 1998, 47, 697; 1999, 45, 512);
- 3) the need for biological and working environment monitoring;
- 4) hygiene requirements, including the need to refrain from smoking, eating or drinking at the workplace;
- 5) the precautions to be taken as regards the wearing and use of protective equipment and clothing.

(2) If the concentration of lead in the air of the working environment is greater than $75 \mu\text{g}/\text{m}^3$ or over 40 hours per week or a blood-lead level is greater than $50 \mu\text{g Pb}/100 \text{ ml}$ blood in individual workers, the employer shall inform the workers concerned about the concentration of lead in the air of the working environment and the statistical indicators of biological monitoring.

7. Hygiene requirements to be implemented at work place

If the measurements have shown that on the previous two consecutive occasions on which monitoring was carried out the concentration of lead in the air was between 75 and $100 \mu\text{g}/\text{m}^3$ or if the blood-lead level of at least one worker exceeds $50 \mu\text{g Pb} / 100 \text{ ml}$ blood the employer shall implement the following precautionary measures:

- 1) ban smoking, eating and drinking at the workplace;
- 2) provide workers with a rest area;
- 3) provide workers with drinking water;
- 4) provide workers with relevant individual protective equipment;
- 5) provide lockers for storing protective clothing and street clothing separately;
- 6) provide workers with adequate and appropriate washing facilities, including showers in the case of dusty operations or other exposure of skin to lead.

8. Entry into force of the Regulation

This Regulation shall enter into force on 1 July 2000.

¹OJ L 247, 23.8.1982, p. 283.

Mart LAAR, Prime Minister

Eiki NESTOR, Minister for Social Affairs

**Tiit LAJA, Director General of the State
Chancellery in the capacity of the State
Secretary**