

Republic of Latvia
Cabinet
Regulation No. 804
Adopted 25 October 2005

Regulations Regarding Quality Standards for Soil and Ground

*Issued pursuant to
Section 12, Paragraphs two and 2.¹ of the law On Pollution*

1. This Regulation prescribes the quality standards for soil and ground.
2. The quality standards for soil and ground (layers of rocks and sediments under soil where economic activity may be performed) (Annex 1) shall refer to any soil and ground in the territory of Latvia irrespective of the type of use thereof.
3. The quality standards for soil and ground are as follows:
 - 3.1. the target value (value A) – indicates the maximum level above which it is impossible to ensure sustainable quality of soil and ground;
 - 3.2. the limit values:
 - 3.2.1. the precautionary limit value (value B) – indicates the maximum level of pollution above which it is likely to have a negative impact on human health or environment, as well as the level which must be achieved after remediation, unless more stringent requirements have been laid down for remediation;
 - 3.2.2. the critical limit value (value C) – indicates the level at or above which functional characteristics of soil and ground are significantly disrupted or pollution poses a direct threat to human health or environment.
4. The quality standards for soil and ground shall not be exceeded when commencing a new polluting activity. If any of the limit values are exceeded, it is prohibited to carry out any activities which cause deterioration of the quality of soil and ground, and the following measures shall be taken in accordance with the law On Pollution:
 - 4.1. the investigation and monitoring of the polluted site if the precautionary limit value (value B) has been exceeded or the target value (value A) has been exceeded for the substances referred to in Table 2 of Annex 1 to this Regulation on the sites which the regional environment board of the State Environmental Service has evaluated as hazardous;
 - 4.2. the remediation of the polluted site if the critical limit value (value C) has been exceeded.
5. Samples shall be taken to determine the quality of soil and ground so that they would characterise the level of pollution in the territory under investigation:
 - 5.1. the depth of the taking of soil samples shall be 25 centimetres. If the horizon of accumulation of humus is thinner, samples shall be taken at the thickness of the horizon but not above 10 centimetres;
 - 5.2. the average soil sample shall be formed by mixing at least 25 individual samples which are evenly taken in the territory under investigation the area of which does not exceed five hectares;

5.3. if the concentration of a polluting substance established in the average soil sample exceeds the precautionary limit value (value B) or if the target value (value A) is exceeded for the substances referred to in Table 2 of Annex 1 to this Regulation, the depth, area and direction of the spreading of the polluting substance shall be determined by taking additional ground samples at an interval of 50 centimetres within the entire polluted area until the depth and point are reached where the concentration of the polluting substance does not exceed the precautionary limit value (value B) or the target value (value A) for the substances referred to in Table 2 of Annex 1 to this Regulation;

5.4. in order to determine the level of pollution of ground on the polluted sites where the pollution of ground is caused by migration of the polluted underground water (within the polluted areas of underground water), ground samples shall be taken at an interval of 50 centimetres at the entire depth of spreading of the polluted underground water (also in the area of fluctuation of the underground water level).

6. In order to determine concentration of the parameters referred to in Annex 1 to this Regulation in soil and ground, the following methods for preparation and testing of samples shall be employed:

6.1. for the purpose of determination of the concentration of heavy metals – cadmium (Cd), chromium (Cr), copper (Cu), nickel (Ni), lead (Pb), zinc (Zn) – in the dry matter, samples shall be prepared in accordance with the methods referred to in the standard LVS ISO 11466:1995 “Soil Quality – Extraction of Trace Elements Soluble in Aqua Regia” and tested in accordance with the methods referred to in the standard LVS ISO 11047:2003 “Soil Quality – Determination of Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Nickel and Zinc in Aqua Regia Extracts of Soil – Flame and Electrothermal Atomic Absorption Spectrometric Methods”;

6.2. for the purpose of determination of the concentration of mercury (Hg), samples shall be prepared and tested in accordance with the methods referred to in the standard LVS 346:2005 “Soil Quality – Determination of Mercury by Cold Vapour Atomic Absorption Spectrometry”;

6.3. for the purpose of determination of the concentration of arsenic (As), samples shall be prepared and tested by employing methods whose smallest quantifiable limit of detection is 1.0 mg/kg;

6.4. for the purpose of determination of the concentration of oil products, samples shall be prepared and tested by employing methods whose smallest quantifiable limit of detection of the amount of oil products is 1.0 mg/kg;

6.5. for the purpose of determination of the concentration of polyaromatic hydrocarbons (PAH), polychlorinated biphenyl (PCB), cyanide, aromatic hydrocarbons, organo-chlorinated substances, pesticides and cyclohexane, samples shall be prepared and tested by employing methods whose smallest quantifiable limit of detection does not exceed value A.

7. When determining concentration of heavy metals – cadmium (Cd), chromium (Cr), copper (Cu), nickel (Ni), lead (Pb), zinc (Zn) –, oil products, polyaromatic hydrocarbons (PAH) and polychlorinated biphenyl (PCB) in the soil and ground, the soil and ground texture shall be taken into account.

8. The soil and ground texture shall be determined by taking into account the relative proportions of the particles of clay (<0.002 mm), silt (0.002–0.05 mm) and sand (0.05–2.00) in soil and ground (Annex 2).

9. Cabinet Regulation No. 388 of 15 July 2003, Regulations Regarding Environmental Quality Standards for Soil (*Latvijas Vēstnesis*, 2003, No. 106), is repealed.

Acting for the Prime Minister, Minister for Finance

O. Spurdziņš

Acting for the Minister for Environment,
Minister for Regional Development and Local Government

M. Kučinskis

Quality Standards for Soil and Ground

Table 1

Quality standards for soil and ground with regard to copper (Cu), lead (Pb), zinc (Zn), nickel (Ni), arsenic (As), cadmium (Cd), chromium (Cr), mercury (Hg), oil products, polyaromatic hydrocarbons (PAH) and polychlorinated biphenyl (PCB)

| No. | Parameter | Unit of measurement | Sand | | | Loamy sand | | | Loamy soil | | | Clay | | |
|-----|------------------------------|---------------------|------|------|-------|------------|------|-------|------------|------|-------|------|------|-------|
| | | | A | B | C | A | B | C | A | B | C | A | B | C |
| 1. | Cu | mg/kg | 4 | 30 | 150 | 7 | 40 | 150 | 12 | 50 | 150 | 19 | 60 | 150 |
| 2. | Pb | mg/kg | 13 | 75 | 300 | 13 | 100 | 500 | 16 | 200 | 500 | 23 | 200 | 500 |
| 3. | Zn | mg/kg | 16 | 250 | 700 | 24 | 250 | 700 | 46 | 350 | 700 | 70 | 350 | 700 |
| 4. | Ni | mg/kg | 3 | 50 | 200 | 8 | 75 | 200 | 16 | 75 | 200 | 28 | 100 | 200 |
| 5. | As | mg/kg | 2 | 10 | 40 | 2.5 | 10 | 40 | 3 | 15 | 40 | 5.5 | 20 | 40 |
| 6. | Cd | µg/kg | 80 | 3000 | 8000 | 90 | 3000 | 8000 | 180 | 4000 | 10000 | 200 | 4000 | 10000 |
| 7. | Cr | mg/kg | 4 | 150 | 350 | 11 | 150 | 350 | 22 | 170 | 350 | 40 | 170 | 350 |
| 8. | Hg | µg/kg | 250 | 2000 | 10000 | 540 | 2000 | 10000 | 800 | 3000 | 10000 | 800 | 3000 | 10000 |
| 9. | Amount of oil products | mg/kg | 1 | 500 | 5000 | 1 | 500 | 5000 | 1 | 500 | 5000 | 1 | 500 | 5000 |
| 10. | Amount of PAH (10 compounds) | mg/kg | 1 | 12 | 40 | 1.2 | 15 | 40 | 1.2 | 18 | 40 | 1.5 | 20 | 40 |
| 11. | Amount of PCB | mg/kg | 0.02 | 0.1 | 1 | 0.02 | 0.1 | 1 | 0.03 | 0.2 | 1 | 0.05 | 0.2 | 1 |

Table 2

Quality standards for soil and ground with regard to inorganic compounds, aromatic hydrocarbons, organo-chlorine compounds, pesticides and cyclohexane

| No. | Substances | Unit of measurement | Value | |
|------|-------------------------|---------------------|-------|-----|
| | | | A | C |
| 1. | Inorganic compounds: | | | |
| 1.1. | cyanides-free | mg/kg | 1 | 20 |
| 1.2. | complex cyanides (pH<5) | mg/kg | 5 | 650 |
| 1.3. | complex cyanides (pH>5) | mg/kg | 5 | 50 |
| 2. | Aromatic hydrocarbons: | | | |
| 2.1. | benzene | mg/kg | 0.01 | 1 |
| 2.2. | ethylbenzene | mg/kg | 0.03 | 50 |
| 2.3. | toluene | mg/kg | 0.01 | 130 |

| | | | | |
|-------|---|-------|---------|-----|
| 2.4. | amount of xylenes | mg/kg | 0.1 | 25 |
| 2.5. | amount of phenols | mg/kg | 0.05 | 40 |
| 2.6. | amount of cresols | mg/kg | 0.05 | 5 |
| 3. | Organo-chlorinated substances: | | | |
| 3.1. | vinyl chloride | mg/kg | 0.01 | 0.1 |
| 3.2. | dichloromethane | mg/kg | 0.4 | 10 |
| 3.3. | 1,1-dichloroethane | mg/kg | 0.02 | 15 |
| 3.4. | 1,2-dichloroethane | mg/kg | 0.02 | 4 |
| 3.5. | 1,1-dichloroethane | mg/kg | 0.1 | 0.3 |
| 3.6. | 1,2-dichloroethane | mg/kg | 0.2 | 1 |
| 3.7. | dichloropropane | mg/kg | 0.002 | 2 |
| 3.8. | trichloromethane | mg/kg | 0.07 | 15 |
| 3.9. | 1,1,1-trichloroethane | mg/kg | 0.07 | 15 |
| 3.10. | 1,1,2-trichloroethane | mg/kg | 0.4 | 10 |
| 3.11. | trichloroethene | mg/kg | 0.1 | 60 |
| 3.12. | tetrachloromethane | mg/kg | 0.4 | 1 |
| 3.3. | tetrachloroethene | mg/kg | 0.002 | 4 |
| 3.14. | amount of chlorobenzenes | mg/kg | 0.03 | 30 |
| 3.15. | amount of chlorophenyls | mg/kg | 0.01 | 10 |
| 4. | Pesticides: | | | |
| 4.1. | amount of DDT*/DDE**/DDD*** | mg/kg | 0.01 | 4 |
| 4.2. | amount of drins (aldrin, dieldrin, endrin) | mg/kg | 0.005 | 4 |
| 4.3. | amount of hexachlorocyclohexane (HCH) compounds | mg/kg | 0.01 | 2 |
| 4.4. | atrazine | mg/kg | 0.0002 | 6 |
| 4.5. | carbaryl | mg/kg | 0.00003 | 5 |
| 4.6. | carbofuran | mg/kg | 0.00002 | 2 |
| 4.7. | chloromethylphenoxyacetic acid (MCPA) | mg/kg | 0.00005 | 4 |
| 5. | Other substances: | | | |
| 5.1. | cyclohexane | mg/kg | 0.1 | 45 |

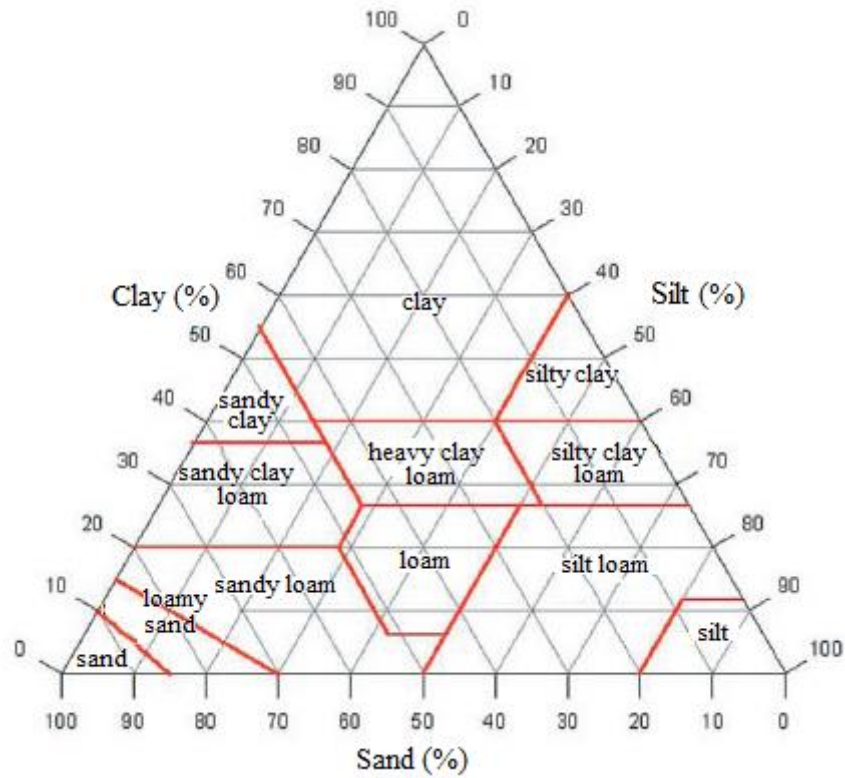
Notes.

- 1.*DDT (dichlorodiphenyltrichloroethane).
- 2.**DDE (dichlorodiphenyldichloroethylene).
- 3.***DDD (dichlorodiphenyldichloroethane).

Acting for the Minister for Environment,
Minister for Regional Development and Local Government

M. Kučinskis

Nomograph for Determination of Soil and Ground Texture



Acting for the Minister for Environment,
Minister for Regional Development and Local Government

M. Kučinskis