

REGULATION

on the requirements for soil protection when using sludge originating from waste water treatment plants for the purposes of agriculture

dated 06.12.2000

Article 1

The regulations lays down the requirements for soil protection when using sewage sludge originating from waste water treatment plants and equipment for the purposes of agriculture in a way preventing its harmful effects on soil, vegetation, animals and man, thereby ensuring its correct use.

Article 2

(1) The provisions of the regulation hereafter are applicable for:

1. sewage sludge originating from waste water treatment plants and other installations which treat waste water having physical/chemical parameters similar to domestic waste water;
2. sludge originating from septic tanks and other similar installations for waste water treatment;
3. sludge from waste water treatment plants other than those referred to in item 1 and 2.

(2) The regulation is not applicable for the use of sludge for closing and recultivation of landfills, in the cases when it is not envisaged use for the needs of agriculture.

Article 3

(1) The sludge pursuant to Article 2, paragraph 1, item 1 could be used for agricultural purposes only if complying the provisions of this Regulation.

(2) The producers of sludge under Article 2, paragraph 1, item 2 transfer the sludge for treatment in waste water treatment plants.

(3) The sludge under Article 2, paragraph 1, item 3 could be used for agricultural purposes, if meet the requirements of Article 4, paragraph 1, item 4 of the *Protection of Agricultural Lands Act (PALA)* and when meeting the requirements of the *Limitation of the Harmful impact of Waste upon Environment Act (LHIWEA)*.

Article 4

The use of sewage sludge for the needs of agriculture have to meet the following limitations:

1. the heavy metals concentration in the soil to which sludge is applied, shall not exceed the maximal allowable concentrations (MAC) according to Annex 1;
2. the heavy metals concentration in sludge intended for use in agriculture, shall not exceed the maximal allowable concentrations (MAC) according to Annex 2;
3. the maximal quantities annually applied in soil heavy metals, which can be added into soils intended for agricultural purposes, shall not exceed the maximal allowable concentrations (MAC) according to Annex 3.

Article 5

(1) Prohibition exists on use of sewage sludge in cases as follows:

1. when the concentration of one or more heavy metals in the soil exceeds the maximal allowable concentrations (MAC) according Annex 1;
2. when the sludge is a hazardous waste according to the meaning of §1, item 4 of the Additional Provisions of the LHIWEA;

3. when the concentration of one or more heavy metals in the sludge exceeds the maximal allowable concentrations (MAC) according Annex 2;
 4. when the sludge is not treated;
 5. without the allowance of the land owner.
- (2) Prohibition exist on use of sludge or supply of sludge for use on:
1. grasslands or forage crops, if the grassland is to be grazed and the forage crops to be harvested in period shorter than 1.5 months after the sludge supply;
 2. soils on which fruit and vegetable crops are grown, with the exception of fruit trees;
 3. ground intended for the cultivation of fruit and vegetable crops, which are normally in direct contact with the soil and normally eaten raw - for a period of 10 months preceding the harvest of the crops and during the harvest itself.

Article 6

- (1) The use of sludge in agriculture shall be performed in such a way that the supply of sludge in soil does not lead that the MAC for heavy metals in soil being exceeded.
- (2) The achievement of the requirements pursuant to paragraph 1 shall be ensured through:
 1. laying down the maximal quantities of sludge expressed in tonnes of dry matter, which may be applied to the soil per unit of area per year while observing the MAC for heavy metals in sludge, in accordance to Annex 2; or
 2. observance of the quantities heavy metals introduced into the soil with sludge per decare per year, according to Annex 3.

Article 7

The sludge producers ensure sludge treatment before transferring to the users for being used in agriculture.

Article 8

- (1) The sewage sludge producers shall provide users with information on the parameters referred to in Annex 4, after any testing.
- (2) The sewage sludge producers shall submit information under paragraph 1 to the Ministry of Agriculture and Forests to be filled into the information system on agricultural and soil resources under Article 4, paragraph 2 of the Protection of Agricultural Lands Act (PALA).

Article 9

- (1) The sludge producers are required to ensure sludge testing by authorized laboratories at least once per any six months period, according to the parameters presented in Annex 4
- (2) In case of changes into the characteristics of the treated waste water, the frequency of the analysis is to be increased following the recommendations of the competent authorities.
- (3) In cases when the testing results are not biased with more than 5% during a period of one year, the competent authorities could allow sludge testing to be performed at 12 months period.
- (4) The reference methods for sampling and testing of sludge shall be performed in accordance with Annex 5.

Article 10

The producers and users of sludge keep report books and perform and submit in the Regional Inspectorates of Environment and Water (RIEW) annual reports according to the provisions of Regulation 10/1998 on Procedure for Filling out of Report and Information Documents for the Waste Management Activities (State Gazette 151/1998).

- (1) The sludge generators register:
 1. quantities of the sludge generated and the quantities of sludge supplied for use;
 2. composition and quantities of sludge regarding the parameters referred to in Annex 2;
 3. type of the treatment performed according to Article 7, paragraph 1;
 4. names and addresses of sludge users.
- (3) The records under paragraph 2 shall be released upon request to the competent authorities and shall be kept up for a period of ten years minimum.
- (4) The sludge producers submit to the RIEW reference data in three copies, containing information under paragraph 2, including information about the type of treatment carried out, the results of the sludge analysis, together with the annual report under paragraph 1.

Article 11

- (1) The sludge users are obliged to ensure soil testing of the parameters given in Annex 6 by authorized laboratories.
- (2) Soil sampling and testing are obligatory prior the first sludge application and afterwards any five year till the final termination of sludge use.
- (3) Soil sampling and testing have to be performed according to the methods given in Annex 5.
- (4) In event of change of ownership of the agricultural lands on which the sludge is applied, the sludge users shall inform the new owner about the obligations pursuant under paragraph 1.

Article 12

- (1) The users of sludge for agricultural purposes shall register:
 1. quantities of the sludge supplied for use in agriculture;
 2. area of sludge use;
 3. composition and qualities of soil, in relation to the parameters referred to in Annex 4;
 4. names and addresses of the sludge producers.
- (2) The registers under paragraph 1 shall be available to the competent authorities and shall be kept for period of ten years minimum.
- (3) On an year basis, till the 15th of March of the current year, the sludge users submit to the Ministry of Agriculture and Forests a reference data in three copies on the information under paragraph 1 on the previous year.

Article 13

- (1) The sludge use for agricultural purposes is allowed on the basis of permit under Article 6, paragraph 1, item 3 of the PALA, issued by the specialized bodies of the Ministry of Agriculture and Forests and permit under Article 37 of the LHIWEA, issued by the specialized bodies of the Ministry of Environment and Water.
- (2) The competent authority shall ascertain, prior to issuing of permit on sludge use, that the heavy metals content in soil does not exceed the limits given in Annex 1.
- (3) The competent authority set out through the permits issued, the requirements and the frequency of soil testing in regard to the metal content in soil prior to sludge use and other influencing factors, as well as with respect of the data available on the soil characteristics and homogeneity

Article 14

When issuing a permit under Article 13 paragraph 1 on sludge use, shall be met the requirements as follows:

1. the sludge shall be used in such a way that account is taken of the nutrients needs of the plants, and the quality of the soil and of the surface and ground water is not impaired;
2. where sludge is used on soils of which the pH is below 6, shall be taken in account the increased mobility and availability to the crops of heavy metals in accordance with Annex 1.

Article 15

The Minister of the Environment and Water in coordination with the Minister of Healthcare shall write down and submit to the Council of Ministers consolidated report referred to in Articles 10 and 12, about the sludge use in agriculture, containing data on the quantities used, the parameters met and the problems related to its application.

ADDITIONAL PROVISION

§ 1. For the purposes of the regulation herein:

1. “Treated sludge” shall mean: sludge which has undergone biological, chemical or heat treatment, long-term storage or any other appropriate process so as significantly to reduce its fermentability and the health hazards resulting from its use.
2. “Agriculture” shall mean: the growing of all types of commercial food crops, including for stock-rearing purposes.
3. “Use” shall mean: the spreading of sludge on the soil or any other application of sludge on and in the soil.
4. “Users” shall mean: owners and users of agricultural lands, as well as specialized commercial undertakings which use sludge from waste water treatment plants.
5. “Producers” shall mean: the persons which activities generate the sludge under Article 2, including the operators of waste water treatment plants.
6. “Competent authorities” are the Ministry of Agriculture and Forests, Ministry of Environment and Water and Ministry of Healthcare.

TRANSITIVE AND CONCLUDING PROVISIONS

§ 2. The regulation herein is adopted on the basis of Article 23 of the LHIWEA.

§ 3. The report pursuant to Article 15 shall be done till the 31.12.2005 and for the following period - any four years.

§ 4. The implementation control of the regulation herein is delegated to the Minister of Agriculture and Forests, the Minister of Environment and Water and the Minister of Healthcare.

ANNEX 1
pursuant to Article 4, paragraph 1, item 1

**Maximal allowable concentrations of heavy metals in soil
(mg dry matter in a representative sample, as defined in Annex 6,
of soils with a pH of 4 to 7)**

No	pH ¹	Maximal allowable concentrations (MAC) mg dry matter							
		Lead	Copper ²	Zinc	Cadmium	Nickel ²	Chromium	Mercury	Arsenic
1.	4	25	20	30	0,4	25	150	1	25
2.	5	40	40	60	0,8	35	170	1	25
3.	5,5	50	60	90	1,0	50	180	1	25
4.	6	70	120	200	1,5	60	190	1	25
5.	7 or >7	80	140	300	3,0	70	200	1	25

¹ The active reaction (pH) of the soil is determined in suspension, prepared from 1 part soil and 2.5 parts distilled water.

² The competent authority could permit exceeding of the values referred to, if the soils in which the pH is stably higher than 7. The maximal allowable concentration of these heavy metals shall not exceed by more than 50% the values for pH=7.

ANNEX 2
pursuant to Article 4, paragraph 1, item 2

**Maximal allowable concentrations of heavy metals in sludge
intended for use in agriculture**

Parameters	Maximal allowable concentrations (MAC) (mg/kg dry matter)
Cadmium	30
Copper	1 500
Nickel	300
Lead	1 000
Zinc	3 000
Mercury	16
Chromium	500
Arsenic	30

ANNEX 3
pursuant to Article 4, paragraph 1, item 3

**Maximal allowable concentrations (MAC) of heavy metals which could be applied
annually in agricultural lands, average for period of ten years**

Parameters	Maximal allowable concentrations kg/ha/year
Cadmium	0,15
Copper	12
Nickel	3
Lead	15
Zinc	30
Mercury	0,1
Chromium	15
Arsenic	0,2

ANNEX 4
pursuant to Article 9, paragraph 1

Sludge analysis

The sludge analysis shall include at least determination of the following components:

- dry matter, organic matter;
- pH;
- nitrogen, phosphorus, sodium;
 - cadmium, copper, nickel, lead, zinc, mercury, chromium, arsenic.

ANNEX 5
pursuant to Article 9, paragraph 2 and Article 11, paragraph 2

Sampling and testing methods

1. Soil sampling

The representative soil samples for analysis should normally be made up of by mixing together 20 core samples taken over an area not exceeding 40dca, which is farmed for the for the same purposes.

The samples must be taken to a depth of 25cm unless the depth of the surface soil is less than that value; however, the sampling depth in the latter case must not be less than 10cm.

2. Sludge sampling

The sludge must be sampled after processing, but before delivery to the user, and should be representative of the sludge production.

3. Methods of analysis

Analysis for heavy metals must be carried out following strong acid extraction. The reference methods of analysis must be that of atomic absorption spectrometry and the limit of detection for each metal should be no greater than 10% of the appropriate value for maximal allowable concentration (MAC).

ANNEX 6
pursuant to Article 11, paragraph 1

Parameters for soil analysis

The soil analysis shall include at least determination of the following components:

- pH;
- cadmium, copper, nickel, lead, zinc, mercury, chromium, arsenic.

BASEL CONVENTION