



REPUBLIC OF ESTONIA
MINISTRY OF THE ENVIRONMENT

Sewage sludge management in Estonia

Kristel Kibin

Adviser to the Environmental Management Department, Ministry of the Environment

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Legal framework

Sewage
sludge in
waste status



- Water Act
- Waste Act
- The Regulation of the Minister of the Environment No 29 of 31 July 2019: “Quality limit values and requirements for the use of sewage sludge in the creation of green areas, recultivation and agriculture” (implements the SSD)

Sewage
sludge as a
product



- Waste Act
- Product Conformity Act
- The Regulation of the Minister of the Environment No 24 of 19 July 2017: „Requirements for manufacturing products made from sewage sludge”

Sewage sludge management

Only stabilized sewage sludge is allowed to be used.

Stability indicator	Quality limit value for sewage sludge
Oxygen demand	less than 10 mg O ₂ /g DM (after a 96-hour measuring period)
Organic matter content	reduced at least by 38 %
Loss on ignition/dry matter ratio	less than 0.6 OM/DM
Volatile fatty acid concentration	less than 0.43 g COD /g OM
Biogas remaining potential	less than 0.25 l/g OM

Sewage sludge management

Sewage sludge may be used:

- in agricultural areas used for manufacturing agricultural products and for cultivating short rotation coppices;
- in green areas for planting trees or bushes or to improve their quality in green areas and green belts;
- during recultivation for restoring land degraded by mining or by other means, for preparing for recovery or for sealing landfills.

Sewage sludge management

It is prohibited to use sewage sludge in waste status in the areas where:

- $\text{pH} \leq 5$;
- moist and flooded areas;
- frozen or snow covered areas.

Land where sewage sludge (both waste status and product) have been used must not be used to:

- 1) grow vegetables and berries or medicinal herbs or seasoning herbs for one year after the application;
- 2) graze animals or collect animal fodder for two months after the application.

Sewage sludge management

Heavy metal limit values for use of sewage sludge

Heavy Metal	Waste status (Regulation No 29)		Product status (Regulation No 24)	
	Limits for sewage sludge, mg/kg dry matter	Limits for soil, mg/kg dry matter	Limit value, g/kg P (use in agriculture and horticulture)	Limit value, mg/kg (use in landscaping and recultivation)
Cadmium (Cd)	20	3	0.15	2
Copper (Cu)	1000	50	45	200
Nickel (Ni)	300	50	4	40
Lead (Pb)	750	100	7.5	130
Zinc (Zn)	2500	300	125	2500
Mercury (Hg)	16	1.5	0.1	1
Chromium (Cr)	1000	100	15	60

Sewage sludge management

Other limit values for sewage sludge

Hygiene	Quality limit values for sewage sludge in waste status (Regulation No 29)	Quality limit values for sewage sludge as a product (Regulation No 24)
Salmonella bacterium	N/A	absent in 25 g
Escherichia coli	less than 1000 CFU in 1 g wet weight of processed sludge	less than 10 CFU in 1 g wet weight of processed sludge
Helminth eggs	not more than 1 egg in 10 g wet weight of processed sludge	no eggs in 10 g wet weight of processed sludge
Unwanted components	Quality limit values for sewage sludge in waste status (Regulation No 29)	Quality limit values for sewage sludge as a product (Regulation No 24)
Foreign bodies	N/A	≤ 0.5 % dry matter
Weed seeds (germinative)	N/A	≤ 2 seeds per litre

Sewage sludge as a product

- ! The Regulation of the Minister of the Environment No 24 of 19 July 2017: „Requirements for manufacturing products made from sewage sludge”

Sewage sludge will be assigned an end-of-waste status if it complies with the safety requirements and quality limit values set in the regulation.

- Requirements for the treatment facility and treatment process;
- Requirements for the sludge treatment operator's self-regulatory system and record keeping;
- Requirements for storing and labelling products made from sewage sludge;
- Certification system - assessment of compliance of products and production processes.

State of play

Average heavy metals concentrations in sewage sludge in 2018

Heavy metal	Average concentration, mg/kg	Limit value, mg/kg (Regulation No 29)
Cadmium (Cd)	0.79	20
Copper (Cu)	40.44	1000
Nickel (Ni)	8.02	300
Lead (Pb)	8.73	750
Zinc (Zn)	212.50	2500
Mercury (Hg)	4.04	16
Chromium (Cr)	15.55	1000

State of play, advantages, disadvantages

- Composting is the most common type of treatment.
- No products made from the sewage sludge = no recycling.
- Stabilized sewage sludge is used in agriculture, creation of green areas and recultivation. Water utilities are concentrating on large agricultural companies mostly.
- Fears related to the quality and use of sewage sludge, low awareness.
- EU funds and Environmental Investment Centre financial programs for waste recycling.
- Studies by the universities in co-operation with water utilities.

Future expectations or challenges

- EC evaluation of the Sewage Sludge Directive;
- Awareness raising;
- Ensuring high quality sewage sludge treatment units, developing regional sewage sludge treatment centres.



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Thank you!

Kristel Kibin

Adviser to the Environmental Management Department, Ministry of the Environment

Kristel.Kibin@envir.ee