Generation and treatment of common sludges in member states in the aspect of the Regulation (EC) No. 2150/2002 on waste statistics

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Introduction

Increase of quality demands of wastewater, which are discharged into the environment, results in the increase sewage sludge generation. Management method of sewage sludge depends on their quality, especially amount of hazardous substances and legal restrictions connected to sewage sludge utilization [1]. There are different ways of sewage sludge management, i.a.: thermal processing, utilization in agriculture, disposal and composting. Nowadays one is looking for a new possibilities and directions of eventual sewage sludge management, which will allow their effective utilization [2].

Regulation (EC) No. 2150/2002

The aim of the Regulation (EC) No. 2150/2002 is to establish a framework for the formation of Community statistics on the generation, recovery and waste disposal [4]. The Regulation defines data, which are to be submitted and their required quality, but do not impose a specific method of statistic development [4].

According to Annex III of the Regulation, common sludges include sludges from treatment of urban and industrial wastewater, sludges from on-site effluent treatment, sludges from purification of drinking and process water, unpolluted dredging spoils and septic tank sludge [3].

Sludge generation in member states

Figure 1 presents amount of generated sludges in member states, jointly in all economic activities, in 2010 and 2012. In 2010 the biggest amount of sludges was produced in Belgium and Great Britain – about 2.4 mm tons. The smallest amount of sludges was produced in Malta – about 1 500 tons. Poland produced above 480 thousand tons. In 2012 Italy produced the biggest amount of sludges – over 6.2 mm tons, while Luxembourg and Malta produced the smallest amount – slightly above 10 thousand tons. Poland produced above 580 thousand tons.

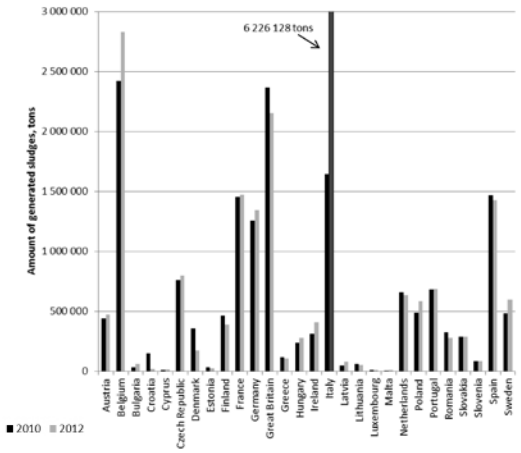

Fig. 1. Amount of generated sludges in 28 member states in 2010 and 2012 [6]

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Table 1 shows the amount of generated sludges in all member states, divided into economic activities. Divisions 36 (water collection, treatment and supply), 37 (sewerage) and 39 (remediation activities and other waste management services) produce the biggest amount of sewage sludges. In 2010 amount of sludges, produced in this divisions was about 10 mm tons and in 2012, the amount exceeded 12 mm tons. Division 16 (manufacture of wood, cork and straw) produced the smallest amount of sludges – in 2010 the amount was about 9 thousand tons and in 2012, the amount was 18 thousand tons.

Table 1

Amount of produced common sludges in UE in 2012, divided into economic activities [5 – 6]

	Description	Amount of produced common sludges in 2012
Section A	Agriculture, forestry and fishing	129 180
Section B	Mining and quarrying	54 713
Division 10-12	Manufacture of food products, beverages and tobacco products	3 429 501
Division 13-15	Manufacture of textiles, wearing apparel and leather	12 698
Division 16	Manufacture of wood, cork and straw	9 056
Division 17	Manufacture of paper and paper products, recorded media	1 324 645
Division 19	Manufacture of coke and refined petroleum products	12 383
Division 20-22	Manufacture of chemicals, pharmaceutical products, rubber and plastic products	170 535
Division 23	Manufacture of other non-metallic mineral products	30 888
Division 24-25	Manufacture of basic metals and fabricated metal products	56 216
Division 26-30	Manufacture of computer, electronic and optical products, electrical equipment, machinery, motor vehicles, transport equipment	25 239
Division 31-33	Manufacture of furniture, repair and installation of machinery and equipment	12 6354
Division D	Electricity, gas, steam and air conditioning supply	163 816
Division 36, 37, 39	Water collection, treatment and supply, sewerage, remediation activities and other waste management services	12 486 206
Division 38	Waste collection, treatment and disposal activities; materials recovery	1 670 578
Section F	Construction	103 733
Section G-U	Service activities: i.a. wholesale and retail trade, transportation, food service activities, financial activities, real estate activities, scientific and technical activities, public administration and defence; education, human health, entertainment and recreation, activities of extraterritorial organizations and bodies	1 640 864
Class 46.77	Wholesale of waste and scrap	38 599

Sludge treatment in member states

Recovery other than energy recovery and backfilling are the most often used process – in most member countries this is the main method of common sludges management. Sewage sludges are the lest frequently processed in land treatment and release into water bodies processes. In Poland most sludges are processed in recovery other than energy recovery and the least sludges are processed in land treatment and released into water bodies. The above data are shown in Fig. 2.

Selection of sewage sludges management method depends on their quality, especially of the amount of heavy metals. It results in sewage sludges landfilling on municipal landfills or wastewater plant's area [1]. The figure below shows countries (Bulgaria, Malta and Romania), in which landfilling is the main method of the waste management.

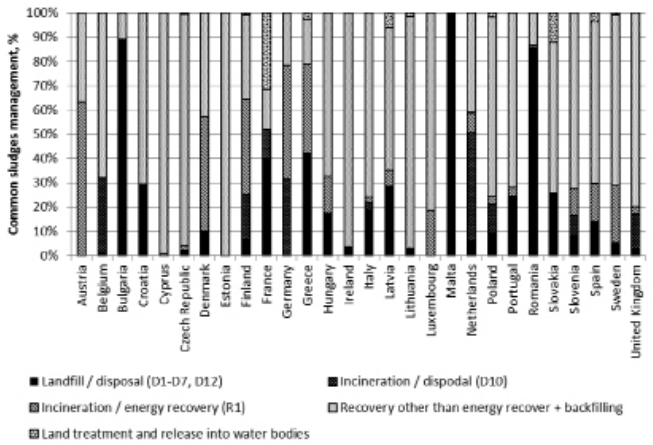

Fig. 2. Common sludges management in 2012 [6]

Conclusions

Regulation (EC) No. 2150/2002 defines the scope of data, which member states must take into account, while realizing the waste statistics. These states produce statistics for generation, recovery and disposal of wastes [3].

Amount of generated sewage sludges increases, because of modernization or construction of new wastewater treatment plants or development of sewage network [1], and this phenomena can be observed in most member states. In 2010 all member states produced over 16,.6 mm tons of sludges and in 2012, over 21.5 mm tons. In 2012 Poland generated almost 490 thousand tons of sludges, while in 2012, almost 100 thousand tons more [6]. Divisions 36, 37 and 39 generates the biggest amount of sewage sludge, since they are connected to water and wastewater management.

In 2010 all member states treated over 12.8 mm tons of sludges, while in 2012, almost 13.5 mm tons [6]. The most often, sludges are processed in recovery other than energy recovery process with backfilling. In Poland sludges are used as fertilizers, they are a source of biogas or are co-incinerated with other combustible substances.

Literature

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6. Database Eurostat, http://ec.europa.eu/eurostat/web/main/home, access 03.09.2015

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