

About the Rational Utilization of Various Waste Products Resulting from the National Economic Activity on the Territory of the Orenburg Region

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Abstract: In the article there is the statistics of industrial and cumulative waste according to the hazard classes on the territory of the Orenburg region and the waste formation of production and consumption in the Russian Federation during the period from 2005 to 2012. On the basis of this analysis the authors draw a conclusion about the irrational use.

Key words: Waste • Hazard class • National economic activity • Ecology

INTRODUCTION

As a result of the national economic activity of the person the waste are formed, which make negative impact on the environment and health of the person.

According to normative documents the substances (waste) are divided on V hazard classes [1]:

- Hazard class (Extremely dangerous)-The extent of the harmful effects of dangerous waste on natural environment (NE) is VERY HIGH, ecological system is irreversibly broken. The period of restoration is absent [2].
- Hazard class (Highly dangerous)-The extent of the harmful effects of dangerous waste on NE is HIGH, ecological system is irreversibly broken. The restoration period is not less than 30 years after the full elimination of a harmful effects source [3].
- Hazard class (Moderately dangerous)-The extent of the harmful effects of dangerous waste on NE is AVERAGE, ecological system is broken. The restoration period is not less than 10 years after decreasing the harmful effects of an existing source;

- Hazard class (Low-dangerous)-The extent of the harmful effects of dangerous waste on NE is LOW, ecological system is broken. The self-restoration period is not less than 3 years [4].
- Hazard class (Practically non-dangerous)-The extent of the harmful effects of dangerous waste on NE is VERY LOW.

Having analyzed the statistical materials which are in open access we compile the summary tables by formation, accumulation of waste being formed as a result of the national economic activity on the territory of the Orenburg region from 2005 to 2012 according to hazard classes [5].

Table 1 shows that the formation of the most dangerous waste of the I class during the period from 2005 to 2012 practically isn't changed and is ranging from 0,1 to 0,4 10^{-4} million tons per year, however in Table 2 we can see that the part of them is simply collected, instead of exposing to utilization, processing or neutralization that can negatively affect ecology and from the economic point of view is not rationally [6].

As for moderately (III) and low-dangerous (IV) waste (Tables 1 and 2), the negative tendency to their accumulation is traced, instead of returning to the production for the purpose of further processing [7].

Table 1: The quantity of waste according to hazard classes, formed on the territory of the Orenburg region, million tons during the period from 2005 to 2012 [9]

Hazard class					

Year	I	II	III	IV	V
2005	0,00003	0,0004	3,3	2,44	44,67
2006	0,00002	0,000457	1,395	2,527	57,217
2007	0,000024	0,000437	0,255	146,667	126,475
2008	0,000037	0,0152	0,091	2,435	52,584
2009	0,000045	0,000465	0,120812	3,351620	59,318474
2010	0,000029	0,169	0,358	2,44	45,656
2011	0,00003	0,155	0,283	-*	-*
2012	0,000012341	0,073843	0,112511	0,068086	60,241002

Note-* data are absent in the open access or they can't be found for the reasons which don't depend on authors

Table 2: The quantity of waste according to hazard classes, formed on the territory of the Orenburg region, million tons during the period from 2005 to 2012 [10]

Hazard class					

Year	I	II	III	IV	V
2005	-*	-*	-*	-*	-*
2006	0,0000411	0,0116	162,097	20,5399	643,163
2007	0,000008	0,012	1,302	54,407	825,007
2008	0,000011	0,012	5,108	469,597	440,217
2009	0,00001	4,016	1,23	1,93	900,3
2010	0,0000106	4,132	1,18	0,989	1146,19
2011	-*	-*	-*	-*	-*
2012	0,0000027	0,000511	1,050	0,006277	1007,941

Note-* data are absent in the open access or they can't be found for the reasons which don't depend on authors

Table 3: The quantity of waste according to hazard classes, which are used and neutralized by the enterprises owners in % during the period from 2005 to 2012 [11]

Hazard class					

Year	I	II	III	IV	V
2005	-*	-*	-*	-*	-*
2006	25,9	5,8	1,6	4,0	16,5
2007	0,1	4,7	7,0	13,2	8,1
2008	0	0,1	96	71,3	11,1
2009	-*	-*	-*	-*	-*
2010	-*	-*	-*	-*	-*
2011	221,9	0,1	123	-*	-*
2012	-*	-*	-*	-*	-*

Note-* data are absent in the open access or they can't be found for the reasons which don't depend on authors

Table 4: The formations of waste production and consumption, million tons (RF) [13]

#	Type of economic activity	2007	2008	2009	2010	2011
1	Total in RF	3899,28	3817,68	3505,0	3734,74	4303,33
2	Production of foodstuff, including drinks and tobacco	20,49	18,62	25,1	20,10	16,15
3	Wood processing and wood products production	5,96	4,83	5,0	9,62	3,90
4	Chemical production	46,13	27,02	20,06	25,90	41,88
5	Production of rubber and plastic products	0,16	0,19	0,14	0,14	0,13

Table 3 gives an idea how the production owners use further the formed waste. Even on the basis of data during three years from 2006 to 2009 it is obvious that waste processing and neutralization isn't practically conducted and carries casual, instead of systematic character [8].

Table 4 is given for the analysis and comparison in which these formations of waste production and consumption are given, million tons during the period of 2007-2011 in the Russian Federation, according to the branches of the industries [12].

The special attention to waste of these categories is connected with the fact that we develop small-waste and waste-free technologies on involvement in further waste production of oil-processing, woodworking and food industries, allowing to solve ecological and economic problems which result from the unreasonable relation to waste [14].

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