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THE INFLUENCE OF A DOMESTIC WASTE STOREHOUSE ON THE UNDERGROUND WATERS

Camelia CĂPĂȚÎNĂ, Daniela CÎRȚÎNĂ, Cătălin ŞCHIOPU,
„Constantin Brâncuşi" University, Faculty of Engineering, 3 Geneva Street, 210152, Gorj, Romania e-mail:, cam@utgjiu.ro
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Abstract: The storage of domestic waste products generates problems by polluting the underground waters or the surface ones, by the infiltrations or leakages of the surface waters below. The paper presents the influence of a domestic waste storehouse on the underground waters. The biodegradable wastes from the domestic waste storehouse generate, through the high content of CCOCr and CBO_5 and through the high pH, a high content of suspensions with a high degree of pollution.

1. INTRODUCTION

The domestic wastes are different, with variations from one place to another, varying with the season, the geographical position, the degree of development of the society, the specific nature and level of life [1].

Table 1 presents the composition of domestic wastes in Romania in 2006.

Table 1. The medium compound of domestic wastes in Romania

Components	Percentage (%)
Vegetable wastes	41,4
Paper, cardboard	14,5
Plastic	12,5
Textiles	4
Metals	3,8
Glass	7,5
Fine fraction and other materials	16,3

Comparatively, table 2 presents the composition of domestic wastes in the main industrialized countries.

Table 2. The medium compound of domestic wastes from the main industrialized countries

%

Component	US	EU	Japan
Paper, cardboard	39,9	25,3	45,3
Plastic materials	7,7	7	8,3
Glass	6,9	8,5	1
Metals	8,3	4,1	1,2
Vegetable wastes	28,8	40,3	33,3
Other materials	8,4	14,8	10,7

The storage of wastes is defined as their "returning" to the natural environment, a fact accomplished in the best conditions, constituting it self into a channel of waste treatment [2, 3].

The controlled storage of wastes constitutes the main channel of waste treatment at the global level, mainly of domestic wastes. A problem which is imposed by the current

legislation is the prevention of underground waters' contamination through the waste storehouses by the impermeabilization of the controlled storage of balusters' main strata.

The impermeability of the controlled storage of balusters' main strata is realized with synthetic materials: PVC, polyethylene of low and high density (LDPE and PEDH) [3, 4].

The paper presents the degree of the influence of a domestic waste storehouse on the underground waters.

2. THE EXPERIMENTAL PART

The experimental part was accomplished through a monitoring activity of the quality of the drainage waters for a period of 12 days from different months of the year in a domestic waste storehouse.

There were pursued through the medium samples collected on a daily basis, the following measurements:

- the volume L/S
- the temperature ^{0}C
- the pH
- the quantity of suspensions mg/L
- the chemical and biochemical content of oxygen under the CCOCr and CBO_5, mg/L form.

3. RESULTS AND DISCUSSIONS

The results obtained are presented in Table 3 and Figure 1.

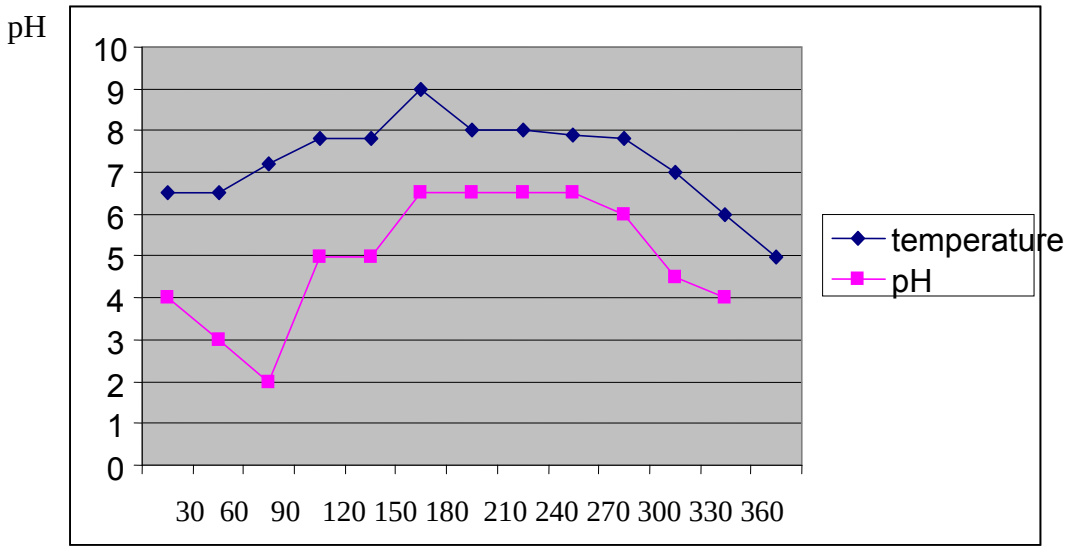

Fig.1. The used drained waters' volume of temperature and pH

The content of the domestic waste storehouse influences the underground waters through the following compounds:

- biodegradable organic wastes 72,8%
- paper and cardboard wastes 16,2%
- other wastes of a mineral nature 11%

In the April – June and September period, the water volume rises significantly, within the limits of 4.8 L/D and 14.9 L/D, varying with the season and the existing precipitations.

The data presented in Figure 1 and Table 3 is evidencing a rise in CCOCr and CBO_5 content that determines the degree of pollution. The quantity of used waters is influencing the pH and the suspension content.

The processes of biodegradation, the meteorological conditions and the precipitations are influencing the pollution degree.

Table 3

Calendar days	The content in suspensions (mg/L)	CCOCr (mg/L)	CBO_5 (mg/L)
15.02.2006	24	6900	4980
20.03.2006	28,9	7790	4790
17.04.2006	24,9	7980	4980
2.05.2006	16	7290	6000
3.06.2006	16	7100	5790
12.07.2006	11	7900	6000
10.08.2006	11	8290	5690
9.09.2006	9	7780	5790
16.10.2006	14	8390	6000
11.11.2006	19	8900	6005
2.12.2006	22	9980	6290
5.01.2007	26	9980	6490

The prevention of underground waters'pollution may be done in two ways:

- by reducing at a minimum the possibilities of dissolving of salts by which the underground waters are polluted;
- by preventing waters with salt content from wastes (lixiviated) to penetrate to the underground waters.

4. CONCLUSIONS

The storage of domestic biodegradable wastes without a corresponding impermeabilization may negatively influence, through infiltration, the quality of underground waters. To avoid the pollution of underground waters is recommended a waste selection and compaction.

5. REFERENCES

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