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EVALUATION OF HARMFUL FACTORS OF MUNICIPAL SOLID WASTE IN ORDER TO VALORIZED IN INDUSTRIAL APPLICATION

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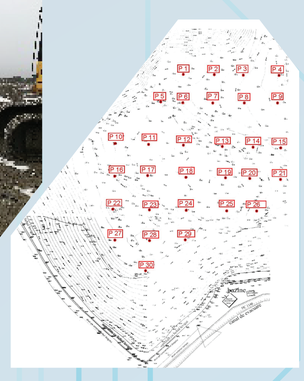
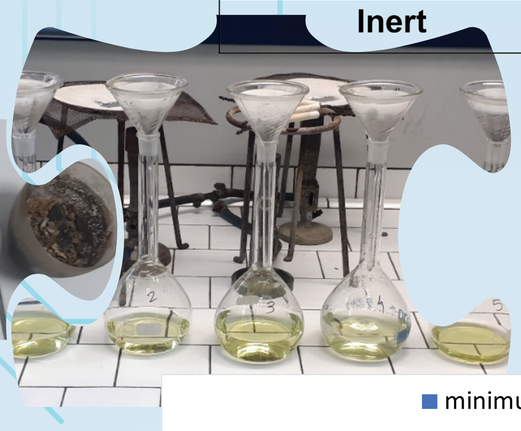
Municipal waste disposal is an issue that is important to the management of any urban area. Waste recovery is one of the objectives of the national strategy. A way of recovery is their valorization as fuel and also their incorporation in building materials

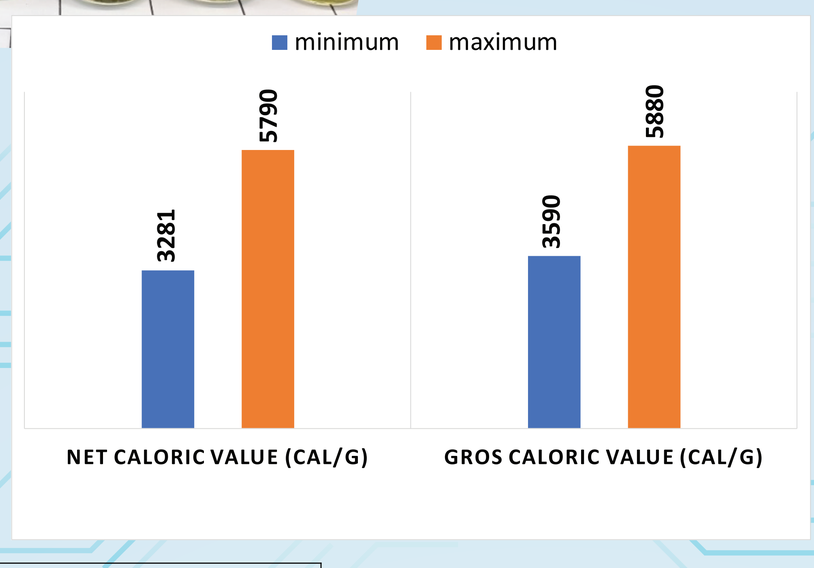
The paper presents the chemical analysis and heavy metal compositions for quantification of harmful compounds from solid municipal waste. Samples were prelevated from a Romania historical solid municipal waste disposal site.



Waste type	Variation limit (%)
PET	1,84 – 2,6
Metals	0,4 – 1,12
Aluminium	0,28 – 0,48
Glass	0,24 – 0,4
Plastic foil	1,29 – 5,8
textiles	2,16 – 7,2
wood	0,1 – 1,16
pneumatic tire	0,3 – 1,4
Biodegradable	8,3 – 31,2
Inert	58,1 – 76,2



Characteristics of waste	U.M.	Value		
		min	max	average
Humidity	%	26,9	49,1	38,82
Volatile materials	%	7,5	13,6	9,55
Ash	%	20,9	38,5	30,69
Gros caloric value	cal /g	3590	5880	4520,00
Net caloric value	cal /g	3281	5790	4339,00
LOI	%	7,15	18,33	13,19



Characteristics of waste ash	U.M.	Value		
		min	max	average
SiO_2	%	35,99	49,02	40,73
Al_2O_3	%	4,15	7,8	6,81
Fe_2O_3	%	5,86	9,48	7,51
CaO	%	10,99	15,8	13,05
MgO	%	1,17	3,76	1,54
SO_3	%	0,67	1,93	1,55
Na_2O	%	1,58	3,4	2,37
K_2O	%	1,95	2,44	2,10
Cl^-	%	0,68	2,01	1,21

Characteristics of waste ash	U.M.	Value		
		min	max	average
Mercur, Hg	mg/kg	0,12	0,4	0,20
Cadmiu, Cd	mg/kg	0,37	0,82	0,56
Cobalt, Co	mg/kg	3,82	5,5	4,39
Crom, Cr	mg/kg	5,3	11,9	7,72
Cupru, Cu	mg/kg	89,15	138,61	112,28
Mangan, Mn	mg/kg	21,3	29,25	24,28
Nichel, Ni	mg/kg	16,18	41,01	23,68
Plumb, Pb	mg/kg	79,54	202,33	144,98
Stibiu, Sb	mg/kg	2,1	13,39	5,76
Taliu, Tl	mg/kg	0,63	0,63	0,61
Vanadiu, V	mg/kg	1,05	4,88	2,62
Zinc, Zn	mg/kg	0,75	1,28	0,98

Conclusions:

Based on the investigations carried out regarding the complex characterization of the samples of waste collected, considering the wide range of variation of the values determined for each characteristic presented, it can be concluded that the deposited material is not homogeneous.

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