AUREC
Standard scope of investigation for the analysis and declaration of waste intended for underground backfilling

#	Parameter	Unit Tm	Specification backfill regulation	Benchmark Input AUREC	Note
1	pH value			5 - 12	
2	water content	Ma-%			1)
3	TOC	Ma-%	6		5) ; 8)
4	loss on ignition	Ma-%	12		8)
5	aluminum (potential for hydrogen formation)	mg/kg			2)
6	antimony	mg/kg		< 10,000	4)
7	arsenic	mg/kg		< 2,000	4)
8	beryllium	mg/kg		< 1,000	4)
9	lead	mg/kg	100,000	EZE*	3) ; 4)
10	cadmium	mg/kg		< 1,000	4)
11	chrome, total	mg/kg	150,000		3)
12	chromium VI as chromium trioxide	mg/kg		< 1,000	4) ; 6)
13	cobalt Dichloride / Cobalt Sulphate	mg/kg		< 100	4)
14	cobalt	mg/kg		< 100	4)
15	iron	mg/kg	500,000		
16	copper	mg/kg	10,000		3) ; 4)
17	manganese	mg/kg		EZE*	4)
18	nickel dioxide/ monoxide/ sulfide	mg/kg	25,000	< 1,000	3) ; 4)
19	nickel	mg/kg	25,000	EZE*	3) ; 4)
20	mercury	mg/kg		< 5,000	4)
21	mercury (metallic)	mg/kg		100	4)
22	thallium	mg/kg		< 1,000	4)
23	zinc	mg/kg	100,000		3)
24	tin	mg/kg	15,000		3) ; 4)
25	silicon calc. As silicon dioxide	Ma-%			4) ; 7)
26	cyanides, total	mg/kg		< 1,000	2)
27	dioxins and furans	mg/kg	0.1		2) ; 4)
28	hydrocarbons, total	mg/kg			2)
29	PAH (polycyclic aromatics) after EPA	mg/kg			2)
30	PCB, polychlorinated biphenyls	mg/kg		< 50	2)
31	ammonia potential	ppm		< 50	
32	calcium	Ma-%		EZE*	9)
33	chlorine	Ma-%		EZE*	9)
34	free lime	Ma-%		EZE*	9)
35	potassium	Ma-%		EZE*	9)
36	sodium	Ma-%		EZE*	9)
37	sulfate	Ma-%		EZE*	9)
38	for further requirements, see point 38 below				

**EZE: case-by-case decision*

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1. Water content depending on the type of waste.
2. These parameters are only to be analyzed if there is a suspicion based on the origin of the substance/genesis.
3. If the requirements of the backfill regulation are exceeded, the priority of metal recovery must be checked.
4. For dusty waste, the parameters are determined in the grain fraction < 125 µm, otherwise in the original substance.
5. The TOC is basically for limiting the organic components, to analyze combustion/flue gas cleaning residues as an equivalent for the activated carbon content (limit value 15% activated carbon according to TR backfilling).
6. If Cr tot. < detection limit or < 10 mg/kg, then the analysis of the chromium trioxide content can be omitted. Further substance-specific relevant parameters are to be analyzed and checked according to the genesis of the individual waste.
7. If silicon dioxide > 2%, then ... (Statement IGF Institut für Gefahrstoff-Forschung)
8. Exceeding the value is permissible under the condition to be determined in the individual case that it is not due to waste components that lead to dangerous gas formation or an increase in the fire load in the mine building
9. are to be determined for dusty waste

Remark

For some parameters, the most dangerous toxicological compounds were used to determine guideline values. In individual cases, the actually existing connections are determined and evaluated.

Backfilling

Suitability requirements for input waste for backfill may under emplacement conditions:

- not be explosive or potentially explosive
- not be flammable, not self-igniting and not self-combustible, not cause unacceptable concentrations of dust at the workplace
- not form toxic and explosive gas mixtures (gas-air mixtures), not be radioactive (not increased compared to ambient radiation), not contact and be toxic for breathing
- non-reactive against salt rock, do not release liquid
- not be contaminated with pathogens of communicable diseases, not have a penetrating odor

Deliveries must not contain any foreign contaminants such as household waste, wood, plastic, paper, etc.!