



Omnia subiecta sunt naturae.

Innovative stabilization of hazardous waste ENVIROMIX®

EnviroMix[®] technology

- Technology of chemical fixation and solidification (CFS).
- Technology based on mineral components, neutral for environment.
- EnviroMix[®] -solves problems with wastes most difficult to handle.
- EnviroMix[®] process offers best performance (over 95% leaching reduction) in utilization of heavy metals, hydrocarbons (e.g. PAH's) and pesticides.

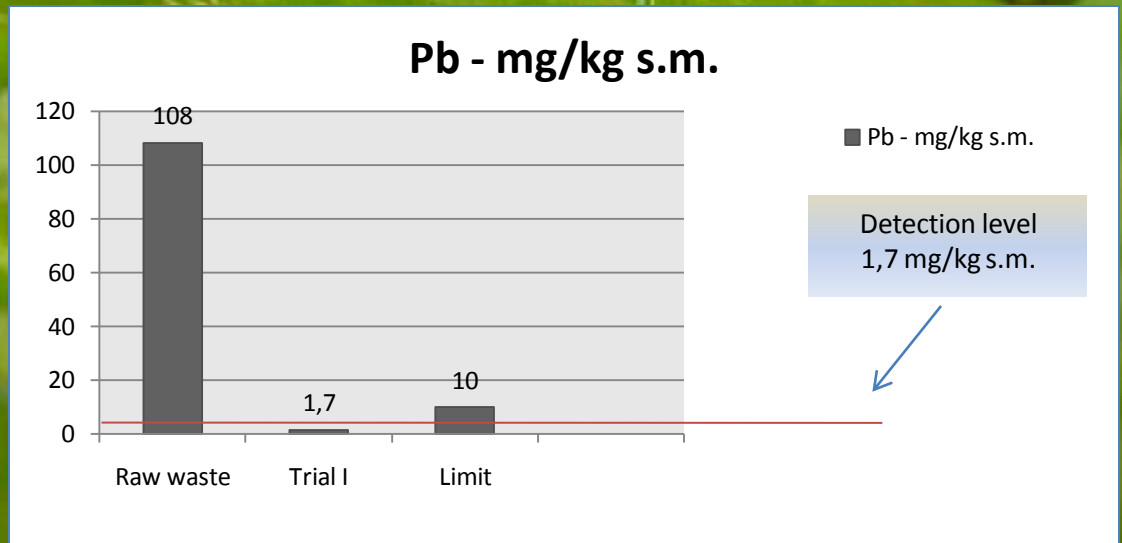
The process principles

- Immobilization of waste through thermodynamically stable phases of minerals with microencapsulation of organic and inorganic waste into mineral structure.
- Mineralization is based on catalytic reaction with the help of secret additives. The catalytic reaction three-dimensionally polymerizes the synthetic mineral matrix which imitates naturally found structures. The bounded waste material is then solidified into a highly resistive to crushing matrix.
- As a result of technology application the waste is turned into artificial rock.
- EnviroMix® is a complete process that generates no additional waste.

Bulletproof results

Case 1 - Industrial sludge from chemical factory

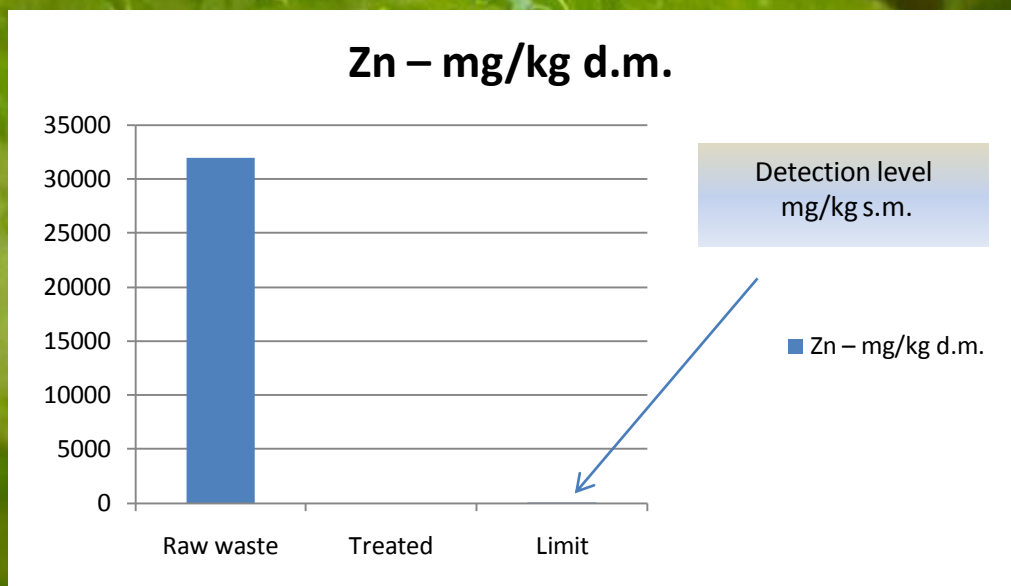
Type of waste:	Leaching (mg/kg d.m.)			Reduction of leaching
	Indicator (mg/kg d.m.)	Raw waste	After treatment	
Mixed sludge containing hazardous substances from industrial waste treatment	Zn	273	<1,86	minimum 99%
	Cu	58,1	<1,52	minimum 97%
	Pb	108	<1,70	minimum 98%
	Hg	306	0,012	minimum 99,99%
	Cr	24	<2,79	minimum 88%



Bulletproof results

Case 2 - Zinc hydrometallurgy sludge from zinc smelter

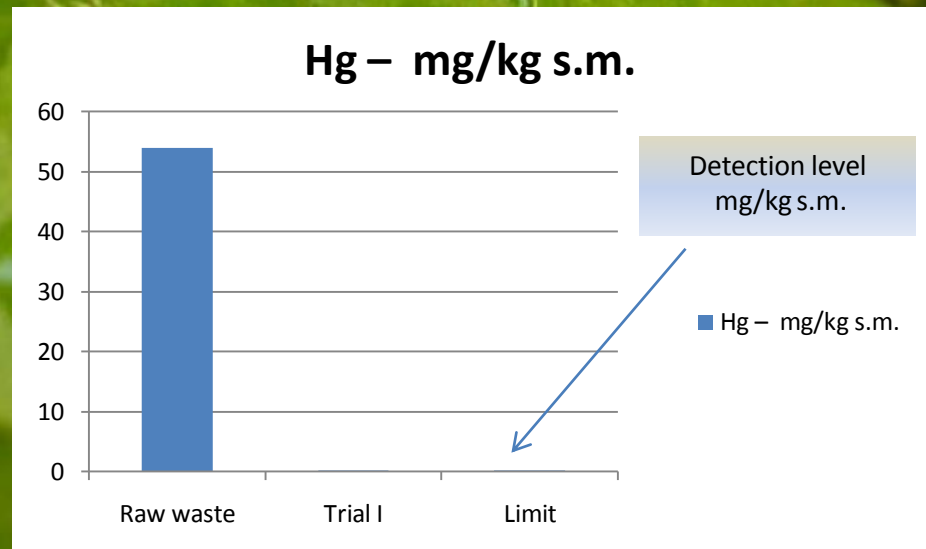
Type of waste	Indicator (mg/kg d.m.)	Leaching (mg/kg d.m.)		Reduction of leaching
		Raw waste	After treatment	
Sludge for zinc hydrometallurgy	Zn	31927	< 0,005	99,998%
	Cd	558,7	0,17	99,969%
	Pb	52,52	6,59	87,40%
	SO4	79647	16214	79,60%
	TDS	118040	23400	80,20%



Bulletproof results

Case 3 - Rubble polluted with mercury

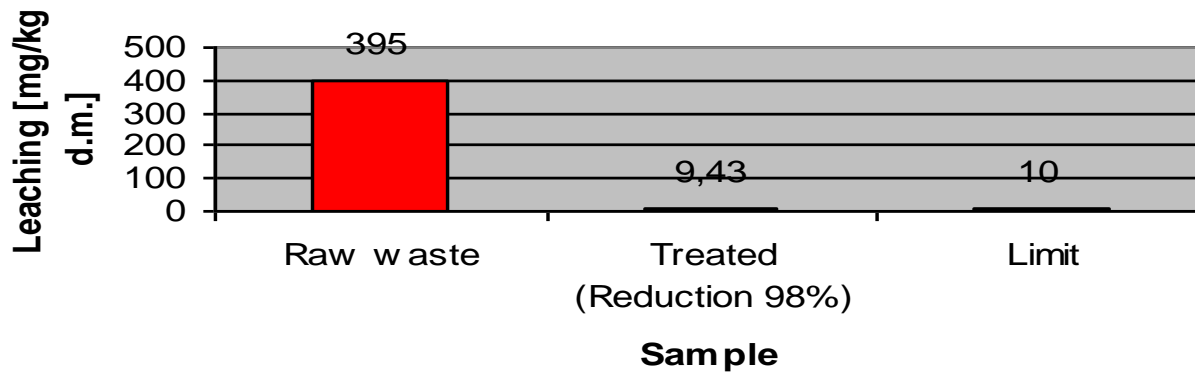
Type of waste	Indicator (mg/kg d.m.)	Leaching (mg/kg d.m.)		Reduction of leaching
		Raw waste max concentration	After treatment	
Rubble polluted with mercury and other heavy metals	Ba	780	1,48	99,800%
	Cr	22	0,65	97,000%
	Hg	54	<0,005	99,99%
	As	4,3	<0.05	98,84%



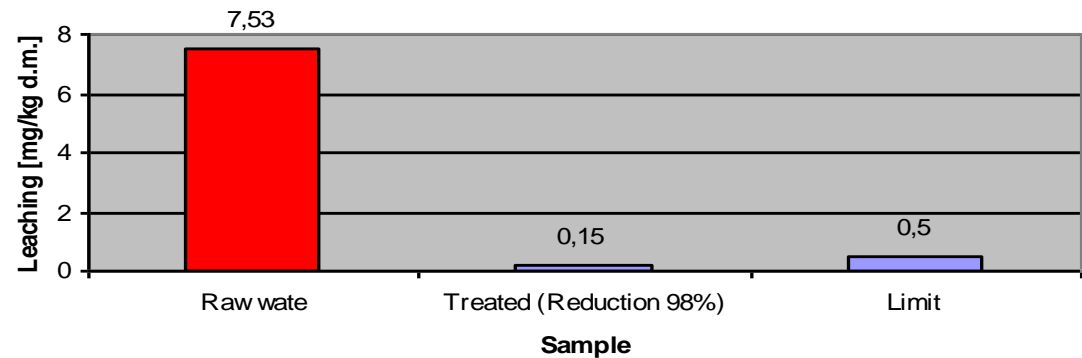
Bulletproof results

Case 4 — Filter and boiler ash from incineration

Reduction of lead concentration in filter and boiler ash



Reduction of selenium concentration in filter and boiler ash



Bulletproof results

Case 5. Contaminated soil – reduction of leaching

- TOC – reduction 92%
- PAH – reduction 87%
- Ba – reduction 99%
- Ni – reduction 99%

Worth to notice!

EnviroMix[®] is the first technology to successfully treat all types of waste shown above.

Technical equipment

- Innovative character has nothing to do with technical equipment (is supported by everyday technical equipment).
- Innovation lies in chemical and physical processing which occurs during waste treatment.
- For waste processing standard equipment easily available in the market is used.
- Available efficiency of one processing unit reaches up to 1000 tons per day

Standard equipment – Continuous Ploughshare Mixer



Technology performance

EnviroMix® is registered in European Patent Office No EP09461501.0 and US Patent and Trademark Office (12/551,935)

EnviroMix® is registered in the European technology database Enterprise Europe Network.

Advantages of EnviroMix®

- No thermal processing or costly storage of hazardous waste
- High resistance to leaching, even under unfavorable environmental conditions (e.g. acidic environment).
- Low stabilizing material consumption which guarantees highly economical processing.
- Various types of waste can be transformed into building materials.
- EnviroMix® process can mix hazardous waste or sludge with post-processing water (including salty waters).

Independent verification

The technology has been tested by many independent laboratories and was found to be in compliance with strictest environmental legislation of the world

Ecotech Polska is supported by the Ministry of Environment RP as the best environmental technology (GreenEvo).

Major competitions of the market

- Cement and lime immobilization (high volume added, leaching with time especially in acid environment, problematic application in salty environment).
- Sorbents (poor resistance with time against leaching, problematic and expensive management of used sorbents which are becoming hazardous waste).
- Organic binders (expensive, difficult to application, can be hazardous for environment).

Major competitions of the market

- Incineration (extremely expensive, doesn't solve the problems – heavy metals stay in generated ashes).
- Land disposal (impact on environment, expensive, can be problematic in case of large volume of waste)

Conclusion

EnviroMix[®] is the best available solution on the market today for hazardous waste treating like contaminated soil and sludge or other hazardous waste based on mineral matrix.

Ready when you are

We would be happy to proof outstanding performance of our technology by treating sample of the waste in question.

GREENEV©
TECHNOLOGY ACCELERATOR



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