

Terra-Bond™ Treatment Technology: Stabilization of Hazardous Waste



Realizing the Full
Potential of Resources

A member of the
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Hazardous waste materials are a serious environmental liability, with few alternatives for long-term, effective treatment and storage.

Pildysh Technologies Inc. has developed a proprietary, patented, thermoplastic sulfur-based cement technology, called Terra-Bond™, for encapsulating and stabilizing hazardous wastes. The Terra-Bond™ process converts toxic and hazardous wastes into durable, non-leachable, benign pellets for safe and cost-effective disposal. The innovative stabilization process is a cost-effective physical process, eliminating the significant capital and operating costs required for conventional hazardous waste treatment.



Compared to conventional Portland cement-based stabilization technologies, Terra-Bond™ has the following advantages:

- Binder costs are significantly reduced as sulfur is a massive waste material
- More efficient binder as it can stabilize 2.5 times more waste
- Rapid strength gain as within minutes of cooling, 90% of ultimate strength is achieved
- Compatible with almost all wastes and not dependent on chemical processes, such as hydration, which could be impacted by contaminants
- Greater chemical and physical resistance
- 20-30% lighter and therefore reducing costs even further

The Terra-Bond™ technology has been developed and tested on several hazardous wastes, including:

1. Arsenic contaminated mining waste containing 15-20% (by mass) arsenic trioxide
2. Waste industrial sludge containing a cocktail of metals
3. Pesticides, including pp-DDT, -DDD, and -DDE.

The Terra-Bond™ pellets performed extremely well in independent, third-party leachate testing*, results shown in the table: (*BC Waste Management Act: Special Waste: BC Reg. 63/88, Schedule 4: Leachate Extraction Procedure (LEP))

Pildysh Technologies Inc. is a specialized materials engineering and product development company, and a member of The PILDYSH Group of Companies. The PILDYSH Group, through other member companies, has complete capabilities for technical research and product development (Pildysh Technologies Inc.), manufacturing and distribution of proprietary materials (Cementec Industries Inc.), and plant engineering and equipment design and sales (Sul-Terra Power Corp.). Terra-Bond™ technology is also suitable for stabilization of baghouse or precipitator dusts, mining waste, industrial slags, tailings, fly ash, produced sand, and other industrial contaminants.

Please contact Pildysh Technologies Inc. for more information.

Waste Material	Metal	Conc. Before Stabilization (ppm)	Leachate After Stabilization (ppm)	Criteria (ppm)
Mining Waste	Arsenic	150,000 - 200,000	1-3	n/a
Waste Industrial Sludge	Arsenic	1250	<0.2	20
	Chromium	107	<0.01	100
	Lead	482	1.11	100
	Mercury	413	<0.1	1
	Selenium	5	<0.2	3
	Thallium	3.74	<0.05	1
Pesticides		3000	<0.3	1

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