



Waste Solidification Polymers
Advanced Chemical Solutions



One name. Nine companies.
Thousands of innovative solutions.

Kroff, Inc. is an agile and responsive process chemicals, water and wastewater treatment company with industry-leading expertise and experience. We engineer solutions based on operational challenges and adapt our products and processes to meet the needs of each customer. That means our customers can stay focused on their business.

Kroff Chemical Company's newly formulated waste solidification polymers enable hazardous waste producers, waste treatment facilities and landfill sites to solidify both water-based and oil-based liquid waste.

By replacing bulk materials that simply absorb hazardous liquid waste with a relatively small amount of coagulation chemicals, Kroff can help companies safely dispose of waste more cost efficiently.

When introduced into liquid waste, the polymers solidify the liquid and suspend any pollutants so they are no longer permeable.

Our advanced technologies and skilled personnel make Kroff a strategic partner that enables companies dealing with hazardous waste to improve results, reduce costs and ensure regulatory compliance.

We serve as a single point of contact for chemical and water process needs.

Waste Solidification Polymers

Kroff Chemical Company offers four waste solidification products, including standard and high-performance formulations for both water-based and oil-based hazardous waste.

WATER-BASED WASTE

Optimal Conditions

- Streams with aqueous component
- Streams of pH >4
- Low sodium streams
- Petroleum and water sludge mixtures

OIL-BASED WASTE

Alcohols & Ethers

- Butanol
- Ethanol
- Glycol
- Isobutanol
- Propanol
- Methanol
- Phenol

Solvents

- Acetone
- Benzene/benzoil
- Bromoform
- Chloroform
- Cyclohexane
- Hexane
- Ketones
- Naphta
- Toluene
- Varsol
- Xylenes

Hydrocarbons

- Bunker fuels
- Crude oils
- Gasoline/diesel
- Heptane
- Jet fuels
- Kerosene
- Motor oil
- Paraffins/alkanes
- Petrol
- Styrene

Insight. Flexibility. Innovation.

Kroff's proprietary solidification polymers can remediate hazardous waste at multiple points in the waste stream to save money on material, transportation and disposal costs.



Hazardous Waste Producers



Waste Treatment Facilities



Landfill Sites

Hazardous Waste Producers

Manufacturing facilities often pay upwards of \$0.70 per gallon to transport hazardous waste long distances to specialty treatment facilities or landfill sites.

Kroff specialists can assess a facility's hazardous waste removal systems to determine if treatment by polymer solidification is a safe, compliant and cost-efficient alternative.

MICRO CASE STUDY #1

Operational Challenge

Metal fabrication company using costly evaporation method to eliminate 500,000 gallons of waste per year.

Chemical Solution

Kroff determined 2.5-3% ratio of solidification polymer to waste would treat waste and save significantly over cost of BTUs to evaporate.

MICRO CASE STUDY #2

Operational Challenge

Plating company using ferric chloride in bronze etching process and transporting hazardous waste hundreds of miles for treatment.

Chemical Solution

Kroff enabled customer to isolate hazardous from non-hazardous waste and ship to local treatment facility.



Waste Treatment Facilities

Remediation and waste stream contractor facilities count on Kroff's solidification polymers to treat liquid waste in a manner that is not only safe and compliant with environmental regulations, but cost-efficient.

Solidification polymers reduce the cost per gallon of waste treated and save money on transportation and disposal by reducing the amount of material needed to treat waste.

Conventional Treatment	Kroff Treatment
1,000 Pounds of Waste	1,000 Pounds of Waste
+ 700 Pounds of Treatment Product	+ 30 Pounds of Treatment Product
<hr/>	<hr/>
1,700 Pounds of Haul-Off Waste	1,030 Pounds of Haul-Off Waste

Landfill Sites

Solidification products like auto fluff and saw dust act like sponges and absorb waste. These products add to landfill volume and take more time to administer.

Kroff solidification polymers are effective at 1-4% the volume of waste, compared to 70% for conventional absorption materials.

Also, any pressure on conventional absorption materials will cause hazardous waste to release and increase leachate. Kroff solidification polymers do not release waste.



Large-scale solidification pit.



Tim Laube
Kroff Chemical Company
tlaube@kroff.com

One North Shore Center
12 Federal Street • Pittsburgh, PA 15212
Phone: 412-321-9800 • Fax: 412-321-9802

www.kroff.com