



***ADT***

**Environmental Solutions LLC**



Provides state of the art stabilization technology along with hazardous waste management solutions to industrial clients throughout the World.

# *Services*



- **Soil Stabilization**
- **Hazardous Waste Site Clean Up**
- **Generator Waste Management**
- **Waste Transportation and Disposal**

# ADT SMMS Stabilization

- **We can take** heavy metals in soil, sludge or sediment and stabilized for 30 to 60 percent less than conventional means.
- **We can perform the work with** little increase in weight or volume.
- **We can** treat not just one heavy metal type but multiple types, simultaneously.
- **We can allow** you to be certain of cost, scheduling, analytical results, and treatment longevity.

# What is ADT Stabilization?

A body of scientific knowledge combined with field experience applied in ambient conditions to convert heavy metals from leachable (toxic) metallic and oxide forms into environmentally stable mineral and other chemical forms.

# Not all stabilization are created equal

Other forms of stabilization like pozzolonic (Silica based) essentially encapsulates heavy metals. True ionic or anionic change (treatment) never takes place.

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There are a number of variations on the market but fail in consistency, restrictive in application, and do not evoke a true chemical change.

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Traditional stabilization techniques have been confined to off site treatment facilities and do not lend to complex waste types or small quantities.

# Advantages

**Cost**

**Performance**

**Range of Application**

**Consistency**

**Materials Handling**

**Compliance**

# Economics



## Standard Stabilization Associated Costs

Purchase of bulk additives, bulk delivery and storage systems, purchase of large bulk handling equipment and systems, time to process contaminated material and additives, site labor and off site transportation and disposal fees.



## SMMS Stabilization Associated Costs

Purchase of far less bulk additives, less bulk delivery and storage, singular purpose equipment systems, less site labor, and typically, due to longevity of treatment, far less and possibly no transportation and disposal costs.

# Performance

mg/L TCLP

<b>ARSENIC</b> <b>AS</b>	<b>LEAD</b> <b>PB</b>	<b>CHROME</b> <b>CR</b>	<b>ZINC</b> <b>ZN</b>
Woodtreating 30 ↓ <0.5	Smelters 130 ↓ 0.3	Mining 55* ↓ <0.2**	Mining 30 ↓ 0.15
Military 85 ↓ <0.01	Mining 125 ↓ <0.12	Plating 65* ↓ <0.05**	Anodizing 430 ↓ <0.4
Mining 110 ↓ <0.1	Scrapyards 170 ↓ <0.12	Metalworks 70* ↓ <0.05**	Galvanizing 90 ↓ 0.2

\*Cr<sup>+6</sup>    \*\* Total Cr

# Range of Application

SMMS Stabilization can be applied in a variety of ways

- Stockpiled materials through mixing and re-stockpiled or cell placement
- Added to a materials process line prior to waste generation
- Applied in either liquid or solid form over large surfaces areas for tilling or penetration
- Applied in one or more phases addressing single or multiple environmental or health related issues.

# Processing Flexibility

*Consistent  
Performance under  
any Condition*



- In conjunction with excavation
- Effectively treats debris & oversize materials
- Effective on large surface areas with minimal disturbance.
- Works on wet or dry material with varying pH
- Not effected by the presence of other contaminants (e.g. hydrocarbons)

# Treated Material Characteristic's

- Sampled immediately for confirmation testing.
- Safely staged for later use as fill, and site re-contouring.
- Repeated handling without chemical breakdown.
- Never becomes monolithic
- Segmental staging based on contaminant type.
- Amenable to future re-processing



# Material Handling Advantage



Contaminated media can be processed in a dry non-monolithic form to minimize disposal costs or with higher moisture content to minimize dust and enhance material handling characteristics

# Operational Advantages

- Rapid mobilization and demobilization
- Conductance without interference to ongoing production or operations.
- Minimum space requirements
- Minimum labor
- Single event or phased project approach
- Minimum environmental disruption



# Comparison Summary

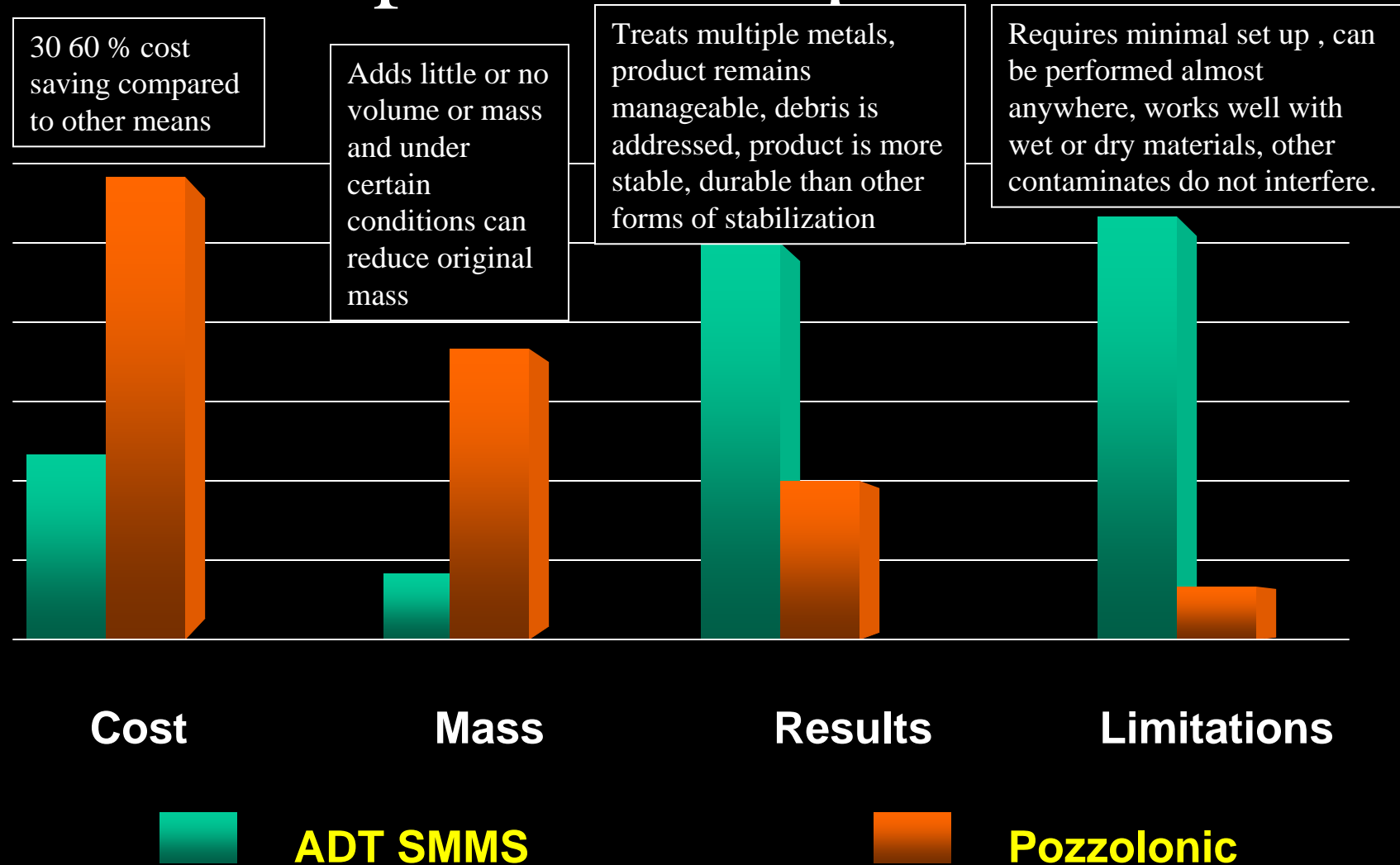
## Pozzolanic Technology

- Restricted to ex-situ processing
- Multiple handling steps
- Mass and volume increased by 15-40% or more
- Co-treatment problematic in most situations
- Limited disposition choices
- 7+ day “curing” period
- Concern about longevity and regulatory compliance
- Additional transportation and disposal costs

## ADT SMMS Technology

- In-situ, ex situ, in-line options
- Single step processing
- Additives represent < 5% original mass
- Co-treatment of ionic and anionic metal species
- Range of disposition options
- Treatment is instantaneous
- Real and permanent treatment has occurred
- Significant reduction or elimination of additional transportation or disposal issues

# Graphical Comparisons



# Why **ADT** Environmental Solutions

- **ADT** staff has treated, excavated, transported and disposed of over one and one half million tons of RCRA and state regulated waste without incident.
- **ADT's** staff has consistently completed large scale federal and state superfund projects and numerous private contracts safely, compliantly and within budget.
- **ADT** is knowledgeable in EPA, OSHA, and DOT aspects of compliance and protocols.

# Solutions

- Address short and long term environmental and human health issues.
- Work with local leaders to develop cost effective alternatives to high cost clean up.
- Minimize disturbance to ecosystems and wildlife habitats.
- Immediate corrective actions.
- Minimal federal involvement.

# What it Takes to Make it all Work

- Awareness of the regulatory goals for each waste type.
- Good material characterization.
- Ability to achieve consistent results for small and large scale or complex projects.
- “Turnkey” project experience and approach.
- Skilled, knowledgeable personnel.

# Getting Started

1. Owner . . . provides soil composition data & representative samples
2. Owner . . . provides info on site characteristics and conditions
3. Owner . . . specifies performance objectives
4. ADT . . . performs bench scale simulation and analyzes treated samples
5. ADT . . . provides duplicate samples for verification testing
6. ADT . . . provides written reports/proposal for evaluation and discussion



# *ADT*

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