



## MAKE CADMIUM Non-HAZARDOUS

### MBS® ... A PERMANENT & COST EFFECTIVE SOLUTION TO CADMIUM CONTAMINATION

The US Department of Health & Human Services has determined that cadmium compounds may be carcinogenic. Lung cancer is one potential result of chronic inhalation of fine-particle cadmium compounds, particularly cadmium oxide, which readily dissolves in the body. Ingestion of the compounds in food results from the fact that plants and fish absorb and retain cadmium, and hazardous levels can be reached when consuming food from areas where cadmium contamination has been generated at industrial sites or by the use of phosphate fertilizers. Adverse health results from long-term, high-level ingestion of cadmium include kidney damage and kidney stones, and debilitating effects on bones and the skeletal structure.

Cadmium compounds are primarily released into the environment by copper, lead and zinc smelters and municipal incinerators, and by the application of phosphate fertilizers or sewage sludge to soils. The most common uses of cadmium compounds are in batteries, metal plating, pigments and plastics. However, inadequate disposal of waste containing cadmium at industrial sites in past decades has often contaminated the lands and groundwater. Although small amounts of naturally occurring cadmium are present in many foods, increased levels in the soil, water or air of the environment in which they originate caused by industries or phosphate fertilizers are now considered to be highly hazardous.

To combat this, the U.S. Environmental Protection Agency (EPA) promulgated stringent regulations regarding leachable concentrations of hazardous metals in August 1998. The new Universal Treatment Standards (UTS) criteria reduced the leachable cadmium limit to 0.11 mg/l (from 1.0 mg/l under prior RCRA legislation). This has exacerbated the difficulty and expense of making cadmium non-hazardous via traditional remediation methods which entail encapsulating contaminated soil or waste in a solid cementitious block, because increased volumes of cement are commonly needed to meet the new UTS limit for cadmium.

**Solucorp Industries' patented Molecular Bonding System (MBS®) is proven to cost-effectively and permanently prevent leaching of cadmium compounds contamination in soils and industrial wastes without solid block containment - MBS does not change the treated material's physical characteristics.**

#### MBS TREATMENT RESULTS ON HAZARDOUS CADMIUM COMPOUNDS

( < Indicates results below the specific testing laboratory's detection limits )

Contaminated Matrix	Untreated Cadmium TCLP (mg/l)	MBS Treated Cadmium TCLP (mg/l)	U.S. EPA's UTS TCLP Limit (mg/l)
Soil - Sandy	115.0	< 0.10	0.11
- Silty	67.6	< 0.10	0.11
- Sandy Silty	2.4	< 0.01	0.11
Baghouse Dust	13.3	< 0.03	0.11
Baghouse Dust	4.1	< 0.005	0.11
Smelter Waste	1.8	< 0.05	0.11