

## Immobilisation and Solidification

The DoloMatrix group of companies provides specialist services in the immobilisation of inorganic and organic contaminants in a wide variety of situations.

Chemical Immobilisation is the rendering of a contaminant into a non-leachable and non-bioavailable form. Solidification is a process in which a physical matrix of a waste is solidified via the addition of a pozzolanic agent.

### Dolocrete®

Dolocrete®, a patented, magnesium oxide-based binder, is employed exclusively by Entech Industries in a wide range of solidification applications. A great number of hazardous waste types are effectively treated using Dolocrete®, including:

- Heavy metal-contaminated soils and sludges
- Total petroleum hydrocarbon (TPH) contaminated soils and sludges
- Coal tars and soils contaminated by coal tars
- Cyanide and fluoride contaminated soils and sludges
- Pesticide contaminated soils
- Acid sulphate soils

The technology has been used very successfully to treat wastes generated by:

- The petroleum refining and petrochemical industries
- Smelting, metallurgical and electroplating plants
- The mining industry
- Rifle ranges
- Chemical treatment
- Paper manufacturing industries

Dolocrete® is also extremely effective in the treatment of sludges from rivers, harbours and lakes.

### Chemical Fixation

Entech Industries and DoloMatrix have extensive experience in the all aspects of chemical fixation projects and have successfully completed a very substantial number of such projects, a sample of which are summarised in the table below:

#### Project

#### Services Provided

#### Outcome

Coal tar contaminated soils from Steel  
Street gasworks

Developed and implemented a chemical  
fixation and solidification treatment technology

The project resulted in NSW DECC issuing an  
Immobilisation Approval and the material being successfully treated and  
disposed of in accordance with the approval

Mine arsenic trioxide waste

Developed and implemented a chemical

fixation and solidification treatment technology

The project resulted in WA DEC issuing an Immobilisation Approval and the material being successfully treated and disposed of in accordance with the approval

Coke oven gas residues (PAH, B(a)P, CN, Hg, TPH)

Developed and implemented a chemical fixation and solidification treatment technology

The project resulted in NSW DECC issuing an Immobilisation Approval and the material being successfully treated and disposed of in accordance with the approval

Coal tar contaminated soils (PAH's, CN and phenols)

Developed and implemented a chemical fixation and solidification treatment technology

The project resulted in NSW DECC issuing an Immobilisation Approval and the material being successfully treated and disposed of in accordance with the approval

Char Waste

(PAHs including B(a)P, and TPH)

Developed and implemented a chemical fixation and solidification treatment technology

The project resulted in NSW DECC issuing an Immobilisation Approval and the material being successfully treated and disposed of in accordance with the approval

AFU waste (TPH, PAHs and BTEX)

Developed and implemented a chemical fixation and solidification treatment technology

The project resulted in NSW DECC issuing an Immobilisation Approval and the material being successfully treated and disposed of in accordance with the approval

Diamond mine waste (tetrabromoethane, tribromoethane)

Developed and implemented a chemical fixation and solidification treatment technology

The project resulted in NSW DECC issuing an Immobilisation Approval and the material being successfully treated and disposed of in accordance with the approval

Arsenic and lead contaminated soil and tailings from a former silver mine

Performed a chemical fixation and solidification project for the treatment of of arsenic and lead contaminated soil

The project resulted in NSW DECC issuing an Immobilisation Approval and the material being successfully treated and

disposed of in accordance with the approval

Pesticide contaminated soil,

chlorpyrifos, triclopyr, picloram, fluoxypyr, 2,4-D, xylenes, trichloroethanes

Developed a chemical fixation and solidification treatment technology

The project resulted in NSW DECC issuing an Immobilisation Approval and the material being successfully treated and disposed of in accordance with the approval

Coal tar contaminated waste from Abbotsford gas works (B(a)P, PAHs)

Developed and implemented a chemical fixation and solidification treatment technology

The project resulted in NSW DECC issuing an Immobilisation Approval and the material being successfully treated and disposed of in accordance with the approval

Copper chrome arsenate (CCA) waste (As, Cr6+)

Developed and implemented a chemical fixation and solidification treatment technology

The project resulted in NSW DECC issuing an Immobilisation Approval and the material being successfully treated and disposed of in accordance with the approval

Rare earth contaminated residues from a mineral processing operation in Malaysia

Developed a chemical fixation and solidification treatment technology

The application will allow the company to reuse the treated residue for a geotechnical stabilisation application

Mercury contaminated brine Waste

Developed a chemical fixation and solidification treatment technology

The project resulted in NSW DECC issuing an Immobilisation Approval

Mercury contaminated soil

Developed and implemented a chemical fixation and solidification technology for the proposed treatment of mercury contaminated soil

Commercial scale treatment was undertaken.

Fluoride impacted aluminium wastes

Prepared a NSW DEC Immobilisation Approval application

This resulted in NSW DEC approving an Immobilisation Approval and waste being disposed of in NSW

Electric arc furnace dust (Pb, Cd)

Developed a chemical fixation and solidification treatment technology

The project resulted in NSW DECC issuing an Immobilisation Approval

2000 tonnes of coal tar contaminated soil from the former Katoomba gas works

Developed and implemented a chemical fixation and solidification treatment technology

The project resulted in NSW DECC issuing an Immobilisation Approval and the material being successfully treated and disposed of in accordance with the approval

Lead contaminated soil

Developed a chemical fixation and solidification treatment technology

The project resulted in NSW DECC issuing an Immobilisation Approval

Liquid Waste Treatment facility

Prepared an EPA Immobilisation Approval application for Transpacific Industries for their

This resulted in DECC issuing a draft Immobilisation Approval for the treatment of the residues generated from the treatment facility

Coal tar impacted soils

Developed and implemented a chemical fixation and solidification treatment technology for the treatment of coal tar impacted soils

The project resulted in NSW DECC issuing an Immobilisation Approval and the material being successfully treated and disposed of in accordance with the approval

200 tonnes of nickel contaminated filter cake

Developed and implemented a chemical fixation and solidification treatment technology

The project resulted in NSW DECC issuing an Immobilisation Approval and the material being successfully treated and disposed of in accordance with the approval

Polyaromatic impacted pitch residues from the aluminium industry

Developed and implemented a chemical fixation and solidification treatment technology for the treatment of 200 tonnes of polyaromatic impacted pitch residues from the aluminium industry

The project resulted in NSW DECC issuing an Immobilisation Approval and the material being successfully treated and

disposed of in accordance with the approval