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Rawell Membrane for sludge retention pit lining

Rawell Environmental Limited, based in the UK, manufactures - and supplies worldwide - a natural sodium bentonite-based environmental lining system for control of liquids in hydrocarbon containment applications.

Rawmat HDB lining membranes can be used in new build tank farm construction, providing secondary containment barriers in a number of applications within tank storage facilities and refineries.

Additionally, the membranes can be used as part of upgrading to bring existing sites within statutory regulations. The system provides flexible, long term protection to the floors of both earthen and concrete lined bunds, for protection beneath the tanks and for the lining of storage lagoons and fire ponds.

The system is a unique patented form of Geosynthetic Clay Liner (GCL), containing a prehydrated sodium bentonite core sandwiched between two geotextile carrying layers. Supplied in rolls the Rawmat HDB composite provides a thin, easy to lay, carpet-like barrier with permeability coefficient in hydrocarbon based liquids $<1 \times 10^{-11}$ m/sec. The membrane offers a cost effective alternative to concrete, compacted clay or other membrane systems. It has been extensively tested and proven to be unaffected by long term exposure to hydrocarbons.

Rawell's distributors in Australia, Xypex in conjunction with civil construction contractors JMB Industrial Services Pty Ltd, identified an opportunity for the use of its products to line a

sludge retention pit and waste water treatment pond for a gas refinery in the state of Victoria. Stage one of the project required 3,600 sq m of Rawmat HDB Membrane to be installed (as a single layer system) to line a retention pit for temporary storage of material to allow for anaerobic decomposition prior to being removed as suitable landfill material. Stage two of the project required 6000sq m of the membrane to be installed (as a single layer system) in an upgrade to the waste water treatment system at the plant.

Installation was carried out by JMB Industrial Services, with a local geotechnical consultancy firm completing specification and design of



Installation of the Rawmat HDB lining system



the lining system as well as implementing on-site QA/QC.

Installation requires joints to be overlapped a minimum of 150mm; Rawpaste Mastic is applied to the joint, for total hydrocarbon containment. In this instance a 55/30 geogrid was then installed over the Rawmat HDB on the slopes as additional reinforcement prior to placing and compacting 300mm of sandy clay to complete the lining system. As this pit will be cleaned out periodically, an access ramp was installed with additional reinforcement to improve access for vehicles and machinery in and out of the pit.

Rawmat HDB is being utilized in a variety of other hydrocarbon based applications around the world. It is currently being installed as the secondary containment lining system by Exxon Mobil on the Parallel Train project at Jurong Island in Singapore. BP, Shell and Conoco Phillips also have projects using Rawmat HDB across Europe.

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www.rawell.com

www.rawell.com.au

www.jmbindustrialservices.com