

## App. 5 Watertight protection of storage sites

Waste storage facilities should be systematically accompanied by a system to ensure that they are watertight in order to reduce the impact on the environment and in particular to prevent infiltration and contamination by run-off.

Watertightness can be ensured using different types of materials, in general geomembranes or plastic films.

Geomembranes are flexible materials with standardised application techniques and conditions. Those that are recommended for hydrocarbons are the type HDPE (thickness of 1.5 to 2mm, in rolls of 100m with a width of 5 to 10m). Geomembranes are made watertight by sealing, carried out by a specialist.

Plastic films are tarpaulins used in particular in agriculture or construction, with a thickness of generally less than 0.25 mm. They are much more flexible, easier to handle, less expensive and more widely available (agricultural cooperatives, construction and public works material wholesalers) than geomembranes. They are however less resistant to impact, ripping and tension. Several layers should therefore be used together, along with geotextiles(\*).

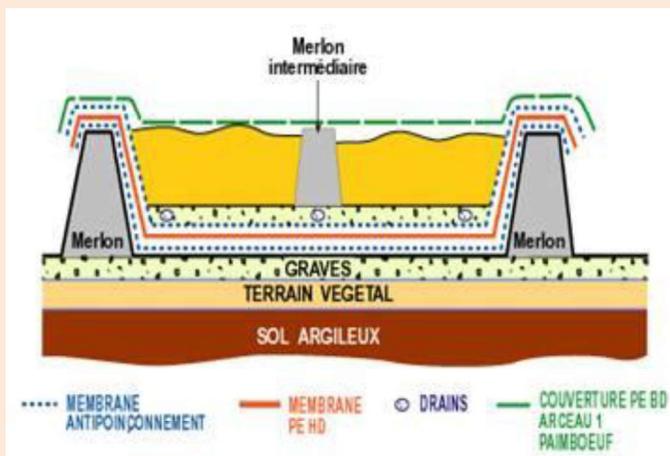
When the aim is simply to form an anti-contamination barrier under watertight tanks or skips, use an ordinary plastic film. Make sure to prepare the ground accordingly. Lay a geotextile between the ground and the plastic film to avoid perforation of the film.

In the case of bulk storage of pastes, geotextiles can be laid without sealing or sticking but a quadruple covering should be ensured by folding two sheets one over the other. Place a geotextile as an under layer to reduce piercing and cross over successive layers.

Intermediate and final storage pits should be made thoroughly watertight, taking into account specific technical aspects (choice of geomembranes, sealing of strips of textiles...). Pits should be lined from the bottom to the top with an impenetrable geotextile, a hydrocarbon-resistant geomembrane, a second impenetrable geotextile and a layer of sand for protection against the traffic of heavy duty machinery.

(Source: Cedre)

\*Geotextiles are synthetic fabrics, with a weight of 300 to 500 g/m<sup>2</sup> which come in rolls of 100 m and different widths (3, 4, 5m or even 6 m), used as under layers to reduce impact on geomembranes and watertight films.



Long term storage facility for the ERIKA oil spill waste (Donges, FRANCE)