



GP<sup>®</sup> H

## Installation Guidance

GP<sup>®</sup> H is a high performance, loose laid hydrocarbon barrier, manufactured from HDPE (1.0mm thickness). The membrane has a high chemical resistance and is ideal for use on sites affected by hydrocarbon and VOC contamination. It will also effectively prevent the ingress of a number of other harmful gases, including radon, as well other toxic industrial contaminants.

GP<sup>®</sup> H membranes are fully weldable, category 2 attenuation grade liners fully conformant to C697, C753 and BS7533-13 (Code for Sustainable Homes 2006). If adhesive accessory to GP<sup>®</sup> membrane systems

GP<sup>®</sup> H provide resistance to root penetration from invasive species, including (but not limited to): Japanese Knotweed, Bamboo, Mustard Seed, Meadow Grass, Ivy, Hybrid poplars, Willow, Elm, Maple, Mare's Tail, ground creeping plants, edible plants and aquatic plants..

GP<sup>®</sup> H barrier characteristic properties:

- High Chemical Resistance
- High resistance to Ground Gasses
- Long Term Durability
- Compatible with all building materials
- Manufactured to meet the most up to date British Standards and guidance.

<b>Thickness</b>	1.0 mm or 1.5 mm
<b>Width</b>	5.1 m or 2.5 m
<b>Length</b>	1.0 mm in 100 or 35 m 1.5 mm in 100 or 25 m
<b>Density</b>	0.939 g/cm <sup>3</sup>



## Typical Applications:

- Attenuation tank encapsulations (SUDS)
- Containment and cut-off trenches
- Pond/Lagoon Lining
- Radon Barrier
- Porous sub-base installations
- Structural waterproofing
- Landfill Base/Capping
- Invasive Weed Barrier

## Substrate Preparation:

Substrates for installation of the GP<sup>®</sup> H membrane system need to have sufficient stability to avoid movement during the installation and subsequent construction works. The substrate preparation should include the following:

- A clean, dry, uniform, smooth surface free from debris and detritus, ponding water (damp or slightly wet is acceptable), oil and grease.
- Voids (> 12 mm depth or width) must be filled before the installation of the membrane system.
- Where the substrate contains changes in elevation of >12 mm, or particle protrusions from the substrate exceed 12 mm, a protection fleece should be utilised to protect the membrane from damage from the substrate.
- Generally a sand blinding with a minimum thickness of 30 mm, or a 300TT protection fleece would provide a suitable laying surface in lieu of concrete blinding.

## General Precautions:

- It is recommended that Barrier systems are installed in ambient air temperatures in excess of 5°C.
- Ingress of water into the installation area should be prohibited.
- In all cases, the surface onto which the barrier is to be applied should be smooth, dry, clean and free from debris or detritus material which may cause damage to the barrier.
- In all cases it is recommended the installation of barrier geomembranes is completed by a suitably qualified and accredited installers (NVQ level 2/TWI/CSWIP or equivalent). JUTA UK can offer advice as to suitable/recommended installers.
- Appropriate PPE should be worn at all times during handling, placement and fixing of the barrier.
- Vehicular traffic directly on top of the barrier should be avoided.
- Foot traffic directly on top of the barrier should be restricted.
- Where either Vehicular or Foot traffic is unavoidable, protective measures should be utilised to prevent damage to the barrier. (Use of protection fleece and/or protection boards)
- Smoking, and naked flames are strictly prohibited.



## Geotextile Protection:

The geotextile JUTA UK propose (geoNETEX A PP TT 300 UVLS) - 300TT, is CE marked for protection, Separation and filtration against the following harmonised standards:

- **BS EN 13249:** Geotextiles and geotextile related products. Characteristics required for use in the construction of roads and other trafficked areas (excluding railways and asphalt inclusion).
- **BS EN 13250:** Geotextiles and geotextile related products. Characteristics required for use in the construction of railways.
- **BS EN 13251:** Geotextiles and geotextile related products. Characteristics required for use in earthworks, foundations and retaining structures.
- **BS EN 13252:** Geotextiles and geotextile related products. Characteristics required for use in drainage systems.
- **BS EN 13253:** Geotextiles and geotextile related products. Characteristics required for use in erosion control works (coastal protection, bank revetments).
- **BS EN 13254:** Geotextiles and geotextile related products. Characteristics required for the use in the construction of reservoirs and dams.

- **BS EN 13255:** Geotextiles and geotextile related products. Characteristics required for use in the construction of canals.

- **BS EN 13256:** Geotextiles and geotextile related products. Characteristics required for use in the construction of tunnels and underground structures.

- **BS EN 13257:** Geotextiles and geotextile related products. Characteristics required for use in solid waste disposals.

- **BS EN 13265:2000+A1:2005:** Geotextiles and geotextile related products. Characteristics required for use in liquid waste containment projects.

300TT protection geotextile is also a Class 3 Separator/Filter Geotextile to BS8661: Guidance for specification for basic separation and filtration functions.

It is worth noting, that other geotextiles on the market offered for this function - DO NOT HOLD relevant CE marking for this function, and user is advised caution when considering alternate grades of protection geotextiles for critical barrier materials.



## Jointing and Sealing using Tapes:

Where design service life does not exceed 25 years:

- For taped joints, GP<sup>®</sup> TITAN TAPE (100 mm wide) can be utilised. The GP<sup>®</sup> TITAN TAPE is double sided for ease of use.
- To joint using tapes, ensure the first panel of Barrier is laid on the approved subgrade, and the surface is clean, dry, and free from dust. Begin by peeling one side of the protective coating from the tape, applying the tape along the edge of the roll edge as a guide.
- Unroll the second layer of Barrier ensuring a 100mm overlap, slowly removing the upper layer of protective film from the Tape, and pressing firmly on the taped joint with a silicone roller to remove trapped air. (Note – taped joints have the highest failure rate when tested to ASTM D4437-08:2013 – therefore it is imperative that pressure sealing with silicone roller is implemented).
- Optional: Finish the joint by application of appropriate sealing tape over the joint to provide a smooth finish.

## Jointing and Sealing using Welding:

Where design service life is required to exceed 60 years:

- Before welding work is carried out trials must be completed to determine the operating window for the welding equipment and materials. It is noted that ambient air temperature, power supply and the condition of welding equipment can affect the working window.
- JUTA UK recommends that any heat welding is carried out by a Construction Skills NVQ Level 2 qualified installer, TWI/CSWIP plastic welding accreditation (or equivalent). The membranes should be overlapped by at least 50 mm and care should be taken to ensure a seal between the joint.
- A minimum welded overlap joint of 50mm wide should be achieved - it should be noted that the suitability of the welded joint is defined by the joint integrity, as tested in accordance with C735 (most commonly air lance - ASTM D4437-08:2013), if a welded joint passes integrity testing, it would be deemed acceptable.



## Repairing Punctures:

Should tears, or punctures occur in the membrane, these can be patched using a piece of the same material sized to overlap at least 100mm beyond the extent of the puncture/tear, the lap being bonded accordance with the instructions above and sealed with sealing tape, or welded to provide a continuous sheet.

## Protection:

Suitable protection (geotextile or sand blinding) should be used prior to backfilling on-top of/ around the barrier system to protect from damage and UV degradation.

## Available System Components and Accessories:

The geotextile JUTA UK propose (geoNETEX A PP TT 300 UVLS) - 300TT, is CE marked for protection, Separation and filtration against the following harmonised standards:

- **GP® TITAN TAPE** is a double sided thermoplastic sealant tape with high surface tack suitable for sealing membrane overlap joints. All seam joints should be rolled using a 40 mm silicone seam roller to remove any trapped air and ensure adhesion between the membranes. Rolls sizes: 100 mm x 10 m.
- **GP® Protection Board** is a high density board which are supplied in 3.0 mm x 1.2 m x 2.4 m sizes.
- **GP® Protection Fleece (300TT)** is a 300 g nonwoven geotextile and is supplied in 2 m x 100 m or 6 m x 100 m rolls.
- **Prefabricated Corners and Cloaks** – made to order, various sizes.