



# POWERBASE<sup>®</sup> GAS BARRIERS

EFFECTIVE PROTECTION AGAINST HAZARDOUS GROUND GAS

protecting what matters

TECHNICAL DATA SHEET

Revision 6.6



## Description

POWERBASE is a comprehensive range of geosynthetic membranes for protection against hazardous ground gases and widely used on contaminated brownfield sites.

## Application

POWERBASE membranes are installed under foundations to prevent the ingress of harmful vapours and gases into buildings.

- POWERBASE LOW PERM for low concentrations of Radon, Methane, CO<sub>2</sub>
- POWERBASE MULTIGAS 300 & 500 incorporates aluminium foil barrier layers for high concentrations of Radon, Methane, CO<sub>2</sub>

They are versatile and used for environmental protection, acting as a barrier to contain wastewater and to prevent contamination of surrounding areas, water tables and watercourses.

## Installation

POWERBASE membranes are joined by conventional thermal welding to provide overlapped sealed seams for optimum barrier integrity.

Alternatively, the membranes can be overlapped and joined using single and double-sided POWERBOND adhesive tapes.

## Design Guidance and References:

- EN 13967: Flexible sheets for waterproofing.
- BS 8485: Code of practice for remediation from ground gas in affected developments
- BRE BR 211: Radon. Guidance on protective measures for new buildings.
- BRE BR 414: Protective measures for housing on gas-contaminated land
- NHBC Report: Guidance on Methane and Carbon Dioxide
- NHBC NF94: Hazardous ground gas - an essential guide for housebuilders

### Hydrocarbon & VOC protection

For Hydrocarbon and VOC contaminated soils, please refer to POWERBASE VOC technical data sheet.

## Major Projects



LOW PERM RADON



MULTIGAS 300



MULTIGAS 500



HYDROCARBON VOC



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|                                     | EN 13967:2012<br>+A1:2017 | Test Method                  | POWERBASE<br>Radon, Methane & CO <sub>2</sub> PROTECTION |                         |                         | Unit                                |                                     |
|-------------------------------------|---------------------------|------------------------------|--|-------------------------|-------------------------|-------------------------------------|-------------------------------------|
|                                     |                           |                              | LOWPERM  | MULTIGAS<br>300         | MULTIGAS<br>500         |                                     |                                     |
| Colour                              |                           |                              | Yellow   | Green/Silver            | Green/Silver            |                                     |                                     |
| Thickness                           |                           | EN 1849-2                    | 400  | 400                     | 500                     |                                     |                                     |
| Unit Weight                         |                           | EN 1849-2                    | 372  | 270                     | 380                     | gsm                                 |                                     |
| Mechanical                          | Tensile strength MD   XD  | EN 12311-1                   | 22.4   21.1  | 333   325               | 386   377               | N/50mm                              |                                     |
|                                     | Elongation MD   XD        | EN 12311-1                   | 521   631  | 365   602               | 543   637               | %                                   |                                     |
|                                     | Nail tear MD   XD         | EN 12310-1                   | 327   332  | 279   279               | 329   360               | Newtons                             |                                     |
|                                     | Impact resistance         | EN 12691-B                   | 350  | 175                     | >175                    | mm                                  |                                     |
|                                     | Puncture resistance (CBR) | EN 12236                     | 1.034  | 0.700                   | 0.895                   | kN                                  |                                     |
|                                     | Static load resistance    | EN 12730                     | 20   | 20                      | >20                     | kg                                  |                                     |
|                                     | Temperature               |                              | -30 to +70   | -30 to +70              | -30 to +70              | °C                                  |                                     |
|                                     | Performance               | Hydraulic Resistance         | BS EN 1928   | >2.0                    | >2.0                    | >2.0                                | kPa                                 |
|                                     |                           | WVTR                         | ISO 15106-3  | 0.12                    | 0.001                   | 0.001                               | g.m <sup>-2</sup> .d <sup>-1</sup>  |
|                                     |                           | Permeability CO <sub>2</sub> | ISO 15105-1  | 1022                    | 0.19                    | 0.19                                | ml.m <sup>-2</sup> .d <sup>-1</sup> |
| Permeability Hydrogen               |                           | ISO 15105-1                  |  | 0.78                    |                         | ml.m <sup>-2</sup> .d <sup>-1</sup> |                                     |
| Permeability Hyd. Sulphide          |                           | ISO 15105-1                  |  | <0.07                   |                         | ml.m <sup>-2</sup> .d <sup>-1</sup> |                                     |
| Permeability Methane                |                           | ISO 15105-1                  | 217  | 0.14                    | 0.14                    | ml.m <sup>-2</sup> .d <sup>-1</sup> |                                     |
| Permeability Oxygen                 |                           | ISO 15105-1                  |  | < 0.07                  |                         | ml.m <sup>-2</sup> .d <sup>-1</sup> |                                     |
| Radon Diffusion Coef. (D)           |                           | ISO/TS 11665-13              | 6.4 x 10 <sup>-12</sup>                                  | <1.5 x10 <sup>-14</sup> | <1.5 x10 <sup>-14</sup> | m <sup>2</sup> .s <sup>-1</sup>     |                                     |
| Radon Resistance (R <sub>Rn</sub> ) |                           | (K124/02/95)                 | 61.4   | >60,945                 | >60,945                 | Ms/m                                |                                     |
| *except for weight                  |                           |                              |  |                         |                         |                                     |                                     |
| Roll Size                           |                           |                              | 4.0 x 20   | 2.0 x 50                | 2.0 x 50                | m                                   |                                     |
| Roll Weight                         |                           |                              | 31   | 28                      | 38                      | kg                                  |                                     |
| Pallet Qty                          |                           |                              | 30   | 33                      | 33                      | rolls                               |                                     |

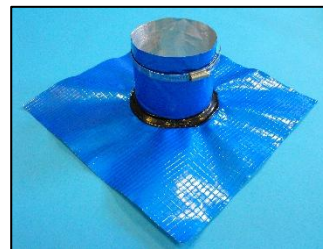
## Other System Elements



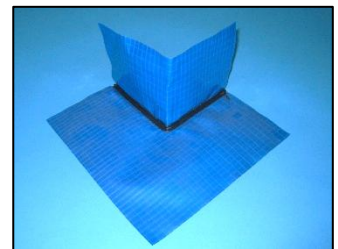
POWERBOND  
jointing tapes



POWERBOND  
sealing tapes



POWERBASE  
Top Hats



POWERBASE  
Corners

Test Results are obtained under laboratory conditions on new material and not under actual usage conditions. Test results only relate to the sample tested. Tolerances +/- 20%. No warranties or assurances of reliability, suitability or fitness for a particular purpose of specimens or data are offered. Assessment of suitability of such material and data for intended use is the sole responsibility of the customer.

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