

## DANODREN GARDEN

DANODREN JARDÍN is a high density polyethylene (HDPE) green nodular sheet bonded by thermofusion to a nonwoven calendered polypropylene geotextile. Its main use is for protection and horizontal drainage.



### TECHNICAL DATA

| TECHNICAL DATA                                | VALUE      | UNIT | STANDARD                     |
|---|------------|------|------------------------------|
| Longitudinal tensile strength                 | 19, -4     | kN/m | UNE EN ISO 10319             |
| Transversal tensile strength                  | 17, -4     | kN/m | UNE EN ISO 10319             |
| Longitudinal elongation                       | 60±20      | %    | UNE EN ISO 10319             |
| Transversal elongation                        | 60±20      | %    | UNE EN ISO 10319             |
| Static puncture resistance (CBR)              | 2,5 -0.5   | kN   | UNE EN ISO 12236             |
| Dynamic puncture resistance (cone)            | 10, +5     | mm   | UNE EN 13433                 |
| Characteristic aperture measurement           | 60 ± 5     | µm   | UNE EN ISO 12956             |
| Water permeability perpendicular to the plane | 0,12 -0,02 | m/s  | UNE EN ISO 11058             |
| Durability                                    |            | AÑOS | ANEXO B DE LA NORMA PLICABLE |
| Dangerous substances                          | NPD        | -    | -                            |

### ADDITIONAL TECHNICAL DATA

| ADDITIONAL DATA  | VALUE         | UNIT              | STANDARD         |
|--|---------------|-------------------|------------------|
| Compressive strength                                     | 250 ±20%      | kN/m <sup>2</sup> | UNE EN ISO 604   |
| Water permeability perpendicular to the vertical plane   | 0,12 -0,02    | m/s               | UNE EN ISO 11058 |
| Water permeability perpendicular to the horizontal plane | 0,002 -0,0002 | m <sup>2</sup> /s | UNE-EN ISO 12958 |
| Air volume between nodules                               | 5,9           | l/m <sup>2</sup>  | -                |
| Temperature range  | -30 a 80      | °C                | -                |
| Nodules number   | 1907          | -                 | -                |

### ENVIRONMENTAL INFORMATION

| PARAMETERS                       | VALUE                             | UNIT | NORM |
|----------------------------------|-----------------------------------|------|------|
| Pre-consumer recycled content    | 20                                | %    | -    |
| Post-consumer recycled content   | 80                                | %    | -    |
| Manufacturing Location           | Fontanar,<br>Guadalajara (España) | -    | -    |
| Volatile organic compounds (VOC) | PND                               | -    | -    |
| Solar reflectance index (SRI)    | PND                               | -    | -    |

### STANDARDS AND CERTIFICATION

#### Main regulatory

- EN 13252: Geotextiles and geotextile-related products. Characteristics required for use in drainage systems.

#### CE marking

- In accordance with standard EN 13252 for all high density polyethylene products manufactured by DANOSA.
- AENOR marking granted to DANODREN JARDÍN, in accordance with standard EN 13252.

#### Quality management

Company registration BUREAU VERITAS according to EN ISO 9001 granted to DANOSA manufacturing plant in Fontanar (Guadalajara).

#### Environmental management

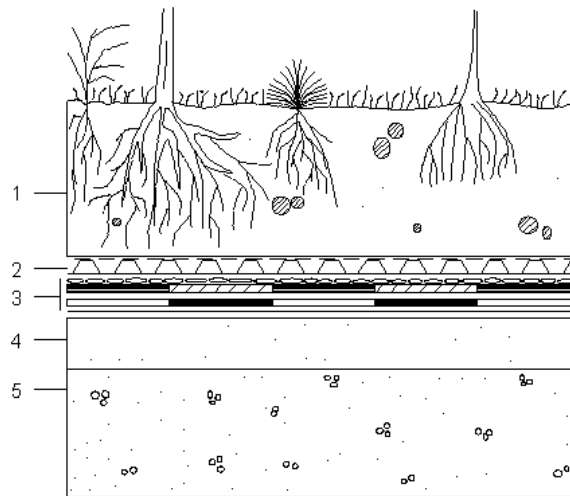
Company registration BUREAU VERITAS according to EN ISO 14001 granted to DANOSA manufacturing plant in Fontanar (Guadalajara).

## SCOPE

1. Drainage, filtration and protection of the waterproofing in intensive green roofs for all type of buildings.

## PRESENTATION

| PRESENTATION     | VALUE       | UNIT           |
|------------------|-------------|----------------|
| Length           | 20 ± 0,40   | m              |
| Width            | 2,10 ± 0,04 | m              |
| Roll surface     | 42          | m <sup>2</sup> |
| Rolls per pallet | 6           | rolls          |
| Product Code     | 314076      | -              |



## ADVANTAGES AND BENEFITS

1. Quick and easy installation.
2. It provides a permanent drainage thanks to the chamber generated between the drainage sheet and the geotextile.
3. The geotextile fused to the nodules, absorbs and filters the water of the ground, avoiding the filling of the drainage system and facilitating the evacuation of the water towards the drains.
4. Due to the composition of the geotextile, polypropylene, DANODREN JARDÍN can be left uncoated temporarily in the job site without deteriorating its mechanical and hydraulic properties.
5. Resistant to breakage, impact and deformation.
6. Resistant to chemical agent of the soil. Rot.
7. DANODREN JARDÍN allows the transformation of traditionally concreted or asphalted surfaces into green spaces that positively influence in the urban microclimate.

## INSTRUCTION FOR USE

### Intensive green roofs

1. Surface and singular points must be uniform, clean, dry and free of foreign objects.
2. The support for DANODREN JARDÍN is extruded polystyrene (XPS), DANOPREN TR so a DANOFELT PY 200 polyester geotextile layer must be laid to avoid chemical incompatibility between materials. In case the roof is not insulated, the support should be a bituminous or synthetic waterproofing membrane with properties against root penetration.
3. DANODREN JARDÍN is placed with the geotextile upwards.
4. The geotextile layer has a width of 5 cm less than the drainage sheet to facilitate the overlap of roll with roll. To perform the overlap, the geotextile is detached 7 cm, exposing 12 cm of drainage sheet, where the overlap will be made with the following sheet.
5. Then the plant soil is extended, which will be placed directly above the geotextile layer
6. Execution of the garden manhole

**INDICATIONS AND IMPORTANT RECOMMENDATIONS**

1. DANODREN JARDÍN drains, protects and filters.
2. DANODREN JARDÍN does not waterproof, therefore, it does not replace in any case the waterproofing membrane or a antiroot barrier.
3. Appropriate precautions must be taken not to puncture the waterproofing during the placement of DANODREN JARDÍN.
4. It must be verified that the product is at the site with its original packaging, duly labeled with CE marking and in perfect conditions.
5. It is recommended to check the existence of Declaration of Performance.
6. It is recommended to check the existence of the voluntary quality mark.

**HANDLING, STORAGE AND CONSERVATION**

1. This product is not toxic or inflammable.
2. The product should be stored in a dry place protected from rain, sun, heat and low temperatures and upright position.
3. For further information, check the security data sheet.

**WARNING**

The information that appears in the following document makes reference to the uses and utilities of TIKIDAN's products and systems, and it is based on the knowledge that have been learnt until present, by TIKIDAN. This is only possible if products have been stored and used in an appropriate way.

Nevertheless, TIKIDAN is not responsible for unsuitable uses of the products neither any other facts, such as meteorological facts So TIKIDAN is just responsible for the quality related to the provided products. TIKIDAN reserves the right to carry out modifications without previous notice.