

D-Rainclean® Filter Media is an engineered bioremediation soil, manufactured from natural minerals and organic compounds, that captures suspended solids and adsorbs dissolved heavy metals, whilst helping to break down hydrocarbons. It is used to enhance the treatment of surface water run-off.

Typical Application

- Infiltration basins
- Bioretention basins
- Rain gardens
- Filter trenches
- Under-drained and infiltration swales
- In association with the D-Rainclean® Bioretention System to provide a Proprietary Treatment Device



Key Features

- Filtration- exceeds the minimum 0.80 Mitigation Indices for the three main pollutant groups as defined by C753: The SuDS Manual – TSS (0.98), Hydrocarbons (0.99) and Heavy Metals (0.98)
- Independently tested and approved by DIBt, supported with field test data
- Heavy metal adsorption/desorption and precipitation - Nickel – sorption; Lead, cadmium, copper and zinc – sorption, precipitation and PH balancing; Chromium – ion exchange
- Water retention - Soil microbiology performs a valuable degradation role, particularly during periods of warmer weather
- Hydraulic capacity - D-Rainclean® Filter Media has a long-term water permeability coefficient of 9×10^{-4} m/s
- D-Rainclean® Filter Media uses an organic matrix and a specific activated carbon that supports bonding and degradation of organic pollutants
- Oil bonding and degradation - the large void space within the D-Rainclean® Filter Media allows oil to lose its fluidity and cover the pore space where microorganisms can degrade it
- Phosphate bonding - the enhanced adsorption capacity within D-Rainclean® Filter Media is crucial to maintaining clean water courses. Live field trials have demonstrated that D-Rainclean® Filter Media is capable of retaining 62% of total phosphorus
- pH Value - The carbonate buffer range of the media is above pH 7.2
- Cation exchange capacity - D-Rainclean® Filter Media acts as an ion exchanger
- Design life – up to 40-year design life dependant on traffic load (see current DIBt certificate for further details, available on request)

Key Benefits

- Can enhance pollution mitigation within SuDS designs
- Excellent hydraulic capacity
- Excellent solids retention
- Suitable for large projects
- Low maintenance
- Simple replacement in the event of accidental spillage (e.g., oil spillage)
- Organic components support plant growth
- Proven long-term performance
- Over 20 years of DIBt monitoring and accreditation



- Adsorption area/
Exchanger
- Water storage/
Filter
- Organic Matrix/
Settlement area
- pH - Buffer area/
Acid Limiter

Functioning Principles

D-Rainclean® Filter Media is a unique series of mediums that perform different functions in order to clean surface water runoff, using the processes of filtration, adsorption, ion exchange, retention.

Many contaminants attach themselves to sediment particles. The smaller the particle, the higher its concentration. D-Rainclean® Filter Media retains these sediments by depth filtration, ensuring they are retained in the upper 5-10cm of the filter media.

This significantly reduces the risk of surface clogging (Colmatage) and ponding, particularly in extreme events, something which some surface filtration systems, such as permeable paving, is prone to.

Specification clause:

The bioretention substrate shall be D-Rainclean® Filter Media, manufactured by Funke Kuntstoffe and distributed in the UK by Stormwater Management Ltd. The substrate shall have been tested and approved for stormwater treatment in accordance with DIBt requirements, verified by field testing data. The system shall be designed to DWA138 to remove TSS to sub 63µg, hydrocarbons and nominated dissolved heavy metals (Zinc and Copper). Mitigation Indices, as defined by C753 The SuDS Manual, to be as per the manufacturer's published figures, calculated in accordance with the British Water 'How to Guide'.

- TSS – 0.98
- Hydrocarbon – 0.99
- Heavy Metals – 0.98 average (Zinc 0.97, Copper 0.99)