

Case Study



Photo courtesy of WPL Ltd

WPL LTD SELECT BIOMARBLE FROM WARDEN BIOMEDIA RANGE FOR MOTORWAY SERVICES REPLACEMENT EFFLUENT TREATMENT PROJECT AT WINCHESTER

A motorway service area (MSA), situated on the M3 at Winchester, serves both sides of the M3 with two filling stations and amenity buildings with restaurants, cafes, toilets and shops plus a 40 bedroom lodge. When opened in 2000, WPL Ltd designed and installed a sewage treatment plant which managed the wastewater from the site. In 2008 the sewage treatment plant was identified as undersized due to a recent increase in visitors.

Due to this rise in visitor numbers, the treatment plant needed upgrading to cope with the increased flows and loads as well as a more stringent discharge consent imposed by the Environment Agency. WPL was commissioned to design and supply a SAF-based plant to meet these new demands. WPL has always been recognised as leaders in the design, manufacture and supply of both standardised and bespoke environmental solutions.

The final specification of the SAF-based plant was to meet the required consent levels set by EA of BOD 20mg/l; TSS 30mg/l; NH₄-N 10mg/l.

Biomarble was selected from Warden Biomedica random filter media range to provide ultra-efficient and cost-effective aerobic treatment in the WPL Ltd sewage treatment plant.

With the philosophy of increased surface area, the eco-friendly trickling filter and biological filter media are injection-moulded in recycled polypropylene with specific design features to increase the efficiency of the effluent treatment process.

In a choice of spherical and tube formats, to suit the application, the random filter media provide excellent ventilation to speed-up the aerobic reaction, and also have high voidage to prevent blocking (and the resulting slowing-down) of the wastewater treatment process that might occur.

With purpose-designed features, the media in the Warden Biomedica filter range are an excellent alternative to traditional mineral-based media and are ideal for improved performance in new wastewater treatment plants. In addition they are perfect for overcoming problems in established trickling filter

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Harry Mouquet, Engineering Manager at WPL Ltd said, **“We are very pleased with the business relationship we share with Warden. Their Biomedica range has been a great asset in the design process of our wastewater treatment plants and has always met expectations for efficiency and performance”.**

beds. Polypropylene biological filter media of the relevant dimensions can replace all or part of the mineral-based media to improve system efficiency where it has become impaired by overloading.

The excellent ventilation and high voidage performance of the Warden Biomedica media make them extremely effective in wastewater treatment applications. They are injection-moulded in recycled polypropylene with specific design features to increase the efficiency of the biological process. Triangular fins increase the total surface area and encourage the formation of the biological films of bacteria, protozoa and fungi which will eat and biologically break down the organic content. The shape of the media has a significant influence on application and must be considered along with specific surface area and void ratio. The surface area of media will be covered with biofilm. Attached growth bacteria will function cooperatively with suspended bacteria, thus its efficiency is higher when compared with other systems. The design also ensures high voidage to prevent blocking that might otherwise slow down the process. The serrated edges of the fins enable them to interlock in the filter bed giving excellent mechanical strength.

Results Achieved

	Consent limit Set by EPA	Result Achieved
BOD (Biochemical Oxygen Demand)	20	1.8
Suspended Solids	30	7.2
Ammonia	10	1.3



Tel: +44 (0) 1582 573 030
 Fax: +44 (0) 1582 508 751
 Email: admin@wardenbiomedica.com
mel.bellingham@wardenbiomedica.com
 Web: www.wardenbiomedica.com