Mantec
Technical Ceramics

Aeration and Diffusion

Aeration and Diffusion

Many of today's waste and drinking water treatment applications demand an efficient and effective way of introducing gases into liquids. The gases can vary from air/oxygen for activated sludge to ozone for drinking water purification.

Mantec has a range of fine bubble aerators/diffusers available in a variety of ceramic or EPDM membrane materials. Mantec strives to offer the customer the very best advice on the selection of materials and specifications to meet today's water treatment applications.

Mantec Technical Ceramics

Waste Water Treatment

Porous Ceramic Diffusers

Porous ceramics have traditionally been used to disperse compressed air, in the form of fine bubbles, into sewage for activated sludge biological purification processes, and ozone injection into drinking water. Mantec's range of alumina-based porous ceramics has been developed to both maximise the transfer efficiency and bring to the industry many unique features.

WRAS Approval

The Water Regulations Advisory Scheme (WRAS) contributes to the protection of public health by preventing contamination of public water supplies and encouraging the efficient use of water by promoting and facilitating compliance with the Water Supply (Water Fittings) Regulations and Scottish Water Byelaws.

WRAS APPROVED MATERIAL

Mantec's porous ceramic media Coralith C5 has been approved by the Water Regulations Advisory Scheme for suitability for contact with wholesome water for domestic purposes having met the requirements of BS 6920-1:2000 'Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water'.

Membrane Tube & Disc Diffusers

EMR membrane tube diffusers are quality products from Germany. Sophisticated membrane mixtures, a modern production process, together with optimised fine-bubble perforation guarantee a high-quality product throughout their service life and durable, cost-effective operation of aeration systems.

ENVICON tube diffusers are available with various membrane materials and in different lengths. The support tube has been optimised for low pressure loss and is very robust. This resilient design permits operation even in very powerful flows.

Available Membranes for tubular diffusers:

- EPDM AeroTop
- EPDM AeroBest
- Silicone AeroSil
- Polyurethane AeroPur

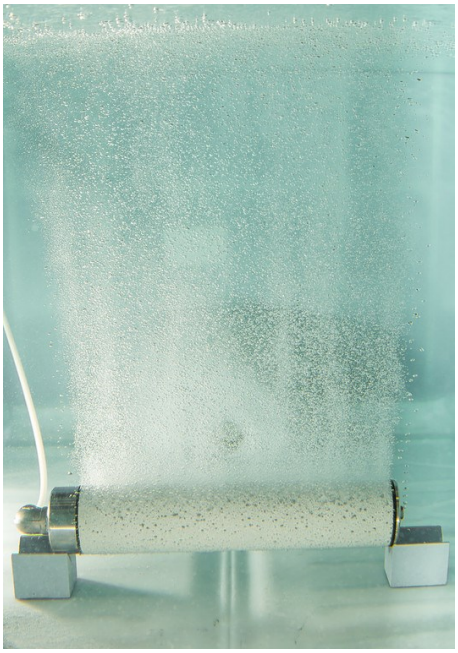
ENVICON EMS membrane disc diffusers with the outer diameters 330 mm (12") and 270 mm (9") are available in various membrane materials and with various membrane fastening systems. The membranes of the 12" diffusers can be easily replaced on site and without the need for special tools.

In combination with the EBA variable adapter system for round and rectangular pipes, a wide range of requirements can be fulfilled.

Ozone Compatibility

Ozone is increasingly used to replace chlorine as an agent for killing bacteria and traces of pesticides in potable water. Unlike the chlorine traditionally used, it disappears quickly and leaves no aftertaste. It is typically dispersed into the water not as a pure gas but as an oxygen/gas mixture, usually delivered at a rate of 4 to 5 mg/litre through a series of fine bubble diffusers.

Mantec's Ozone compatible ceramic diffusers are produced with a finely controlled porosity and pore size. Our porous ceramic materials have a long record of applications in the diffusion of gases into different water treatment processes and because the material is chemically inert, they are particularly suitable for ozone.



Features of Ceramic Diffusers

- High gas transfer efficiencies
- Available as tube or disc
- Controlled pore sizes (pores from 15 to 650 micron allows material selection to suit specific applications)
- Available in a variety of shapes and sizes (can be designed to specific requirements)
- Long history of accepted performance
- Ease of installation
- Compatible with many gases (Ozone, Oxygen, Carbon Dioxide) *

Mantec's ozone compatible ceramic disc diffuser has been developed specifically for the ozonation market where high concentrations of ozone gas can attack many conventional materials. It features a 300mm diameter homogeneous porous ceramic disc with a finely controlled porosity and pore size to produce a fine bubble pattern. The unit is designed to operate at a gas flow rate of between 2 and 8 Nm3 /hour and terminates with a ¾" BSPF threaded connection.

Diffusers for Aquaculture

Mantec Technical Ceramics

Mantec has been active in the supply of ceramic diffusers into the aquaculture sector since the 1990s. In recent times, the sector is increasingly demanding diffusers which produce the finest bubbles to ensure adequate and efficient oxygenation of the water in which fish are farmed. The need for finer bubbles is grounded on maximising the oxygen transfer at greater water depths.

With this in mind Mantec's new diffuser is based on a porous ceramic tube, having a closely controlled pore size of one micron. This results in even, fine bubbles to produce efficient oxygen transfer. Fitted with two square PVC end caps, the CORALith diffuser assembly can be positioned in the tank in any horizontal orientation, without the operator having to be concerned that the diffuser is sitting flat on the base of the tank.

Furthermore, the diffuser has been designed to minimise any potential leak paths, thereby ensuring the efficiency of oxygen transfer.

In addition, the hose tail coupling does not rely on push-fit connections, instead it is secured with a British Standard Pipe thread to provide a secure connection with the mating hose.

Mantec Technical Ceramics Ltd
Normacot Road
Longton
Stoke-on-Trent
ST3 1PA
United Kingdom

mantectechnicalceramics.com
mantecfiltration.com
mantecrefractories.com