



**DRYDEN  
AQUA**



**TRANSFORM THE PERFORMANCE OF YOUR FILTER  
SIMPLY BY CHANGING THE SAND TO AFM FILTER MEDIA.  
FOR PRESSURE AND GRAVITY FLOW SAND FILTERS.**

#### **AFM FILTER MEDIA**

AFM filter media is a direct replacement for a good quality silica sand for use in gravity or pressure sand filters.

#### **APPLICATIONS**

- Potable water treatment
- Swimming pools
- Tertiary treatment of sewerage
- Industrial effluent
- Gray water recirculation
- Boiler feed water
- Aquatic displays
- River, pond & lake treatment
- Aquaculture
- Public aquariums
- Cooling towers

#### **BENEFITS**

1. AFM will provide better water clarity and quality.
2. AFM will remove smaller particles from water compared to the equivalent grade of sand.
3. Surface permanent -ve (negative) charge removes small particles, organic molecules and +ve ions such as iron and manganese.
4. Smooth micro surface, with permanent self sterilizing catalytic and oxidation properties.
5. AFM is less likely to become contaminated by fats, lipids and biological growth.
6. In chlorinated systems, combined chlorine levels will be lower with AFM, and less coagulant will be required.
7. The AFM filter bed is much less likely to block or channel, compared to sand.
8. Easy to back-flush, approx. 50% less water is used in cleaning AFM.
9. AFM makes it easier to comply with environmental regulations.
10. Very high attrition strength.
11. Chemically AFM is inert.
12. AFM does not contain free silica, it is therefore safer than sand.

## WHAT IS AFM?

AFM is an advanced filtration media designed to replace filter grade sand in pressure filters and gravity flow filters. AFM is far superior to a good quality filter sand.

Changing from sand to AFM will result in some major improvements to the performance of your filtration system.

AFM is manufactured and activated from reprocessed glass by Dryden Aqua. AFM is therefore an environmentally sustainable product. New production facilities are presently being constructed to manufacture 100 tonnes per day in the UK. New plants are also proposed in strategic locations throughout Europe.

## WHY SHOULD YOU USE AFM?

AFM is a direct replacement for sand in all pressure or gravity flow sand filters. In all applications tested by Dryden Aqua over a period of 5 years, AFM has proved to be superior to a high quality filter sand.

AFM will remove smaller particles from the water. Under controlled conditions using 16 x 30 sand, at a flow of 10 cubm/hr/sqm sand removed approx. 90% of all particles down to 10 microns. AFM grade 1 under the same conditions reduced particle size down to 5 microns.

In addition to removing solids by physical processes, AFM has a surface -ve charge which allows it to remove very small particles and organic molecules by surface adsorption. AFM is excellent at removing +ve ions such as iron and manganese.

In addition to the surface -ve charge we have developed surface catalytic properties for AFM. When AFM is used to filter water containing at least 1mg/l of dissolved oxygen, the AFM will dissociate the oxygen molecule to generate two free radicals of oxygen. The free radicals provide a degree of surface disinfection as well as cracking organic molecules on the surface of the AFM.

The performance of sand deteriorates, due to surface contamination. However AFM is largely self sterilizing and is cleaned with approx. 50% less back-flush water. The life of AFM may therefore span the life of the filter. In the tertiary treatment of sewerage the media can last for 5 years, in clean water applications it is likely to be in excess of 15 years.

## HOW TO USE AFM

AFM is very easy to use. It is a direct replacement for sand in all pressure or gravity flow sand filters. Simply remove the sand and replace with AFM. In all applications and water flowrates tested, AFM out-performed sand. However in both cases, best performance is achieved using the slowest water flowrate.

The filter should be layered with either pea gravel or grade 2 AFM as the bottom layer. The quantity of base material will depend on filter design, however, it is normally 10% to 20% of the total bed volume. Grade 1 AFM is placed on top of the grade 2. For very high performance grade 0 may be used on top of grade 1. If grade 0 is used approx. 10% of total bed volume should be grade 0.

## Water Flowrates

The recommended water flowrate will depend on the filter design, type of water treated, and water quality required. The following can be used as a guide to sizing a filter for use with AFM.

Potable (drinking water)	5 to 10 cubm/hr/sqm
Swimming pools & fish farms	10 to 15
Rivers and sea water	10 to 15
Industrial effluent	5 to 10
Landfill leachate	3 to 6
Tertiary treatment of sewerage effluent	3 to 6

## Back-flushing

A back-flush water flowrate of 25 to 50 cubm/hr is required. The optimum flowrate depends on the type of water treated and the degree of bed expansion required to clean the AFM.

## AFM SPECIFICATIONS

### Appearance

AFM has a similar appearance to sand.

### Standard Particle Size

Grade 0	0.25mm to 0.5mm
Grade 1	0.5mm to 1.0mm
Grade 2	1.0mm to 2.0mm

### Chemical Composition

SiO <sub>2</sub>	74%
Na <sub>2</sub> O	11%
CaO	10%
MgO	3%
Al <sub>2</sub> O <sub>3</sub>	1%

AFM is processed to have a very low dust content, however, the dust does not contain any free silica like sand. Free silica is carcinogenic and can cause serious respiratory disease. AFM is therefore safer to use than sand.

### Typical Properties

Loss on ignition at 1000 deg C	not more than 0.1%
Uncompacted bulk density	1.450 kg/cubm
Attrition test, fluidised bed 1000 hours	less than 0.1%

### Filter Specifications

AFM can be used in any good quality pressure or gravity flow sand filter. If you do not have a suitable filter available, Dryden Aqua can provide systems ranging from small plastic filters, to 316 grade stainless steel industrial units. When using AFM filtration media, filter pressure differential will be 3psi to 7psi, or slightly less than sand under similar conditions.



### More Information

Additional information on AFM is located on our web site at: <http://www.drydenaqua.com> and <http://www.AdvancedFiltrationMedia.com>

### Stockist

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