

Macrolite

An engineered ceramic filtration media, is manufactures in various sizes and densities. Uniform properties of Macrolite include the shape, size, sphericity, density and composition of filter granules.

Macrolite can be utilized in any number of applications, it has been identified as the most cost-efficient media available:

- Surface Water Filtration – gravity and pressure
- Arsenic removal using co-precipitation /filtration
- Iron & Manganese removal
- Membrane pre-filtration
- Pretreatment for RO & Desalination

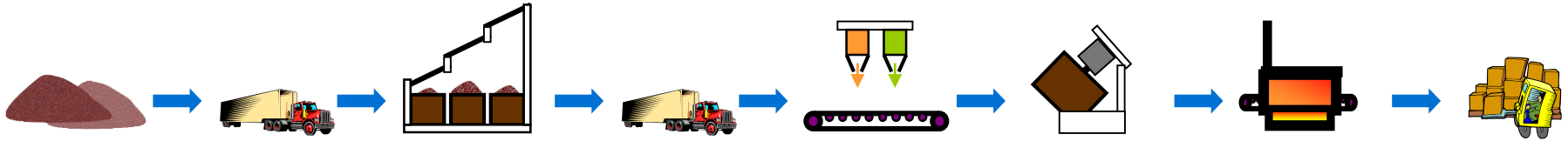
Product Specifications



	Description	Nominal Micron Rating	Old Name	Smallest Mesh Size	Mesh Range	Specific Gravity Target	+/-	Uniformity Coefficient
M1	Ultra Media	< 3	70/80	80	70 to 80	2.6	10%	1.1
M2	Superior Media	< 5	40/60	70	40 to 60*	2.5	10%	1.2
M4		< 20	20/40	50	20 to 50	2.0	10%	1.2
M6		< 30	14/30	40	14 to 30	1.6	10%	1.5

* Does contain some 70 mesh material

Manufacturing Process



- Raw fines mined are sourced from multiple locations
- Screened fines are sent to Newbury via truck
- Primary materials combined at Newbury

Fines

Bentonite Clay

Silicon Carbide

- Pelletize operation creates the size of the sphere, target is 40-70 mesh
- Pelletizing yields are typically 40-50% efficient – out of spec material is scrapped
- Pellet material is combined with hydrated alumina and fired at 1100° C
- Rate is processed at 250 - 300 lbs per hour per kiln
- Firing yields are typically 70-80% efficient, out of spec material is scrapped
- Finished goods are warehoused

Macrolite® – Product Details

Macrolite® is a synethic Engineered Ceramic Media

Superior Filtration Capability

- Extremely High Surface Area
- Filters additional microbes (below 5 microns)
- Highly textured surface

High Loading Rates

- High Sphericity
- Low Uniformity Coefficient
- Large Range of Mesh Size & adjustable SG



Improved Backwash Requirements

- Low Backwash Flow Rates
- Low Bed Expansion
- Reduced water requirements
- Improved time required for backwashing

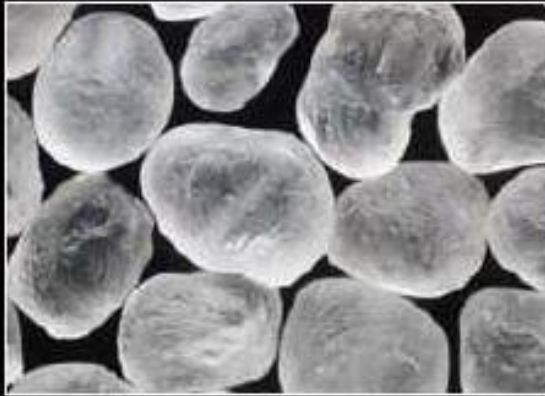


Technical Specifications

Specifications for Macrolite™ Engineered Ceramic Media

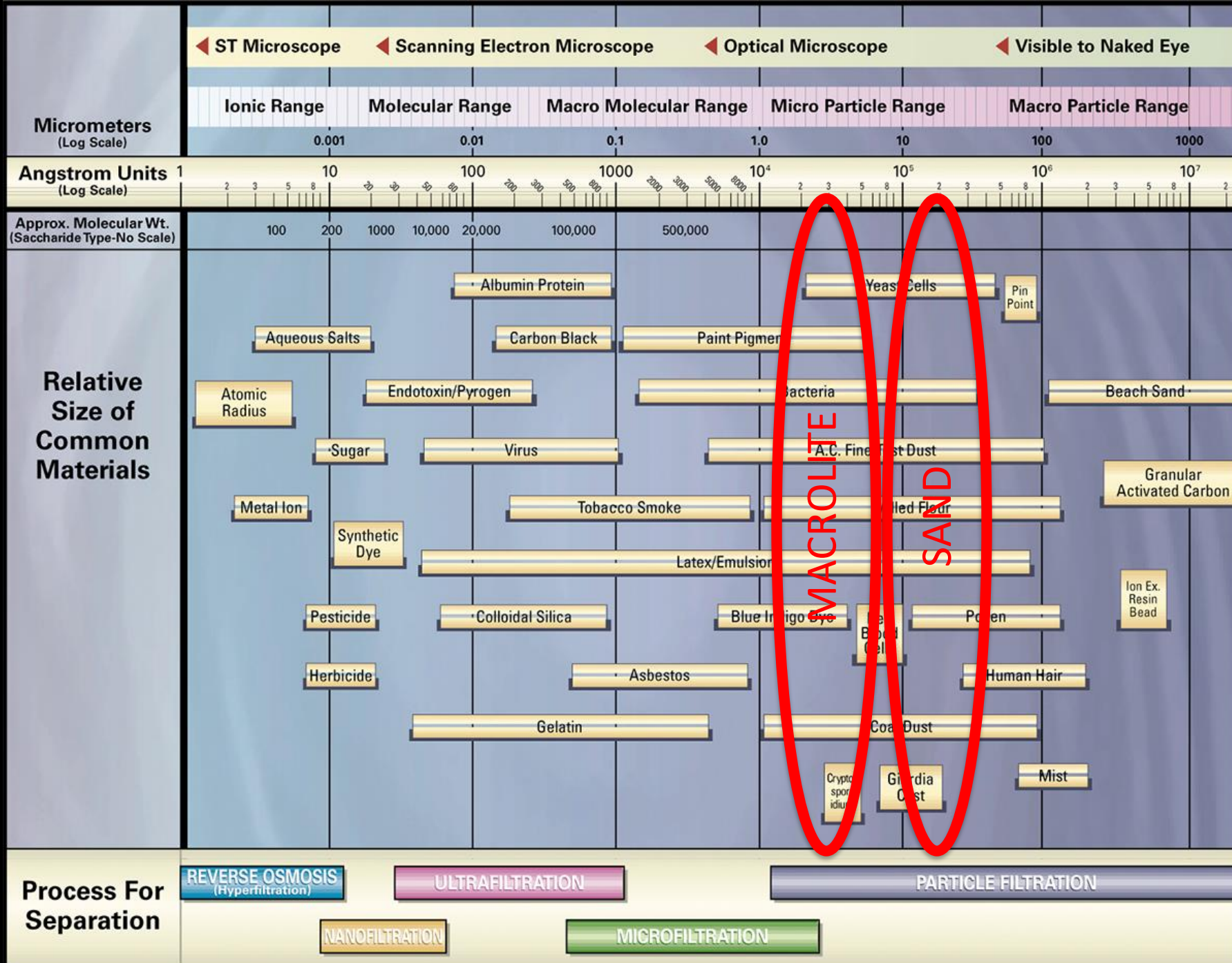
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M2	< 5	70	40 to 60	2.6	1.1
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SAND



MACROLITE™





Features and Benefits

- Features

- High surface roughness
- High surface area
- Sphericity
- Relatively low specific gravity
- Control over specific gravity
- Higher flux (flow rate)



- Benefits

- Better effluent quality
- Improved dampening of influent quality disturbances
- Higher flux
 - Uses much less area
 - Saves on expansion costs
- Lower chemical costs
- Less waste water

Applications

Key Macrolite Applications

- Surface water filtration – gravity and pressure
- Particulate filtration
- Arsenic removal using co-precipitation /filtration
- Iron & manganese removal
- Membrane pre-filtration
- Pretreatment desalination & reverse osmosis
- Municipal Wastewater



Surface Water Applications: Equipment

- Gravity filtration
- Gravity package plants
- Pressure filtration



Surface Water Applications: BAF

- Disinfection by-products
 - DBP, THMs, HAA5
 - Natural occurring organics + Chlorine
- Solution: Biologically active filtration (BAF)
 - Oxidize the organics, usually with ozone
 - The filter grows bugs on purpose!
 - The bugs eat DBP

Ground Water Applications

- Arsenic
- Iron & Manganese
- Silt
- GWUDI



Industrial Process Water

- *Anywhere* there are solids [TSS] in the feedwater that need to be removed
 - Sand
 - Macrolite
- Iron & manganese
- Silt
- Membrane pretreatment

Industrial applications will usually require involvement with an OEM

Water Market Categories

- Industrial Process Water
 - Pretreatment to membranes (desalinization)
 - Silt removal



Industrial Waste Water

- Polishing after heavy metal clarification
- Polishing after nitrate or other organic treatment

Industrial applications will usually require involvement with an OEM