Macrolite™ Engineered Filtration Media

- Surface water filtration
- Arsenic removal
- Iron and manganese removal
- Membrane pre-filtration
Manufacturing Process
Unlike conventional mined media such as sand and anthracite, Macrolite is a manufactured, synthetic material. An engineered media allows for control over key parameters such as size, specific gravity and uniformity coefficient, which enables the media to be engineered for a specific application.

Macrolite is manufactured using a patented process originally developed by the 3M Corporation and further enhanced by Kinetico. A multiple-step process starts with mixing raw ingredients consisting of various minerals in a process called prilling, and ending with firing the spheres in a rotary kiln at 2,300° F (1100° C). It is through this process that the media characteristics are developed.

Removal Characteristics
The Macrolite filtration process is subject to the same physical laws and natural phenomena as conventional granular filtration. However, the primary difference with the Macrolite process is the use of synthetic ceramic filter granules. A manufactured filter medium has an inherent advantage over mined aggregates in that physical properties are more uniform, and certain attributes may be optimized. These advantages have demonstrated an improvement in macroscopic filter performance.

Macrolite is designed to maximize available surface area within a granular bed filter. The surface is designed for an improved porous texture and a composition that promotes colloidal attachment. The adhesion mechanism is the dominant form of particle removal over the straining mechanism. An optimized sphericity and uniformity enhance transport mechanisms increasing the probability of colloid to granule contact. This is accomplished with acceptable headloss and minimal backwash energy. Comparable filtration with mined aggregates is not possible due to its random and inconsistent physical characteristics.

Physical Properties

<table>
<thead>
<tr>
<th>Description</th>
<th>Nominal Micron Rating</th>
<th>Smallest Mesh Size</th>
<th>Density</th>
<th>Flow</th>
<th>Backwash</th>
<th>Uniformity Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>M2</td>
<td>&lt;5</td>
<td>70</td>
<td>&gt;2.0</td>
<td>10 gpm/ft²</td>
<td>8:10 gpm/ft²</td>
<td>1.3**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(24 m³/hr/m²)</td>
<td>(19.5/24 m³/hr/m²)</td>
<td></td>
</tr>
</tbody>
</table>

*Backwash flow rate and bed expansion vary with water temperature.
**Uniformity coefficient may vary +/- .1

Surface Characteristics:
- Texture: Rough
- Surface Area: 1.1 - .6 (m²/g)
- Odor: None
- Loading Rate: 2-10 gpm/ft²
- Certification: NSF Standard 61, ETV

Put to work worldwide
Since 1970, Kinetico has been designing and manufacturing innovative water treatment systems that solve a variety of water problems. Kinetico continually develops and offers products to meet the diverse water treatment needs of people in nearly 100 countries worldwide.