Ultrafine Standard (SD)
CEMENTITIOUS GROUT

Description
A uniquely formulated cementitious grout that beats OPC grouts in two crucial ways:

**Goes Where Others Can’t:** Our ultrafine cementitious grout is composed of a finely ground mixture of Portland cement, pumice, and dispersant. US Grout Ultrafine has an average particle size of only 3 microns, in stark contrast to the typical particle sizes of 60 to 70 microns in conventional cements and standard cementitious grouts.

**Pozzolanically Charged:** The pozzolanic component of the grout ignites a secondary reaction that densifies and strengthens the cure.

Features and Benefits
- Smaller particle size will penetrate smaller fractures and finer soils.
- Ready to mix and pump—no additives required
- Stable North American source of supply, distributed and supported by long-time industry experts Avanti International.
- Composed on non-hazardous materials.
- Very high compressive strengths and densities.
- Zero bleed.
- Low permeability for reduced hydraulic conductivity and extended longevity.

Applications
- Stabilizing weak soils
- Sealing seepage in mines, dams, and tunnels
- Low permeability grout curtinging
- Hazardous waste containment
- Oil well squeeze cementing

How It Works
This material is formulated with superplasticizer and pozzolan for confident design with zero bleed and very high compressive strength.

Optional Additives
Additional plasticizer may be added to increase workability.

Packaging and Shipping
Non-hazardous, motor class 55. Contact Avanti International for more information.

Mix Procedure
These precise mixing instructions must be followed for best results:
1. Mixer should be a high-shear “colloidal” mixer.
2. Water/dry grout ratio should be 0.8/1 by weight.
3. Add water to mixer and set unit on high speed.
4. Slowly add dry grout to mixer.
5. Mix at high speed for 3 minutes.

Performance
This grout is thixotropic, which means it will become stiff if allowed to remain at rest. This is true of all microfine cement grouts. The material will re-liquefy when a pressure slightly in excess of the materials internal cohesion is applied. In practice, the grout is kept in motion through the use of a continuous loop grouting setup. (continues)
A uniquely formulated cementitious grout that beats OPC grouts in two crucial ways:

**Goes Where Others Can’t**
Our ultra/fine cementitious grout is composed of a/finely ground mixture of Portland cement, pumice, and dispersant. US Grout Ultra/fine has an average particle size of only 3 microns, in stark contrast to the typical particle sizes of 60 to 70 microns in conventional cements and standard cementitious grouts.

**Pozzolanically Charged**
The pozzolanic component of the grout ignites a secondary reaction that densifies and strengthens the cure.

**Features and Benefits**
- Smaller particle size will penetrate smaller fractures and finer soils.
- Ready to mix and pump—no additives required
- Stable North American source of supply, distributed and supported by long-time industry experts Avanti International.
- Composed on non-hazardous materials.
- Very high compressive strengths and densities.
- Zero bleed.
- Low permeability for reduced hydraulic conductivity and extended longevity.

**Applications**
- Stabilizing weak soils
- Sealing seepage in mines, dams, and tunnels
- Low permeability grout curtaining
- Hazardous waste containment
- Oil well squeeze cementing

**How It Works**
This material is formulated with superplasticizer and pozzolan for confident design with zero bleed and very high compressive strength.

**Optional Additives**
Additional plasticizer may be added to increase workability.

**Packaging and Shipping**
Non-hazardous, motor class 55. Contact Avanti International for more information.

**Mix Procedure**
These precise mixing instructions must be followed for best results:
1. Mixer should be a high-shear “colloidal” mixer.
2. Water/dry grout ratio should be 0.8/1 by weight.
3. Add water to mixer and set unit on high speed.
4. Slowly add dry grout to mixer.
5. Mix at high speed for 3 minutes.

**Performance**
This grout is thixotropic, which means it will become stiff if allowed to remain at rest. This is true of all micro/fine cement grouts. The material will re-liquefy when a pressure slightly in excess of the materials internal cohesion is applied. In practice, the grout is kept in motion through the use of a continuous loop grouting setup.

**Storage**
Store in sealed bags only. Partially used, open bags will take on moisture. Product should be stored in a covered, dry area to avoid exposure to moisture. There are no specific ambient temperature restrictions for storage, however, sudden dramatic changes in temperature that may promote moisture condensation should be strictly avoided.

**Clean Up**
Use water with light detergent.

**Safety**
Always use OSHA-approved personal protective equipment (PPE). Refer to the MSDS for the grout for complete safety precautions. The MSDS are available by request or via download at www.AvantiGrout.com or www.USGrout.com

---

**ULTRAFINE SD CEMENTITIOUS GROUT**

**TECHNICAL DATA: ULTRAFINE CEMENTITIOUS GROUT TYPE SD**

**PROPERTIES (DRY)**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superplasticizer**</td>
<td>0.9% by weight</td>
</tr>
<tr>
<td>Color</td>
<td>Cement Gray</td>
</tr>
<tr>
<td>Particle Size</td>
<td>90% &lt; 8 microns; average 3 microns</td>
</tr>
<tr>
<td>Surface Area</td>
<td>15,110 cm²/gram</td>
</tr>
<tr>
<td>Loose Unit Weight</td>
<td>0.497 grams/cc</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>2.70 grams/cm³</td>
</tr>
<tr>
<td>Dry Weight/Wet Volume</td>
<td>1.01 kg/liter</td>
</tr>
</tbody>
</table>

**PROPERTIES (WET)**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water/Dry Grout**</td>
<td>0.8/1 by weight</td>
</tr>
<tr>
<td>Specific Gravity*</td>
<td>1.54 grams/cc</td>
</tr>
<tr>
<td>Initial Viscosity*</td>
<td>33 ~ 37 seconds</td>
</tr>
<tr>
<td>Internal Cohesion*</td>
<td>1.22 Pascals</td>
</tr>
<tr>
<td>Initial Gelation*</td>
<td>2.5 ~ 5.0 hours</td>
</tr>
<tr>
<td>Final Gelation*</td>
<td>4.5 ~ 7.0 hours</td>
</tr>
<tr>
<td>Initial Vicat Needle Set*</td>
<td>9.33 hours</td>
</tr>
<tr>
<td>Final Vicat Needle Set*</td>
<td>9.83 hours</td>
</tr>
<tr>
<td>Period of Workability*</td>
<td>2.5 ~ 5.0 hours</td>
</tr>
<tr>
<td>Shrinkage*</td>
<td>-0.0260%</td>
</tr>
<tr>
<td>Bleeding*</td>
<td>0.50%</td>
</tr>
<tr>
<td>Hydrational Heat*:</td>
<td>31°C</td>
</tr>
<tr>
<td>Pressure Filtration*</td>
<td>0.100 ~ 0.103 min⁻¹/²</td>
</tr>
<tr>
<td>Sulfate Resistant</td>
<td>Resistant to Attack</td>
</tr>
<tr>
<td>Permeability*</td>
<td>1x10E⁻¹⁴ cm/sec</td>
</tr>
</tbody>
</table>

*Varies with water/cement ratio and superplasticizer content
**Recommended starting mix

**Notice**
The data, information and statements contained herein are believed to be reliable, but are not construed as a warranty or representation for which US Grout or Avanti International assumes any legal responsibility. Since field conditions vary widely, users must undertake sufficient verification and testing to determine the suitability of any product or process mentioned in this or any other written material from US Grout or Avanti for their own particular use. NO WARRANTY OF SUITABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS MADE. In no case shall US Grout or Avanti International be liable for consequential, special, or indirect damages resulting from the use or handling of this product.

---

**Safety**
Always use OSHA-approved personal protective equipment (PPE). Refer to the MSDS for the grout for complete safety precautions. The MSDS are available by request or via download at www.AvantiGrout.com or www.USGrout.com