

# Ultrafine VX

## CEMENTITIOUS GROUT

### Description

A uniquely formulated cementitious grout that excels in three 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.

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

**Wide Geologic Range:** Our type VX Grout is formulated to work with our liquid superplasticizer (USG-Super), which allows project engineers (and our consulting expert) to adjust grout rheology for optimal effectiveness in a wide variety of soil types. This means the cost effectiveness, strength, enduring life-span, and innocuous nature of a cementitious grout is now available to stabilize a greater range of problem soils than ever before.



*A uniquely formulated cementitious grout that combines ultrafine particle size (average 3 micron), a pozzolanic charge for enduring strength and density, and a variable-dosage liquid super-plasticizer that expands the geologic effectiveness range of the grout.*

### Features and Benefits

- Smaller particle size will penetrate smaller fractures and finer soils.
- Ready to mix and pump. USG-Super supplied with grout.
- 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

### 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)*



**US  
GROUT**  
www.usgrout.com

**Ultrafine and  
Microfine  
Cementitious  
Grouts**

Have specific questions on performance or availability? Contact Avanti International.



**Stop leaks. Stabilize soil.  
Control groundwater. Permanently.**

822 Bay Star Blvd., Webster TX 77598  
1.800.877.2570

[www.AvantiGrout.com](http://www.AvantiGrout.com)

### 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 and the USG-Super for complete safety precautions. The MSDS are available by request or via download at [www.AvantiGrout.com](http://www.AvantiGrout.com) or [www.USGrout.com](http://www.USGrout.com)

### Notice

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## ULTRAFINE VX CEMENTITIOUS GROUT

### PROPERTIES (DRY)

Superplasticizer**	0.125% by weight	
Color	Cement Gray	Visual
Particle Size	90% < 8 microns; average 3 microns	SediGraph 5100
Surface Area	15,110 cm <sup>2</sup> /gram	ASTM C-204
Loose Unit Weight	0.497 grams/cc	
Specific Gravity	2.70 grams/cm <sup>3</sup>	Accupyc 1330
Dry Weight/Wet Volume	1.01 kg/liter	

### PROPERTIES (WET)

With Addition of .9% USG-Super by Weight)

Water/Dry Grout**	0.8/1 by weight		
Specific Gravity*	1.54 grams/cc	API RP 13B-1	
Initial Viscosity*	33 ~ 37 seconds	API RP 13B-1	
Internal Cohesion*	1.22 Pascals	Lombardi Plate	
Initial Gelation*	2.5 ~ 5.0 hours	Wally Baker Shear Vane	
Final Gelation*	4.5 ~ 7.0 hours	Wally Baker Shear Vane	
Initial Vicat Needle Set*	9.33 hours	ASTM C-191	
Final Vicat Needle Set*	9.83 hours	ASTM C-191	
Period of Workability*	2.5 ~ 5.0 hours		
Shrinkage*	-0.0260%	ASTM C-490, C-596, C-157	
Bleeding*	0.50%	ASTM C-940	
Hydrational Heat*:	31°C	Adiabatic Chamber	
Pressure Filtration*	0.100 ~ 0.103 min <sup>-1/2</sup>	API Filter Press	
Sulfate Resistant	Resistant to Attack	Type V Cement	
Permeability*	1x10E <sup>-14</sup> cm/sec	Custom Equipment of Atomic Energy of Canada	

\*Varies with water/cement ratio and superplasticizer content

\*\*Recommended starting mix