



AV-202 MULTIGROUT®

HYDROPHILIC POLYURETHANE FOAM

DESCRIPTION

AV-202 Multigrout is a single component, moisture activated MDI/TDI blended polyurethane injection resin. Designed for sealing active water leaks in large cracks or joints in concrete structures, it can absorb up to 12 times its volume in water creating a tough, impermeable foam or gel with superb adhesive qualities. Certified for use in potable water.

APPLICATION

- Large cracks or joints in concrete, or used in conjunction with AV-215 Resin Rod or AV-219 Oakum systems
- Designed for applications where high volume water flow is an active or potential problem and a high viscosity chemistry is required
- Used successfully in manhole sealing and pipe penetrations
- Excellent choice for moving cracks and joints

FEATURES AND BENEFITS

- ANSI/NSF 61 Drinking Water Systems Component – WQA Certified
- 100% solids
- Expands 400% – 600%
- Solvent-free and non-corrosive
- Forms a resilient, flexible foam with superb adhesive properties
- Can accept up to 12X its volume in water
- Thickest resin on the market
- May be used in underwater applications

GROUTING TECHNIQUES

- Expanded Gasket Placement Technique (EGP)
- Variable Pressure Application Technique (V-PAT) – Crack Injection

HOW IT WORKS

AV-202 can be applied via two techniques: EGP or V-PAT. The resin reacts to moisture to form a resilient, flexible seal accomplished by three mechanisms: the resin seeks out water in the space and *adheres* to the surface, then begins to expand forming a tight *compressive* seal, while the network of compressed grout material within all the cracks forms a *mechanical* lock.

RATIOS*

Preferred ratio is 1:1 (water to resin), however no pre-mixing is required. Pumped as a single component and is effective at ratios up to 12:1 with water.

PACKAGING

Product packaged by weight based on specific gravity.

- Drum = Net Wt. 484lbs.
- Pail = Net Wt. 44 lbs.
- Gallon = Net Wt. 8 lbs.
- Cartridge = 10.114 fl. oz. / Volume ~ 300 ml.

SHIPPING

- Motor class 55
- Non-hazardous
- Air freight available

CLEANING PRODUCTS

- AV-208 Acetone, Technical Grade (CAS# 67-64-1) – removes moisture from equipment (see Performance section).
- AV-284 Pump Wash (Proprietary Blend) – removes uncured resin from pump hose
- AV-222 Cleaner (Proprietary Blend) – removes cured resin from equipment

PROPERTIES*

UNCURED

Appearance:	Brown resin
Viscosity:	3,200 – 6,000 cP @ 72°F (22°C) ASTM D-4889
Flash Point:	>200°F (>93°C)
Specific Gravity:	1.147 @ 72°F (22°C) ± 3%
Density:	1,147 kg/m ³ ± 3%
Specific Weight:	71.7 lb./ft. ³ (9.6 lb./gal.) ± 3%

CURED

Appearance:	Milky colored flexible foam
Tensile Strength:	TBD
Elongation:	TBD

*Laboratory Results

PERFORMANCE

Flush equipment with AV-208 before and after use to remove moisture and clean equipment. For best results, use between 45°F – 95°F (7°C – 35°C). Performance will be influenced by site conditions. If site temperatures are low, use a heat source to warm to ~72°F (22°C) and apply. Do not use open flame as a heat source.

STORAGE

Store in temperatures within or near 45°F – 95°F (7°C – 35°C) in a dry atmosphere.

SAFETY

Always use OSHA-approved personal protective equipment (PPE). Refer to the SDS for complete safety precautions. The SDS is available by request or via download at www.AvantiGrout.com.

NOTICE

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DRINKING WATER SYSTEM COMPONENT
 ANSI/NSF 61
 88NN



AV-202 Multigrout is tested and certified by WQA against NSF/ANSI 61 Drinking Water System Components



Section 1: Identification

GHS Product Identifier: AV-202 Multigrout
Classification: Hydrophilic Foam
Product Use: Industrial Use Only

Supplier
 Avanti International
 1100 Hercules Ave., Suite 320
 Houston, TX 77058
 Phone: 800.877.2570
 Fax: 281.486.7300

24 HR. EMERGENCY TELEPHONE NUMBER
 Chemtrec: 800.424.9300

Section 2: Hazards Identification

GHS Classification

Hazard Class	Category	
Resp. sens.	1	Respiratory sensitization
Skin sens.	1	Skin sensitization

GHS Label Elements

Hazard pictograms:



Signal Word:	Danger
Hazards Statements:	
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Precautionary Statements:	Prevention:
P261	Avoid breathing vapors, spray or mist.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear eye protection, protective clothing and protective gloves.
P284	In case of inadequate ventilation wear respiratory protection. The type of respiratory protection selected must comply with the requirements set forth in OSHA's Respiratory Protection Standard (29 CFR 1910.134) or regional standards. For additional details, see Section 8 of the SDS.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P333 + P313	If skin irritation or rash occurs, get medical advice/attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P501	Dispose of contents/container according to local, regional, national, and international regulations.

Other hazards not contributing to classification:

Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions.

Unknown Acute Toxicity (GHS-US):

No data available

Labeling of special preparations (GHS):

Contains isocyanates. Inhalation of isocyanate mists/vapors may cause respiratory irritation, breathlessness, chest discomfort and reduced pulmonary functions. Overexposure well above the PEL may result in bronchitis, bronchial spasms and pulmonary edema. Long-term exposure to isocyanates has been reported to cause lung damage, including reduced lung function which may be permanent. Acute or chronic overexposure to isocyanates may cause sensitization in some individuals, resulting in allergic respiratory reactions including wheezing, shortness of breath and difficulty breathing. Animal tests indicate that skin contact may play a role in causing respiratory sensitization.

Section 3: Composition/Information on Ingredients

Weight %	Components	CAS-No.	Classification
45 - 55%	Oxirane, methyl-, polymer with oxirane, ether with 1,2,3-propanetriol (3:1), polymer with 1,1'-methylenebis[4-isocyanatobenzene]	(CAS #) 59675-67-1	Resp. Sens. 1, H334 Skin Sens. 1, H317
45 - 55%	Poly[oxy(methyl-1,2-thanediy)], .alpha.-hydro-.omega.-hydroxy-, polymer with 1,3-diisocyanato-2-methylbenzene and 2,4-diisocyanato-1-methylbenzene	(CAS #) 64814-10-4	Not Classified

Full text of H-phrases: See section 16

Section 4: First-Aid Measures

Description of First-Aid Measures

First-aid Measures General

Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid Measures After Inhalation

When symptoms occur: go into open air and ventilate suspected area. Remove to fresh air and keep at rest in a position comfortable for breathing. Obtain medical attention if breathing difficulty persists.

First-aid Measures After Skin Contact

Remove contaminated clothing. Gently wash with plenty of soap and water followed by rinsing with water for at least 15 minutes. Call a Poison Center or doctor/physician if you feel unwell. Wash contaminated clothing before reuse.

First-aid Measures After Eye Contact

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention.

First-aid Measures After Ingestion

Rinse mouth. Do not induce vomiting. Immediately call a Poison Center or doctor/physician.

Most Important Symptoms and Effects, Both Acute and Delayed

Symptoms/Injuries: Causes skin irritation. May be fatal if swallowed and enters airways. May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Symptoms/Injuries After Inhalation: MDI vapors or mist at concentrations above the TLV can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, and lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperactivity can respond to concentrations below the TLV with similar symptoms as well as asthma attack. Exposure well above the TLV may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). These effects are usually reversible. Chemical or hypersensitive pneumonitis, with flu-like symptoms (e.g., fever and chills) has also been reported. These symptoms can be delayed up to several hours after exposure.

Symptoms/Injuries After Skin Contact: Isocyanates react with skin protein and moisture, and can cause irritation, which may include the following symptoms; reddening, swelling, rash, scaling or blistering. Cured material is difficult to remove.

Symptoms/Injuries After Eye Contact: liquid, aerosols or vapors are irritating and can cause tearing, reddening and

swelling. If left untreated, corneal damage can occur and injury is slow to heal. However, damage is usually reversible (see Emergency and first aid procedures).

Symptoms/Injuries After Ingestion: can result in irritation and corrosive action in the mouth, stomach tissue and digestive tract. Symptoms can include sore throat, abdominal pain, nausea, vomiting and diarrhea.

Chronic Symptoms:

As a result of previous repeated overexposures, or single large dose, certain individuals develop symptoms to isocyanates at levels way below TLV. These symptoms, which can include chest tightness, wheezing, cough; shortness of breath, or asthma attack could be immediate or delayed up to several hours after exposure, similar to many non-specific asthmatic responses. There are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Overexposure to isocyanates has also been reported to cause lung damage, including decrease in lung function), which may be permanent. Sensitization can either be temporary or permanent.

If exposed or concerned, get medical advice and attention.

Section 5: Fire-Fighting Measures

Suitable Extinguishing Media:	Water spray, fog, alcohol-resistant foam, carbon dioxide (CO ₂), dry chemical powder.
Unsuitable Extinguishing Media:	Do not use a heavy water stream. A heavy water stream may spread burning liquid.
Special Hazards Arising from Substance or Mixture	Fire Hazard: Not flammable but will support combustion. Explosion Hazard: Product is not explosive. Reactivity: Hazardous reactions will not occur under normal conditions.
Fire-fighting Procedure	Exercise caution when fighting any chemical fire. Use water spray or fog for cooling exposed containers. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion. Do not enter fire area without proper protective equipment, including respiratory protection.
Other information	Do not allow run-off from firefighting to enter drains or water sources. Do not allow the product to be released into the environment.

Section 6: Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures

Avoid all contact with skin, eyes, or clothing. Avoid breathing (vapor, mist, spray).

For Non-emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

For Emergency Responders

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Stop leak if safe to do so. Eliminate ignition sources. Ventilate area.

Environmental Precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

Methods and Material for Containment and Cleaning-Up

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for Cleaning Up: Clear up spills immediately and dispose of waste safely. Spills should be contained with mechanical barriers. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

Reference to Other Sections

See Section 8. Exposure controls and personal protection.

Section 7: Handling and Storage

Precautions for Safe Handling

Any proposed use of this product in elevated-temperature processes should be thoroughly evaluated to assure that safe operating conditions are established and maintained. Avoid contact with skin and eyes.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

Conditions for Safe Storage (Including any incompatibilities)

Technical Measures: Comply with applicable regulations.

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container closed when not in use.

Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials.

Incompatible Products: Water, amines, strong bases, and alcohols.

Incompatible Materials: Sources of ignition. Direct sunlight. Heat sources.

Storage Temperature: 45°F - 95°F

Specific End Use(s): No additional information available.

Section 8: Exposure Controls/Personal Protection

Control Parameters

For substances listed in section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), NIOSH (REL), or OSHA (PEL).

Exposure Controls

Appropriate Engineering Controls: Ensure adequate ventilation, especially in confined areas. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure all national/local regulations are observed.

Personal Protective Equipment: Protective goggles. Gloves. Protective clothing. Insufficient ventilation: wear respiratory protection.



Personal Protective Equipment

Respiratory Protection:

Use a NIOSH-approved respirator or self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits.

Hand Protection:

Wear chemically resistant protective gloves.

Eye Protection:

Chemical goggles or safety glasses

Skin and Body Protection

Wear suitable protective clothing.

Environmental Exposure Controls

Do not allow the product to be released into the environment.

Consumer Exposure Controls

Do not eat, drink or smoke during use.

Section 9: Physical and Chemical Properties

Appearance: Transparent, brown liquid
Odor: Slightly musty odor
Odor Threshold: No data available
pH: No data available
Freezing Point: <32°F (<0°C)
Boiling Point: 406°F @ 5 mmHg for MDI (207.78°C)
Flashpoint: higher than 212°F (100°C) Pensky-Martens closed cup (ASTM-D-93)
Evaporation Rate: No data available
Flammability: No data available
Lower Explosion Limits: No data available
Upper explosion limits: No data available
Vapor Pressure: less than 10-5 mm Hg at 77° F (25°C) for MDI
Vapor Density: 8.5 (MDI) (air – 1)
Relative Density: No data available
Solubility in Water: Not soluble. Reacts slowly with water to liberate CO2 gases
Partition Coefficient n-octanol/water: No data available
Auto-ignition Temperature: No data available
Decomposition Temperature: No data available
Specific Gravity: 1.147 @ 72°F (22°C)
Viscosity: 3,200-6,000 cP @ 72°F (22°C)

Section 10: Stability and Reactivity

Reactivity

Hazardous reactions will not occur under normal conditions.

Chemical stability

Stable under recommended handling and storage conditions (see Section 7).

Possibility of hazardous reactions

May occur; contact with moisture, other materials, which react with isocyanates, or temperatures about 400°F (204°C) may cause polymerization.

Conditions to avoid

Contamination with water and high temperatures above 400°F (204°C).

Incompatible materials

Water, amines, strong bases, alcohols.

Hazardous decomposition products

By high heat and fire; carbon monoxide, oxides of nitrogen, traces of HCN, MDI vapors or aerosols

Section 11: Toxicological Information

Acute Toxicity/Effects

Not classified

Skin Corrosion/Irritation	Causes skin irritation.
Serious Eye Damage/Irritation	Not classified
Respiratory or Skin Sensitization	May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.
Germ Cell Mutagenicity	Not classified
Carcinogenicity	Not classified

Reproductive Toxicity	Not classified
STOT (Single Exposure)	Not classified
STOT (Repeated Exposure)	Not classified
Aspiration Hazard	May be fatal if swallowed and enters airways.

Section 12: Ecological Information

Toxicity

Harmful to aquatic life when exposure exceeds 1 cm²/L

Persistence and degradability

May cause long-term adverse effects in the environment.

Bioaccumulative potential

Not established.

Mobility in soil

No additional information available.

Other adverse effects

Avoid release to the environment.

Section 13: Disposal Considerations

Waste Disposal Recommendations:

Dispose of waste material in accordance with all local, regional, national, & international regulations.

Sewage Waste Recommendations:

Do not dispose of waste into sewer.

Section 14: Transport Information

DOT (Department of Transportation)

Proper Shipping Name: Liquid Resin (Non-Regulated)

Hazard Class: Non-regulated

UN Number: None

Packing Group: None

Label: Not applicable

Placard: Not applicable

NMFC (National Motor Freight Carriers)

Freight Class: 55

IMO / IMDG CODE (OCEAN) HAZARD CLASS DIVISION NUMBER: Non-regulated/Not dangerous goods

ICAO / IATA (AIR) HAZARD CLASS DIVISION NUMBER: Non-regulated/Not dangerous goods

Section 15: Regulatory Information

US Federal Regulations

SARA Section 311/312 Hazard Classes: Immediate (acute) health hazard

Oxirane, methyl-, polymer with oxirane, ether with 1,2,3-propanetriol (3:1), polymer with 1,1'-methylenebis[4-isocyanatobenzene] (59675-67-1)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro-.omega.-hydroxy-, polymer with 1,3-diisocyanato-2

methylbenzene and 2,4-diisocyanato-1-methylbenzene (64814-10-4)
 Listed on the United States TSCA (Toxic Substances Control Act) inventory

US State Regulations

Neither this product nor its chemical components appear on any US state lists.

Section 16: Other Information

Skin Sens. 1 H317 Skin sensitization Category 1
 Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

NFPA 704M ratings:	Health	Flammability 1	Reactivity 1	Other
HMIS ratings: 0-Insignificant 1-Slight 2-Moderate 3-High 4-Extreme	Health 3	Flammability 1	Physical Hazard 1	Personal Protection H

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