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M 1 – CHEMICALLY ACTIVATED ACRYLIC GEL:

SPECIFICATION:
Chemically activated acrylic gel (grout) shall meet or exceed the performance specifications of:

- Shall be a water solution of acrylic resin.
- Shall form an elastic and cohesive gel with the addition of a catalyst which stops flowing water.
- Gel set time shall be controllable from a few seconds to several hours even in flowing water.
- Shall have approximately the same viscosity as water (1 to 2 centipoises) in solution.
- When catalyzed, shall produce a gel which is nontoxic.
- Shall have a tracer dye added if colorless.
- Shall be mixed and applied per manufactures recommendations.

CATALYST:
- AV-101 Catalyst T+ or Chemical grout monomer, Triethanolamine (TEA) catalyst & water.
- AV-103 Catalyst SP or Sodium Persulfate (SP) initiator & water.

POSSIBLE ADDITIVES:
- AV-105 Ethylene Glycol: Protects against freezing.
- AV-257 Icoset: Increases compressive and tensile strength.
- AC 50W: Root Inhibitor.

Restrictions:
For sealing existing or rehabilitated, in-service gravity sewers and manholes including:

- Sewer joint sealing.
- Sewer laterals.
- Manhole waterproofing.
- Lateral connections to cured in-place liners.
- Not for potable water applications.
- For soil stabilization.
- Shall not be used after 6-12 months from manufactures date depending on manufacture.

Manufacturer:
- AVANTI INTERNATIONAL- AV-118 DURIFLEX ACRYLIC GEL
- DE NEEF CONSTRUCTION CHEMICALS INC.-AC-400 ACRYLATE GROUT
- OPEN
M 1.1 – CHEMICALLY ACTIVATED ACRYLAMIDE GEL:

SPECIFICATION:
Chemically activated acrylamide gel (grout) shall meet or exceed the performance specifications of:

- Shall be a water solution of three or more chemicals which is a blend of Acrylamide Monomer (AM) and Methylenebisacrylamide (MBA).
- Shall form an elastic and cohesive gel with the addition of catalysts which stops flowing water.
- Gel set time shall be controllable from a few seconds to several hours even in flowing water.
- Shall have approximately the same viscosity as water (1 to 2 centipoises) in solution.
- Shall have a tracer dye added.
- Shall be mixed and applied per manufacturers recommendations.

CATALYST:
- AV-101 Catalyst T+.
- AV-102 Catalyst AP.

POSSIBLE ADDITIVES:
- AV-105 Ethylene Glycol: Protects against freezing.
- AV-257 Icoset: Increases compressive and tensile strength.
- AC 50W: Root Inhibitor.
- Dye: Tracer Dyes

MANUFACTURER:
- AVANTI INTERNATIONAL- AV-100
- OPEN

RESTRICTIONS:
For sealing existing or rehabilitated, in-service gravity sewers and manholes including:

- Sewer joint sealing.
- Sewer laterals.
- Manhole waterproofing.
- Lateral connections to cured in-place liners.
- Not for potable water applications.
- For soil stabilization.
- Shall not be used after 12 months from manufacture date.
## M 1.2 – WATER ACTIVATED POLYMER SOLUTION/ FOAM:

**SPECIFICATION:**
Water activated polymer solution which cures when reacted with water (grout) shall meet or exceed the performance specifications of:

- Shall prevent water infiltration unto sub-grade structures and pipes.
- Shall be either hydrophilic or hydrophobic polyurethane.
- Shall form a strong film, gel, or foam of polyurethane, with the addition of or contact with water, which stops flowing water.
- Shall have an approximate viscosity of 120-2500 centipoises in solution.
- Shall be mixed and applied per manufactures recommendations.
- Shall be supplied in cartridges for use with or without a caulking gun.

**MANUFACTURER:**
- AVANTI INTERNATIONAL- AV-202 MULTIGROUT
- DE NEEF CONSTRUCTION CHEMICALS, INC.- HYDRO-ACTIVE CUT “HOT SHOT”
- OPEN

**RESTRICTIONS:**
For sealing existing or rehabilitated, in-service gravity sewers and manholes including:

- Large cracks or joints in concrete.
- Precast structures.
- Manhole waterproofing.
- Manhole connections or pipe penetrations.
M 2 – PIPE GASKET LUBRICANTS:

SPECIFICATION:
Pipe gasket lubricants shall meet or exceed the performance specifications of:

- AWWA C-111 (ANSI-A21.11), Rubber-gasket joints for ductile-iron pressure pipe and fittings.
- Shall be suitable for lubricating the parts of the joint for assembly.
- Shall be nontoxic.
- Shall not support the growth of bacteria.
- Shall have no deteriorating effects on the gasket material.
- Shall not impart taste or odor to the water in the pipe.
- Containers shall be labeled with the trade name of the lubricant.
- Shall comply with and be labeled as approved by the National Sanitation Foundation (NSF) for use in potable water lines meeting NSF 61.
- Affidavit of compliance to this specification shall be available upon request.

MANUFACTURER:
- EASE-ON PIPE JOINT LUBRICANT
- J.C. WHITLAM- BLUE LUBE
- OPEN

RESTRICTIONS
M 3 – PTFE “TEFLON” THREAD SEALANT TAPE:

SPECIFICATION:
PTFE (polytetrafluoroethylene) “Teflon” thread sealant tape shall meet or exceed the performance specifications of:

- Shall meet MIL-T-27730A specifications.
- Shall be Underwriters Laboratory Listed as noted (UL).
- Shall comply with and be labeled as approved by the National Sanitation Foundation (NSF) for use in potable water lines meeting NSF 61.
- Shall be nontoxic.
- Shall not support the growth of bacteria.
- Shall not impart taste or odor to the water in the pipe.
- Affidavit of compliance to this specification shall be available upon request.

ADDITIONAL REQUIREMENTS:
- Color: White
- Density: Standard .5 - .7
- Thickness: .003" - .0038"
- Temperature: -450°F to +500°F
- Pressure: Hard vacuum to 10,000 PSI.
- Package: Plastic Spool & Shell
- Width: .75" or 1"
- Length per spool: 260" or 520"

MANUFACTURER:
- MERCO TAPE COMPANY - M55
- OPEN

RESTRICTIONS:
SPECIFICATION:
Preformed flexible plastic joint sealant (gaskets) shall meet or exceed the performance specifications of:

- ASTM C-990 standard specification for joints, concrete pipe, manholes and pre-cast box sections.
- AASHTO M-198 75 1.
- Shall be produced from blends of refined hydrocarbon resins and plasticizing compounds reinforced with inert mineral filler.
- Shall appear as a semi-solid black strip.
- Shall contain no solvents, irritating fumes or obnoxious odors.
- The compound shall not depend on oxidizing, evaporating, or chemical action for its adhesive or cohesive strength.
- Shall be supplied in extruded rope-form of suitable cross-section and of such size as to fill the joint space when manhole sections are stacked.
- Shall be protected by a suitable removable two-piece wrapper.
- Affidavit of compliance to this specification shall be available upon request.

MANUFACTURER:
- HENRY COMPANY- RAM-NEK/ RN101
- OPEN

RESTRICTIONS:
M 4.1 – FLEXIBLE BUTYL JOINT SEALANTS:

**SPECIFICATION:**
Preformed flexible butyl plastic joint sealant (gaskets) shall meet or exceed the performance specifications of:

- ASTM C-990 standard specification for joints, concrete pipe, manholes and pre-cast box sections.
- AASHTO M-198B.
- Shall be produced from special blend of butyl and asphalt.
- Shall appear as a extruded black fluid coil.
- Shall be protected by a suitable removable two piece wrapper.
- Affidavit of compliance to this specification shall be available upon request.

<table>
<thead>
<tr>
<th>Chemical Composition</th>
<th>TEST METHOD</th>
<th>REQUIRED</th>
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<tbody>
<tr>
<td>Hydrocarbon % by weight</td>
<td>ASTM D 4120</td>
<td>85.75</td>
</tr>
<tr>
<td>Inert Mineral Filler % by weight</td>
<td>AASHTO TT 11</td>
<td>30-60</td>
</tr>
<tr>
<td>Volatile Matter % by weight</td>
<td>ASTM D 23 - 00</td>
<td>≤ 2.0 Max.</td>
</tr>
</tbody>
</table>

**Physical Properties**
- Specific Gravity @ 77 F: ASTM D 71-94 1.2-1.35
- Softening Point, Ring & Ball @ 77 F: ASTM D 36-24 320 min
- Flexibility, Cent., @ 77 F, 150 g, 8 sec., in 0.1 mm: ASTM D 217-82 85-120
- Flash Point, Cleveland Open Cup, F: ASTM D 92-85 600 min
- Fire Point, Cleveland Open Cup, F: ASTM D 92-85 835 min
- Compress Test @ 77° F, lb/in²: ASTM C 972 100 max
- Compress Test @ 32° F, lb/in²: ASTM D 972 200 max

**Sag or Flow Resistance**
Sag or flow resistance, in vertical position for 5 days @ 135 F
- FS 92-0-210A sect. 4.5.3 ASTM C 960

**Chemical Resistance**
30 days immersion @ room temperature in each of the following:
- 5% Solution of Chloric Phenyl
- 5% Solution of Hydrogen Chloride
- 5% Solution of Sulfuric Acid
- Saturated Hydrogen Sulfide Solution

**MANUFACTURER:**
- HENRY COMPANY- BUTYL-NEK/ BN109
- OPEN

**RESTRICTIONS:**

有效日期: 01-01-20
修订号: 2
| M 5 – POLYURETHANE ADHESIVE SEALANT/CAULK: | Effective Date: 01-01-20  
| Revision #: 2 |  
| **SPECIFICATION:**  
High-performance polyurethane adhesive & sealant shall meet or exceed the performance specifications of:  
- Shall be a high-performance marine grade polyurethane adhesive sealant.  
- Shall have a minimum tensile strength of 600 psi.  
- Shall have a minimum 900% elongation before breaking.  
- Shall be suitable for above and below water applications.  
- Shall not shrink.  
- Shall create a permanent bond with fiberglass and gel coat material.  
- Affidavit of compliance to this specification shall be available upon request.  

**INTENDED USE:**  
- Installation of inside drop bowl.  
- Sealing of bowl to manhole wall.  

**MANUFACTURER:**  
- 3M MARINE ADHESIVE SEALANT 5200  
- 3M MARINE ADHESIVE SEALANT FAST CURE 5200  

**RESTRICTIONS:**
M 6 – PROTECTO 401 / PERMOX CTF / TNEMEC SERIES 431
PERMASHIELD PL TOUCH-UP KIT:

SPECIFICATION:
Touch-up kits shall meet or exceed the performance specifications of:

• Shall be applied per manufactures procedure.
• Affidavit of compliance to this specification shall be available upon request.

SURFACE PREPARATION:
• The surface preparation shall be equal to the specifications for the project or as outlined in the touch-up procedure.
• Shall not be applied over wet or frozen surfaces.

APPLICATION DATA:
• Dry film thickness shall be as outlined in specifications.

INTENDED USE:
• Sealing of cut ends of lined pipe.
• Repairing field damaged areas of lined pipe and fittings.

MANUFACTURER:
• PROTECTO 401
• PERMOX CTF
• TNEMEC SERIES 431 PERMASHIELD PL

RESTRICTIONS: