Effective Date: 01-01-2025 **Section M: Coatings & Sealants** Chemically Activated Acrylic Gel M 1.1 Chemically Activated Acrylamide Gel M 1.2 Water Activated Polymer Solution/ Foam M 2 Pipe Gasket Lubricants PTFE "Teflon" Thread Sealant Tape M 3 Flexible Joint Sealants M 4 M 4.1 Flexible Butyl Joint Sealants Polyurethane Adhesive Sealant/ Caulk M 5 M 6 Protecto 401 / Permox CTF / Tnemec Series 431 Permashield PL Touch-up Kit Polymorphic Resin Liner System/ Sanitary Sewer M 7



M 1 - CHEMICALLY ACTIVATED ACRYLIC GEL:

Effective Date: 01-01-2025

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:

Effective Date: 01-01-2025

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 manufactures 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:

Effective Date: 01-01-2025

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:

Effective Date: 01-01-2025

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



M 3 - PTFE "TEFLON" THREAD SEALANT TAPE:

Effective Date: 01-01-2025

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.



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



M 4 - FLEXIBLE JOINT SEALANTS:

Effective Date: 01-01-2025

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.
- Federal Specification SS-S210-A, "Sealing Compound Preformed Plastic for Pipe Joints", Type 1, Rope Form.
- 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



M 4.1 - FLEXIBLE BUTYL JOINT SEALANTS:

Effective Date: 01-01-2025

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.
- Federal Specification SS-S210-A, "Sealing Compound Preformed Plastic for Pipe Joints", Type 1, Rope Form.
- 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.



	TEST	REQUIRED
Chemical Composition	METHOD	
Hydrocarbon, % by weight	ASTM D 4-80	50-70
Inert Mineral Filler, % by weight	AASHTO T111	30-50
Volatile Matter, % by weight	ASTM D 6-80	2.0 Max.
Physical Properties*		
Specific gravity. @ 77F.	ASTM D 71-84	1.2-1.35
Ductility at 77F, cm	ASTM D 113-85	5.0 min.
Softening Point, Ring & Ball, @ 77F	ASTM D 36-86	320 min.
Penetration, Cone, @ 77 F,	ASTM D 217-82	50-120
150 g, 5 sec., in 0.1 mm		
Flash Point, Cleveland Open Cup, F	ASTM D 92-85	600 min.
Fire Point, Cleveland Open Cup, F	ASTM D 92-85	625 min.
Compression Test @77° F lbf/in³	ASTM C 972	100 max.
Compression Test @ 32° F lbf/in3	ASTM D 972	200 max.
Sag or Flow Resistance		
Sag or flow resistance, in vertical position	FS SS-S-210A	No sagging
for 5 days @ 135 F	sect. 4.5.3/ASTM	
	C 990	
Chemical Resistance		
30 days immersion @ room temperature in	FS SS-S-2120A	
each of the following:	sect. 3.6/ASTM	
_	C 990	
5% Solution of Caustic Potash		No visible Deterioration
5% Solution of Hydrochloric Acid		No visible Deterioration
5% Solution of Sulfuric Acid		No visible Deterioration
Saturated Hydrogen Sulfide Solution		No visible Deterioration
	•	•

MANUFACTURER:

- HENRY COMPANY- BUTYL-NEK/ BN109
- ConSeal CS 212
- ConSeal CS 102B
- NPC External Joint Wrap
- NPC BidCo C-56



M 5 - POLYURETHANE ADHESIVE SEALANT/ CAULK:

Effective Date: 01-01-2025

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



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

Effective Date: 01-01-2025

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



M 7 - POLYMORPHIC RESIN LINER SYSTEM / SANITARY SEWER:

Effective Date: 01-01-2025

SPECIFICATION:

Polymorphic resin protective manhole and wet well liner system shall meet or exceed the performance specifications of:

- Manufacture shall warrant material and workmanship for a minimum period of ten (10) years.
- Shall be a modified ispthalic polyester liner system made of two-components, 100% solid, known as polymorphic resin as described below.
- Shall provide a waterproof, corrosion resistant liner to prevent any deterioration of concrete surfaces from hydrogen sulfide and other corrosive gases/acids produced by wastewater.
- Can be used to rehabilitate and protect concrete, steel, fiberglass, or masonry surfaces.
- System shall restore structural integrity of brick/concrete structures.
- Shall use an approved quick setting cementitious material to bring substrate to profile.
- To ensure total unit responsibility, all material and installation shall be furnished by, and coordinated with, one supplier/ manufacturer.
- The resin based material shall be used to form the sprayed on/structure enhanced monolithic liner covering all interior surfaces to be protected and shall include the walls, ceiling, benches, inverts and pipe entries.
- Application of liner system shall be in strict accordance with manufacture's recommendation.
- The three coat system is made of a prime coat (DS-101 10-25 mils thick), intermediate coat (DS301 75-150 mils thick), and a final coat (DS-401 10-25 mils thick). Final installation shall be a minimum thickness of 150 mils and not more than 250 mils thick.

WARRANTY RESPONSIBILITIES:

- A Final Approval Letter from the manufacturer shall be provided to CFPUA.
- Upon approval of the coating application, the manufacturer shall provide a Final Approval Letter stating that the lining system was applied in accordance with the manufacturers recommendations. The manufacturer shall assume all warranty responsibilities associated with the product. This includes coverage for surface preparation or other defects or failures related to the application and performance of the approved coating as per the warranty terms.

MINIMUM PHYSICAL/ MATERIAL PROPERTIES

Flexural Strength	ASTM D790	8,630 psi
Compressive Strength	ASTM D695	1,050 psi
Tensile Strength	ASTM D638	4,900 psi
Barcol Hardness	Impressor #L25	72-75
Adhesive Strength	Direct to Metal	1,582 psi
Adhesive Strength	Direct to Concrete	Substrate Failure





MANUFACTURER:

- ZEBRON 386
- RAVEN LINING SYSTEM
- SEWERKOTE DURAMER 1030
- WARREN ENVIRONMENTAL S-301
- SHERWIN WILLIAMS SHERFLEX ELASTOMERIC
- SHERWIN WILLIAMS DURA-PLATE 6000
- SHERWIN WILLIAMS DURA-PLATE 6100

