

VIRGINIA DEPARTMENT OF TRANSPORTATION

MATERIALS DIVISION

MEMORANDUM

GENERAL SUBJECT: Joint Materials	NUMBER: MD 444-21
SPECIFIC SUBJECT: Section 204.19 of the Manual of Instructions; clarifying acceptance of joint materials and re-formatting to align with Road & Bridge specification section 212.	DATE: 4/19/2021
	SUPERSEDES:
APPROVED:	Charles A. Babish, PE State Materials Engineer Approved: _____

EFFECTIVE DATE

- This memorandum is effective May 1, 2021
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PURPOSE/NEED/SCOPE/REQUIREMENTS

- Format material to follow Road & Bridge Section 212
 - Clarify the acceptance of Silicon Sealants and include backer rods
 - Change preformed joint filler to follow Road & Bridge (preformed expansion joint sealer)
 - Change preformed chloroprene to follow Road & Bridge (preformed neoprene polychloroprene) – include sampling
 - Change PVC and PE joint fillers from sampling to manufacturer’s certification
 - Define pipe joints and connections
 - Add preformed flexible joint sealants
 - Add lubricants and structural steel to Elastomeric expansion dam
 - Change pressure joint relief material from sampling to manufacturer’s certification
 - Change elastomeric waterstops from sampling to manufacturer’s certification
 - Add traffic loop sealant
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Changes are Shaded

PROCEDURES

Sec. 204.19 Joint Materials

(Sec. 212) See Sec. 207 for joint materials that may be accepted on modified inspection. Joint fillers, joint sealers, and pipe gaskets shall be sampled as follows:

(ea) Hot-poured joint sealer

Asphalt Sealer - This shall be sampled by cutting one piece, of about 10 lbs. (5 kg), from the original container. One sample shall be taken from each shipment or lot. In no case shall a sample be taken from the heating kettle. The sample may be wrapped in paper and shipped, without boxing, to the Central Office **Materials Division** Laboratory (MDL) for tests. In the MDL Laboratory, test specimens are cut from the inner portion, whether surface contamination is apparent or not. Wrapping paper adhering to the sample is, therefore, not objectionable.

Each sample shall be marked, in accordance with Sec. 203, using Form TL-10, as outlined in Sec. 800.

(b) Silicone Sealants

1. Silicone

Silicone joint material will be accepted on the basis of a To be included on the approved list distributed by the Materials Division and for Qualified Silicone Rubber Joint Sealer (Approved List No. 27), Manufacturer shall supply certification for each lot. Only visual inspection is required at the job site.

2. Backer Rods

Visual Inspection

(gc) Preformed **Expansion Joint Sealer Filler** (Bituminous Types)

Visual Inspection.

(bd) Expanded Rubber Joint Filler

Expanded rubber joint filler shall be sampled by obtaining one sq.ft. (0.09 m²) of each ½" thickness and for each lot or shipment received. Samples shall be submitted to the Central Office Laboratory either loose or in a packaging envelope.

Samples shall be marked, in accordance with Sec. 203, using Form TL-10, as outlined in Sec. 800.

(e) Preformed **Neoprene (polychloroprene) Seal**

This shall be sampled, packed, marked, and shipped, in accordance with Paragraph (b) above

Expanded rubber joint filler shall be sampled by obtaining one sq.ft. of each thickness and for each lot or shipment received. Samples shall be submitted to the Central Office Laboratory either loose or in a packaging envelope.

(df) **Poly(Vinyl Chloride) (PVC) and Polyethylene (PE) Joint Fillers**

These shall be sampled by obtaining one section of full thickness not less than 2 ft. (0.6 m) long and the full depth of the joint from each consignment of 1000 sq.ft. (100 m²) or less. At least one sample shall be taken for each thickness of joint and one for each type or brand. These samples shall be enclosed in a box or securely tied to a piece of board, so that they may be transported without damage. Nails must not be used to fasten the sample to the board. Samples shall be submitted to the Central Office Laboratory for tests.

All samples shall be marked, in accordance with Sec. 203, using Form TL-10, as outlined in Sec. 800

PVC and PE joint fillers shall be accepted on certification from the Manufacturer that it conforms to the requirements of ASTM D1667.

(g) **Sponge Rubber Joint Filler**

This shall be sampled by obtaining on section of full thickness not less than 2 LF. long and the full depth of the joint from each consignment of 1000 SF or less. At least one sample shall be taken for each thickness of joint and one for each type or brand. These samples shall be enclosed in a box or securely tied to a piece of board, so that they may

be transported without damage. Nails must not be used to fasten the sample to the board. Samples shall be submitted to the Materials Division Laboratory (MDL) for tests. ~~packed, marked, and shipped, in accordance with Paragraph (d) above.~~

When used in conjunction with bridge bearings, samples shall also be obtained and tested in the same manner as outlined above.

(i) Pipe Joints and Connections and Pipe Coatings

Gaskets, bands, and other joint materials, and joint configurations where they are used, shall be submitted to the Materials Division for review and listing on Approved List No. 14. Joint test certifications shall also be submitted to qualify joints as *soil-tight*, silt-tight or leak-resistant *according to their tightness per AASHTO R-82*. Any change in joint configuration or material shall require a resubmission of material and joint certifications. ~~Pipe coating materials shall also be submitted for listing on Approved List no. 14.~~

(j) Preformed Flexible Joint Sealants

~~Joint sealants shall be submitted to the Materials Division for review and listing on Approved List No. 14. following the same requirements as (h) above.~~

(k) Preformed Elastomeric Joint Sealer

1. Compression Seal

One sample of preformed elastomeric joint sealer shall be obtained for each thickness or size and for each lot or shipment received, and submitted to the ~~MateDL~~ Central Office Laboratory for tests. The size of sample should be 2 LF ~~lin. ft. (0.6 m)~~ of each thickness or size. No shipping container is necessary.

2. Lubricants

The lubricant adhesive to be used with the seal shall be accepted on certification from the ~~M~~ manufacturer that it conforms to the requirements of ASTM D4070.

~~All samples shall be marked, in accordance with Section 203, using Form TL-10, as outlined in Sec. 800.~~

(l) Elastomeric Expansion Dam and Tooth Expansion Joint

1. Strip Seal and Tooth Expansion

~~Elastomeric expansion dam Strip seal shall be sampled by obtaining one piece 2 LF in length for each shipment received. Tooth expansion shall be sampled by obtaining one piece 1 LF in length for each shipment received. Samples shall be submitted to the Materials Division Laboratory (MDL). No shipping container is necessary.~~

~~accepted by the submission of certified materials test results from a qualified independent testing laboratory and a certification from the Manufacturer that the material meets or exceeds the applicable specification.~~

2. Lubricants

~~The lubricant adhesive to be used with elastomeric strip seal shall be accepted on certification from the manufacturer that it conforms to the requirements of ASTM D4070.~~

3. Steel/Aluminum/Anchor Bolts

~~Structural Steel, aluminum, and anchor bolts used in expansion dams will be accepted on modified acceptance with mill analyses analysis, as outlined elsewhere herein in Sec. 207.~~

(m) Pressure Joint Relief Material

~~This shall be sampled by obtaining one piece one ft. (300 mm) in length for each size per lot. The sample shall be submitted to the Central Office Laboratory for tests. No special packaging is required.~~

~~Samples shall be marked, in accordance with Section 203, using Form TL-10, as outlined in Sec. 800.~~

Joint relief material shall be accepted on certification from the manufacturer that it conforms to the requirements of ASTM D3204.

(k) Waterstops (for non-pipe applications)

1. Neoprene (chloroprene)

Elastomeric waterstops of Neoprene (chloroprene) or poly(vinyl chloride) shall be sampled by obtaining one piece 1 LF one ft. (300 mm) in length for each size per lot. Samples shall be submitted to the Materials Division Laboratory (MDL) Central Office Laboratory for tests. No special packaging is required. Samples shall be marked, in accordance with Sec. 203, using Form TL-10, as outlined in Sec. 800.

All samples shall be marked, in accordance with Sec. 203, using Form TL-10, as outlined in Sec. 800.

2. Elastomeric (poly vinyl chloride / PVC)

PVC waterstops will be accepted by manufacturer's certification.

3. Metal

Metal waterstops consisting of sheet copper will be accepted on modified inspection, with no testing or certification required, as outlined in Sec. 204.12 and 207.

(n) Traffic Loop Sealant

Sample shall be obtained at the Manufacturer's facility. One (1) gallon sample shall be obtained with the Manufacturer's required amount of hardener (to set up 1 gallon) for testing and approval. Samples shall be taken and approved per batch/lot. In no case shall a sample be taken from the heating kettle. The sample shall be shipped to the Materials Division Laboratory (MDL) for testing.

(o) Reports

Laboratory tests and inspections of joint materials will be reported on Forms TL-23 (expanded rubber, poly(vinyl chloride) and polyethylene, preformed neoprene chloroprene, preformed elastomeric, elastomeric expansion dam, pressure joint relief material, pipe gaskets, and waterstops and loop sealant), TL-47 (hot-poured, preformed (bituminous), sponge rubber, and preformed elastomeric lubricant-adhesive), and TL-109 respectively, as outlined in Sec. 800.

MINIMUM ACCEPTANCE SAMPLING REQUIREMENTS;

19. Joint Materials - (a) Asphalt sealer	212	Cut one piece, of about 10 LB, from the original container. One sample shall be taken from each shipment or lot. In no case shall a sample be taken from the heating kettle.	At source or project site.	Wrapped in paper and ship without boxing.	
(b) Silicone... 1. Sealant 2. Backer rod		Visual accepted on approved list of Materials Division.			See Sec. 207 for modified acceptance. Visual Inspection.
(c) Preformed Expansion Joint Filler (Bituminous Types)		Visual	Same as Item 19(b).	Same as Item 19(d).	

(d) (b) Expanded Rubber Joint Filler....		One 2SF (0.1 m ²) x full thickness per lot or shipment each thickness to MDL Central Office Laboratory.	At source or project job site.	Loose or in packaging envelope.	
(e) Preformed Chloroprene / Neoprene Seal....		Same as Item 19(b).	Same as Item 19(b). At source or project job site.	Same as Item 19(b). Loose or in packaging envelope.	
(f)(d) Poly (Vinyl Chloride) and Polyethylene PE Joint Fillers..		One section 2 ft. (0.6 m) x full depth and thickness per 1000 ft ² (100 m ²) or less, each thickness and type or brand, to Central Office Laboratory.	Same as Item 19(b).	Boxed or securely tied to piece of board. NEVER USE NAILS TO FASTEN SAMPLE.	<i>PVC and PE joint filler accepted on Manufacturer's certification.</i>
(g) (j) Sponge Rubber Joint Filler...		Same as Item 19(d) Same rate required if used in bridge bearing. One section 2 LF x full depth and thickness per 1000 SF or less, each thickness and type or brand, to MDL	Same as Item 19(b). At source or project job site.	Same as Item 19(b). Loose or in packaging envelope.	
(h)(i) Pipe Gaskets...		Two (2) complete gaskets per shipment or lot to Central Office Laboratory. <i>Visual accepted on approved list 14</i>	Same as Item 19(b).	No container necessary.	
(i) Preformed flexible joint sealants		<i>Visual accepted on approved list 14</i>			
(j) (f) Preformed Elastomeric Joint Sealer.... 1. Compression Seal 2. Lubricant		One piece 2 LF ft. (0.6 m) x full thickness per lot or shipment, each thickness or size, to MDL Central Office Laboratory.	Same as Item 19(b). At source or project job site.	No container necessary for sealer.	<i>Lubricant adhesive accepted on manufacturer's certification.</i>
(a) Elastomeric Expansion Dam...					<i>See Sec. 207 for joint materials that may be</i>

1.Strip Seal/ Tooth Expansion		<i>One piece 2 LF in length for each shipment received. Tooth expansion shall be sampled by obtaining one piece 1 LF in length for each shipment received. Samples shall be submitted to the MDL.</i>	<i>At source or project site.</i>	<i>No container necessary for sealer.</i>	accepted on modified inspection.
2.Lubricants		Visual. Accepted on			<i>Lubricant adhesive accepted on Manufacturer's certification.</i>
3.Steel /Aluminum/ Anchor bolts		certification and certified independent laboratory materials test results.			Structural Steel, aluminum, and anchor bolts accepted on mill analyses-analysis, as outline in Sec. 207 See component materials elsewhere herein.
4.Structural steel					
(l) (h) Pressure Joint Relief Material...		One piece one ft. (0.3 m) per size per lot to Central Office Laboratory.	Same as Item 19(b).	No packaging necessary.	Accepted by Manufacturer's certification
(m)(k) Waterstops... neoprene		One piece one ft. (0.3 m) per size per lot to Central Office Laboratory.	Same as Item 19(b). At source or project site.	No packaging necessary.	
PVC		Visual. Approved on Manufacturer's certification.			
Metal					Sheet copper metal waterstops accepted on modified inspection, as outlined in Sec. 207.
(n) Traffic loop sealant		One (1) one gallon sample is obtained with the manufacturer's required amount of hardener (to set up 1 gallon) for testing and approval. Samples are taken and approved per batch/lot.	At source or project site.	No packaging necessary.	

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NOTES

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REFERENCES

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COPY DISTRIBUTION:

Deputy Chief Engineer
Division Administrators
District Administrators
District Location & Design Engineers
District Construction Engineers
District Maintenance Engineers
District Bridge Engineers
District Traffic Engineers

VDOT Resident Engineers
Federal Highway Administration
Virginia Ready Mix Association
Precast Concrete Association of Virginia
Virginia Transportation Construction Alliance
Virginia Asphalt Association
American Concrete Paving Association Mid-Atlantic Chapter
Old Dominion Highway Contractors Association