

OFFICE MEMORANDUM



MICHIGAN
STATE HIGHWAY DEPARTMENT

JOHN C. MACKIE, COMMISSIONER

September 4, 1963

To: E. A. Finney, Director
Research Laboratory Division

From: A. J. Permoda

Subject: Permalastic J-Seal PX-1424 Two-Component Joint Sealant.
Research Project R-63 NM-94. Research Report No. R-437.

At its May 28, 1963 meeting, the Committee for Investigation of New Materials referred a sample of this sealant, manufactured by the Permalastic Products Co. of Detroit, to the Research Laboratory Division for testing. This sample was tested in the laboratory and the following report made by D. F. Simmons.

Permalastic J-Seal is a two-component elastomeric polymer and is black in color. Company literature indicates it is not a polysulfide type sealant and is compatible with asphalt. Mixing of the two components for 3 to 4 min is required. At 78 F the pot life is 3 to 4 hr, tack-free time is 8 to 10 hr, and cure time is 20 hr. This tack-free time is high for normal joint sealing usage. Some trouble was experienced with the sealant running out of the test blocks if poured too quickly after mixing. It was necessary to wait 10 to 15 min after mixing before pouring to overcome this.

Test results for the laboratory sample are attached. This material satisfactorily passed five cycles at 100-percent extension and compression on both steel and concrete blocks. Penetration was lower than the specified minimum in Federal Specification SS-S-00195, indicating a harder sealant, and the percent-elongation-to-break was somewhat lower than is usually obtained with other two-component sealants.

It may be of interest that an earlier formulation was placed by Wayne County for experimental tests about 16 months ago in a rebuilt 1-in. longitudinal joint on the Wyoming St. bridge over the Edsel Ford Expressway (I 94). On August 16, 1963, D. F. Simmons inspected the various sealants in this joint. The Permalastic J-Seal was one of the better-looking sealants, with good resilience and good adhesion to the joint faces. However, this is in a longitudinal joint with very little movement due to expansion or contraction. In narrower transverse contraction joints with almost 100-percent seasonal change in width, adhesion might not be as good.

E. A. Finney

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The laboratory tests, except for penetration, indicate J-Seal PX-1424 joint seal merits consideration for a field trial in pavement contraction joints. Company literature claims that the J-Seal can be used in joints in bituminous surfaces as well as portland cement concrete. This indicates that it is basically different from the true polysulfides or polyurethanes which are not compatible with asphalt. For this reason the J-Seal PX-1424 may be suitable for resealing old pavement joints. Federal Specification SS-S-00195 applies to this type of material and could be the basis for a Department specification.

OFFICE OF TESTING AND RESEARCH

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AJP:DFS:js

cc: C. C. Rhodes
M. G. Brown

MICHIGAN
STATE HIGHWAY DEPARTMENT
OFFICE OF TESTING AND RESEARCH
RESEARCH LABORATORY DIVISION
MICHIGAN STATE UNIVERSITY
EAST LANSING

Project	63 NM-94
Laboratory No.	63 MR-144
Date	September 4, 1963

REPORT OF TEST

Report on sample of PERMALASTIC J-SEAL PX-1424 TWO-COMPONENT JOINT SEALANT
 Date sampled July 17, 1963 Date received July 17, 1963
 Source of material Permalastic Products Company, 15800 Tireman Street, Detroit
 Sampled from Manufacturer's stock Quantity represented 1 gallon
 Submitted by Permalastic Products Company, 15800 Tireman Street, Detroit
 Intended use Joint sealant Specification Federal SS-S-00195 (Army CE)

TEST RESULTS

	Sample 63 MR-144	Specification
Flow, 200 F, 5 hr, cm	None	None
Penetration, 77 F, 150 g, 5 sec, cm	0.16	0.30-1.00
Bond Extension, -14 F, 5 cycles, 1/2-in. specimens, 100% extension		
Steel-faced blocks	Passed	----
Dry concrete blocks	Passed	----
Extension to Break, percent average		
	Steel - 150	----
	Concrete - 150	----
Cold Flow, cm	None	None
Resilience, percent recovery	78	70+

W.W. McLaughlin

Signed _____