This Research Report is issued under the fixed designation RR: D04-1026. You agree not to reproduce or circulate or quote, in whole or part, this document outside of ASTM International Committee/Society activities, or submit it to any other organization or standards body (whether national, international or other) except with the approval of the Chairman of the Committee having jurisdiction and the written authorization of the President of the Society. If you do not agree to these conditions, please immediately destroy all copies of this document. *Copyright ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428. All rights reserved.*

25 July 2003

Committee D04 on Road and Paving Materials Subcommittee D04.38 on Highway Traffic Control Materials

Research Report D04-1026

Interlaboratory Study to Establish Precision Statements for ASTM D4280, Standard Specification for Extended Life Type, Nonplowable, Raised Retroreflective Pavement Markers

> ASTM International 100 Barr Harbor Drive West Conshohocken, PA 19428-2959

This is a preview. Click here to purchase the full publication.

COMMITTEE D-04.38 ON SIGN AND PAVEMENT MARKING MATERIALS RR: D-04 XXXX INTERLABORATORY TEST STUDY FOR THE DETERMINATION OF LONGITUDINAL FLEXURAL STRENGTH FOR NON-PLOWABLE RAISED PAVEMENT MARKERS FOR EXTENDED LIFE (ASTM D 4280 - STANDARD SPECIFICATION FOR EXTENDED LIFE TYPE, NONPLOWABLE, RAISED RETROREFLECTIVE PAVEMENT MARKERS)

An inter-laboratory study of Longitudinal Flexural Strength for Non-Plowable Raised Pavement Markers for Extended Life was conduct in accordance with Practice E 691 to determine the inter-laboratory and intra-laboratory precision of the newly included Longitudinal Flexural Strength test. This test was developed to replace the existing Flexural Strength test. This method reproduces more accurately loading conditions of raised pavement markers experienced on the roadway. Laboratories representing both state Departments and material manufacturers participated in the study.

The following is the test method used for the study:

- 9. Test Methods
 - 9.3 Physical Properties:
 - 9.3.1 Longitudinal Flexural Strength:

9.3.1.1 Condition markers at $23.0^{\circ} \pm 2.0^{\circ}$ C (73.4° ± 3.6°F) for 4 h prior to testing. 9.3.1.2 Place two steel bars approximately 12.7 mm x 25.4 mm (0.5 in. x 1.0 in.), each longer than the width of the marker base, on their 12.7 mm (0.5 in.) faces, on to the platen of the compression apparatus. Place durometer 70 elastomeric pads approximately 3 mm (0.12 in.) thick onto the bars. Place marker base down onto the pads. Marker shall have its lengthwise (roadway) direction perpendicular to the two bars. Spacing of bars shall depend on length of marker base, being as great as possible without bars protruding beyond the extreme lengthwise points of the marker base. Place a durometer 70 elastomeric pad approximately 25mm (1 in.) thick and larger than the marker top on top of the marker. Place a third steel bar approximately 12.7 mm x 25.4 mm (0.5 in. x 1.0 in.), longer than the width of the marker top, on its 12.7 mm (0.5 in.) face onto the top of the pad, positioned parallel to the other bars and centered over the marker top. See Figure 3. 9.3.1.3 Apply load to the top of the marker at a rate of 5.0 mm (0.2 in.)/min through the top steel bar until the marker breaks. Record load at break to the nearest kg (lb).



The following eight laboratories participated in the study:

Georgia Department of Transportation Materials Division 15 Kennedy Dr. Forest Park, GA 30297 Participant: Don Wishon

Louisiana Department of Transportation and Development Materials Division 5080 Florida Blvd. Baton Rouge, LA 70806 Participant: Jason Davis

Pennsylvania Department of Transportation Materials Division 1118 State St. Harrisburg, PA 17120 Participant: Dave Kuniega

Texas Department of Transportation Materials Division 125 East 11th St. Austin, TX 78701 Participant: Darren Hazelett

Virginia Department of Transportation Materials Division 1401 East Broad St. Richmond, VA 23219 Participant: Wendy Ealding

Avery Dennison Corporation 7542 N. Natches Ave. Niles, IL 60714 Participant: Dennis Couzin

Pac-Tec, Incorporated 1870 James Parkway Heath, OH 43056 Participant: David McHugh

Swareflex Technical Division of Swarovski and Company P.O. Box 15 A-6112 Wattens, Austria Participant: Michael Forster

This is a preview. Click here to purchase the full publication.