



Transport
Roads & Maritime
Services

Test method T1179

Penetration into joint sealant

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Revision Summary

Ed/Rev Number	Clause Number	Description of Revision	Authorisation	Date
		Reformatted and Generally Revised	D.Dash	February 2000
		Revision Summary Added	D.Dash	June 2001
Ed 2/ Rev 0	All	Reformatted RMS template	J Friedrich	November 2012

Note that Roads and Maritime Services is hereafter referred to as 'RMS'.

The most recent revision to Test method T1179 (other than minor editorial changes) are indicated by a vertical line in the margin as shown here.

Test method T1179

Penetration into joint sealant

1. Scope

This test method describes the procedure for determining the penetration of a standard cone into joint sealant material. This test method is derived from that set out in the American Society for Testing and Materials Designation, D3407 - 75T.

2. Definition

Term	Definition
The Penetration	(a) Is defined as the depth that a standard cone sinks vertically into a sample of material in 5 seconds at 25°C.

3. Apparatus

- (a) A penetrometer of such a design which allows the cone shaft to move vertically without measurable friction and which is capable of indicating the depth of penetration to an accuracy of 0.1 mm.
- (b) The penetration cone conforming to the requirements of ASTM D3407 - 75T, with total mass of the cone and shaft adjustable to 150.00 ± 0.1 g.
- (c) Equipment for heating the joint sealant as described in Test Method T1170.
- (d) A constant temperature bath having a capacity of at least 10 litres and capable of maintaining the prescribed temperature of 25°C within ± 0.1 °C. The bath is to be fitted with a perforated shelf, supported in position not less than 50 mm from the bottom and not less than 100 mm below the liquid level in the bath.
- (e) Penetration container manufactured from metal, flat bottomed and having a diameter of approximately 70 mm and an internal depth of approximately 60 mm.
- (f) A transfer dish with a capacity of at least 250 ml and of sufficient depth to hold a penetration container completely submerged in water. The bottom shall be smooth and level to prevent rocking of the penetration container during the test.
- (g) Thermometer, complying with IP 39C.
- (h) A timing device such as a stop-watch or automatic timer capable of providing the desired test interval (5s unless otherwise specified) within ± 0.1 s.

4. Preparation

- (a) Heat the sample of joint sealant according to Test Method T1170.
- (b) Pour the sample into the penetration container to a depth of at least 10 mm greater than the expected penetration.
- (c) Loosely cover the container as a protection against dust (a watch glass or inverted beaker is convenient) and allow to cool for one hour in the atmosphere at a temperature of 16 - 26°C.
- (d) Place the prepared and cooled sample in the water bath maintained at a temperature of 25 ± 0.1 °C for one hour.

5. Procedure

- (a) Adjust the masses of the cone and shaft to make up the moving load to $150 \text{ g} \pm 0.1 \text{ g}$.
- (b) Ensure that the cone, shaft and guide are clean and dry, and insert the cone and shaft in the penetrometer.
- (c) Place the sample in the transfer dish, in sufficient water to immerse the sample completely, and place the transfer dish on the stand of the penetrometer.

- (d) Position the cone by slowly lowering it until its tip just makes contact with the surface of the sample.
- (e) Set the penetrometer dial gauge to read zero. Quickly release the cone holder for a time of 5 seconds.
- (f) From the scale reading, record the depth of penetration to the nearest 0.1 mm. The container must not move during the test.
- (g) Make three determinations at points on the surface of the sample not less than 16 mm from the side of the container, and not less than 16 mm apart. Return the sample and transfer dish to the constant temperature bath between determinations.
- (h) Clean the cone with toluene after each determination.

6. Reporting

Report to the nearest 0.1 mm the mean of the three measurements of penetration.