

An updated standard

ASTM International revises its product standard for asphalt

by Mark S. Graham

In December 2014, ASTM International revised and updated its product standard applicable to oxidized roofing asphalt, ASTM D312, “Standard Specification for Asphalt Used in Roofing.”

Earlier editions

ASTM D312 originally was developed, approved and published in 1929. In 1978, ASTM D312-78 was updated from its 1971 edition and reformatted into its current format. The softening point ranges for ASTM D312-78’s Type III and Type IV asphalts increased by 5 degrees Fahrenheit from the 1971 edition’s to 185 F to 205 F for Type III asphalt and 210 F to 225 F for Type IV asphalt; these ranges still apply in ASTM D312’s current edition.

ASTM D312’s 1971 and 1978 editions established asphalt’s minimum flash point temperature as 437 F.

With ASTM D312-84, asphalt’s minimum flash point temperature increased to 475 F. Other physical properties (softening point, penetration, ductility and solubility) remained unchanged.

In 1989, ASTM International added a nonmandatory application guide to ASTM D312-89 indicating: “Asphalt should be applied within the EVT

range. ...” At this point, ASTM D312 did not require asphalt suppliers to test for nor provide labeling of an asphalt’s equiviscous temperature (EVT).

In 1995, a statement was added to ASTM D312-95’s packaging and marking requirements indicating asphalt’s flash point temperature and EVT for mop and mechanical spreader application need to be provided by asphalt suppliers on package labeling or bills of lading. ASTM D312-95 did not specify a test method for determining EVT.

In 2000, ASTM International increased asphalt’s minimum flash point temperature to 500 F. Also, the organization deleted nonmandatory slope guidelines contained in ASTM D312’s previous editions; these were moved to ASTM D6510, “Standard Guide for Selection of Asphalt Used in Built-Up Roofing Systems.”

ASTM D312-00 was reapproved in 2006 and remained in place until its December 2014 revision.

ASTM D312-15

The December 2014 revision of ASTM D312 is published as ASTM D312-15. This latest edition includes the following revisions and additions:

- A maximum asphalt kettle temperature of 550 F
- A change in asphalt’s minimum flash point temperature to 575 F
- Establishment of ASTM D4402, “Standard Test Method for Viscosity Determination of Asphalt at Elevated Temperatures Using a Rotational Viscometer,” as the basis for determining EVT
- Establishment of maximum EVT values for Type III asphalt of 430 F (mop application) and 470 F (mechanical

spreader application) and Type IV asphalt of 455 F (mop application) and 485 F (mechanical spreader application)


- A requirement that asphalt suppliers provide lot-specific EVTs for mop and mechanical spreader application on asphalt package labeling or bills of lading for bulk shipments

The establishment of a 550 F maximum kettle temperature and maximum EVT values should result in lowering asphalts’ kettle (and tanker) heating temperatures.

These revisions were developed by NRCA and the Asphalt Roofing Manufacturers Association in recognition of current crude source availability, refining practices and NRCA’s best-practice application guidelines while considering current safety and health practices. Additional background information is provided in the NRCA members-only publication Industry Issue Update, “Asphalt Health and Safety,” May 2014.

Implementation

If you specify, supply or install mop-applied asphalt roofing materials, NRCA encourages you to use asphalt that complies with ASTM D312-15.

Furthermore, NRCA now recommends consideration be given to specifying and using asphalt suppliers’ proprietary “low-fuming” asphalt formulations. Asphalts’ low-fuming additives are not currently addressed (or excluded) within ASTM D312-15 and, therefore, need to be specifically requested in addition to specifying ASTM D312-15. 

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NRCA maintains past editions of ASTM D312 dating to 1971. If you have editions of ASTM D312 from 1929 to 1964, please contact Mark Graham, NRCA’s associate executive director of technical services, at (800) 323-9545, ext. 7511 or mgraham@nrca.net.

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For a link to NRCA’s Industry Issue Update, log on to www.professionalroofing.net.