



Designation: C309 – 11

Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete¹

This standard is issued under the fixed designation C309; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope*

1.1 This specification covers liquid membrane-forming compounds suitable for application to concrete surfaces to reduce the loss of water during the early-hardening period. White-pigmented membrane-forming compounds serve the additional purpose of reducing the temperature rise in concrete exposed to radiation from the sun. The membrane-forming compounds covered by this specification are suitable for use as curing media for fresh concrete, and may also be used for further curing of concrete after removal of forms or after initial moist curing.

NOTE 1—This specification addresses only those properties listed in Sections 5 through 8. Membrane-forming compounds with special properties including better water retention, minimum solids content, resistance to ultraviolet radiation, acid and alkali resistance and non-interference with adhesives are described in Specification C1315.

NOTE 2—Solutions of silicate salts are chemically reactive in concrete rather than membrane-forming; therefore, they do not meet the intent of this specification.

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are provided for informational purposes only.

1.3 The following precautionary caveat pertains only to the test methods portion, Section 10, of this specification: *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

1.4 The text of this standard references notes and footnotes which provide explanatory material. These notes and footnotes shall not be considered as requirements of the standard.

1.5 This is a performance specification. The allowable composition of products covered by this specification is limited by various local, regional, and national regulations. Issues

related to air quality (solvent emission), worker exposure, and other hazards are not addressed here. It is the responsibility of the producers and users of these materials to comply with pertinent regulations.

Warning—Some VOC exempt solvents used to meet the regulations are extremely flammable with low auto ignition temperatures and rapid evaporation rates. Consult the manufacturer's product information sheet for important application and safety information.

2. Referenced Documents

2.1 ASTM Standards:²

C156 Test Method for Water Loss [from a Mortar Specimen] Through Liquid Membrane-Forming Curing Compounds for Concrete

C1315 Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete

D869 Test Method for Evaluating Degree of Settling of Paint

D883 Terminology Relating to Plastics

D1309 Test Method for Settling Properties of Traffic Paints During Storage

D2369 Test Method for Volatile Content of Coatings

E1347 Test Method for Color and Color-Difference Measurement by Tristimulus Colorimetry

3. Classification

3.1 The following types of liquid membrane-forming compounds are included:

3.1.1 *Type 1*—Clear or translucent without dye,

3.1.2 *Type 1-D*—Clear or translucent with fugitive dye, and

3.1.3 *Type 2*—White pigmented.

3.2 The solids dissolved in the vehicle shall be one of the following classes:

3.2.1 *Class A*—No restrictions,

3.2.2 *Class B*—Must be a resin as defined in Terminology

D883.

¹ This specification is under the jurisdiction of ASTM Committee C09 on Concrete and Concrete Aggregates and is the direct responsibility of Subcommittee C09.22 on Materials Applied to New Concrete Surfaces.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

*A Summary of Changes section appears at the end of this standard