



Designation: C884/C884M – 23

Standard Test Method for Thermal Compatibility Between Concrete and an Epoxy-Resin Overlay¹

This standard is issued under the fixed designation C884/C884M; 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 U.S. Department of Defense.

1. Scope*

1.1 This test method covers the determination of which epoxy-resin formulations are subject to debonding when used as overlays for concrete when the combination of the two is subjected to temperature changes that may be met in the field.

1.2 *Units*—The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the specification.

1.3 The text of this standard refers to notes and footnotes that provide explanatory material. These notes and footnotes (excluding those in tables and figures) shall not be considered as requirements of this standard.

1.4 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use. A specific hazard statement is given in Section 8.* (Warning—Fresh hydraulic cementitious mixtures are caustic and may cause chemical burns to exposed skin and tissue upon prolonged exposure.)²

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

¹ This test method is under the jurisdiction of ASTM Committee C09 on Concrete and Concrete Aggregates and is the direct responsibility of Subcommittee C09.25 on Organic Materials for Bonding.

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² See Section on Safety Precautions, *Manual of Aggregate and Concrete Testing*, Annual Book of ASTM Standards, Vol. 04.02.

2. Referenced Documents

2.1 *ASTM Standards*:³

C33/C33M Specification for Concrete Aggregates

C125 Terminology Relating to Concrete and Concrete Aggregates

C150/C150M Specification for Portland Cement

C260/C260M Specification for Air-Entraining Admixtures for Concrete

C672/C672M Test Method for Scaling Resistance of Concrete Surfaces Exposed to Deicing Chemicals (Withdrawn 2021)⁴

C778 Specification for Standard Sand

C881/C881M Specification for Epoxy-Resin-Base Bonding Systems for Concrete

3. Terminology

3.1 *Definitions*:

3.1.1 For definitions of terms used in this test method, refer to Terminology C125.

4. Summary of Test Method

4.1 A layer of epoxy-sand mortar is applied to a slab of dried concrete. After the epoxy has cured, the sample is subjected to five cycles of temperature change between 23 °C [73.5 °F] and –21 °C [–6 °F]. Cracks near the bond line between the concrete and the epoxy mortar constitute failure of the test.

5. Significance and Use

5.1 This test method applies to materials used in making epoxy-mortar overlays for concrete pavement. If debonding occurs between the overlay and the pavement, the material is unsuitable.

³ 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.

⁴ The last approved version of this historical standard is referenced on www.astm.org.

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