
Standard Method of Test for Temperature of Freshly Mixed Portland Cement Concrete

AASHTO Designation: T 309-22¹

Technically Revised: 2022

Editorially Revised: 2021

Technical Subcommittee: 3b, Fresh Concrete



**American Association of State Highway and Transportation Officials
555 12th Street NW, Suite 1000
Washington, DC 20004**

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1. SCOPE

- 1.1. This test method covers the determination of temperature of freshly mixed portland cement concrete.
- 1.2. *This standard may involve hazardous materials, operations, and equipment. This standard does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices.*
- Warning**—Fresh hydraulic cementitious mixtures are caustic and may cause chemical burns to skin and tissue upon prolonged exposure.
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2. REFERENCED DOCUMENTS

- 2.1. *AASHTO Standards:*
- M 339M/M 339, Thermometers Used in the Testing of Construction Materials
 - R 18, Establishing and Implementing a Quality Management System for Construction Materials Testing Laboratories
 - R 60, Sampling Freshly Mixed Concrete
- 2.2. *ASTM Standards:*
- E1, Standard Specification for ASTM Liquid-in-Glass Thermometers
 - E230, Standard Specification for Temperature-Electromotive Force (emf) Tables for Standardized Thermocouples
 - E2877, Standard Guide for Digital Contact Thermometers
- 2.3. *International Electrotechnical Commission Standard:*
- IEC 60584-1: 2013 Thermocouples - Part 1: EMF Specifications and Tolerances
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3. SIGNIFICANCE AND USE

- 3.1. Concrete temperature is one of the most important factors influencing the quality, time of set, and strength of concrete. Controlling concrete temperature and limiting placement to certain air temperatures will reduce or eliminate many problems, including those associated with strength development and durability.