



Designation: D8109 – 17 (Reapproved 2024)

Standard Guide for Waterproofing Repair of Concrete by Chemical Grout Crack Injection¹

This standard is issued under the fixed designation D8109; 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.

1. Scope

1.1 This guide describes the selection of materials, installation methods, and inspection required for sealing leaks at cracks in concrete building walls and slabs using chemical grout. The process discussed in this guide is a waterproofing repair in which voids in a concrete element are sealed with a reactive solution, installed by pressurized injection through drilled or surface-mounted ports.

1.2 This guide does not address the use of chemical grout for waterproofing by curtain grouting or injection into pre-placed permeable waterstop tubes. Injection of masonry elements presents additional factors beyond the scope of this guide. This guide does not address the use of injectable materials for structural repairs or for geotechnical applications such as soil stabilization.

1.3 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered 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.*

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 guide is under the jurisdiction of ASTM Committee D08 on Roofing and Waterproofing and is the direct responsibility of Subcommittee D08.22 on Waterproofing and Dampproofing Systems.

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2. Referenced Documents

2.1 *ASTM Standards:*²

F2304 Practice for Sealing of Sewers Using Chemical Grouting

F2414 Practice for Sealing Sewer Manholes Using Chemical Grouting

F2454 Practice for Sealing Lateral Connections and lines from the mainline Sewer Systems by the Lateral Packer Method, Using Chemical Grouting

2.2 *International Concrete Repair Institute (ICRI):*³

Guideline No. 340.1 Guide for the Selection of Grouts to Control Leakage in Concrete Structures

2.3 *U.S. Army Corps of Engineers:*⁴

Manual No. 1110-1-3500 Chemical Grouting

2.4 *U.S. Department of the Interior, Bureau of Reclamation:*⁵

Leaking Crack Repair Using Chemical Grouts

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *acrylamide, n*—organic solid of white, odorless, acrylic resinous material available in flake-like crystals and in liquid form.

3.1.2 *acrylate, n*—a general term applied to various water-soluble acrylic resinous materials.

3.1.3 *acrylic resin, n*—a type of resin polymerized from acrylic acid, methacrylic acid, esters of these acids, or acrylonitrile.

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.

³ Available from the International Concrete Repair Institute (ICRI), 10600 West Higgins Road, Suite 607, Rosemont, IL, 60018, www.icri.org.

⁴ Available from the U.S. Army Corps of Engineers, www.publications.usace.army.mil.

⁵ Available from U.S. Department of the Interior, Bureau of Reclamation, www.usbr.gov/research/projects.