



Designation: D4260 – 05

Standard Practice for Liquid and Gelled Acid Etching of Concrete¹

This standard is issued under the fixed designation D4260; 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 practice covers surface preparation of concrete to prepare the surface prior to the application of coatings.

1.2 This practice is intended to alter the surface profile of the concrete and to remove foreign materials and weak surface laitance.

1.3 *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.* For specific hazard statements, see Section 6.

2. Referenced Documents

2.1 *ASTM Standards:*²

D4258 Practice for Surface Cleaning Concrete for Coating

D4259 Practice for Abrading Concrete

D4262 Test Method for pH of Chemically Cleaned or Etched Concrete Surfaces

D4263 Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method

D4541 Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers

2.2 *Other Standard:* www.astm.org/catalog/standards/sist/461621b0-5

ACI-308 Recommended Practice for Curing Concrete³

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *gelled acid, n*—acid solution primarily intended for use on horizontal, vertical, and overhead surfaces.

3.1.2 *liquid acid, n*—acid solution primarily intended for use on horizontal surfaces.

¹ This practice is under the jurisdiction of ASTM Committee D33 on Protective Coating and Lining Work for Power Generation Facilities and is the direct responsibility of Subcommittee D33.05 on Application and Surface Preparation.

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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.

³ Available from American Concrete Institute, 22400 W. Seven Mile Rd., Detroit, MI 48219.

4. Summary of Practice

4.1 This practice is intended to provide a clean, contamination-free, and roughened surface.

4.2 Acceptable surfaces shall be free of laitance, form release agents, curing agents, oil, grease, and other penetrating contaminants. The surface shall be free of fins, projections, and loosely adhering concrete, dirt, and dust particles.

4.3 For some applications, a minimum concrete surface strength may be required for proper coating performance.

5. Significance and Use

5.1 This practice is used to prepare concrete for coatings where optimum bond is desired for service conditions such as continuous or intermittent immersion, temperature cycling, or mechanical loading.

6. Hazards

6.1 New concrete shall be cured in accordance with ACI-308.

6.2 Concrete cure compounds, form release materials, or concrete hardeners may require abrading, in accordance with Practice D4259, as acid etching may not be effective.

6.3 All oil and grease shall be removed in accordance with Practice D4258 prior to mechanical abrading, abrasive blast cleaning, water blasting, or acid etching.

6.4 Use and disposal of materials should conform to established federal, state, local, and project requirements.

METHOD A

7. Liquid Acid Etching Procedure

7.1 *Pre-Surface Preparation:*

7.1.1 Remove grease, oil, and other penetrating contaminants (see Practice D4258).

7.1.2 Remove fins and protruding surface irregularities by mechanical means.

7.1.3 Surfaces shall be free of standing water.

7.1.4 Some curing compounds may not be removed by liquid acid etching and will require preparation by mechanical abrading, abrasive blasting, or water blasting in accordance with Practice D4259.

7.1.5 When using liquid acid, proper cross ventilation and chemical respirators shall be provided.