



Standard Guide for Preparation of Zinc-Coated (Galvanized) Steel Surfaces for Painting¹

This standard is issued under the fixed designation D 2092; 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 guide describes eight methods of treating new zinc-coated (galvanized) surfaces produced by either the hot-dip method or by electroplating. This practice covers surfaces that have not been treated previously at the mill to provide temporary protection against staining by moisture other than by easily removed protective oils (see Appendix X1).

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

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.*

2. Referenced Documents

2.1 *ASTM Standards:*

D 1193 Specification for Reagent Water²

2.2 *Steel Structures Painting Council Specification:*

Paint No. 27 Basic Zinc Chromate-Vinyl Butyrol Wash Primer³

3. Summary of Guide

3.1 This guide describes treatment methods that provide galvanized surfaces suitable for painting, specifically so that an applied coating system can develop the adhesion necessary for satisfactory service life.

3.2 Eight methods of surface preparation (Note 1 and Note 2) are covered as follows:

3.2.1 *Method A—Zinc Phosphate Treatment.*

3.2.2 *Method B—Chromate Treatment.*

3.2.3 *Method C—Aqueous Chromic-Organic Treatment.*

3.2.4 *Method D—Acid-Curing Resinous Treatment.*

3.2.5 *Method E—Annealing Heat Treatments.*

¹ This guide is under the jurisdiction of ASTM Committee D-1 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.46 on Industrial Protective Coatings.

Current edition approved April 15, 1995. Published June 1995. Originally published as D 2092 – 86. Last previous edition D 2092 – 86 (1993).

² *ASTM Book of Standards*, Vol 11.01.

³ Available from Steel Structures Painting Council, 4516 Henry St., Suite 3015, Pittsburgh, PA 15213.

3.2.6 *Method F—Amorphous Complex-Oxide Treatment.*

3.2.7 *Method G—Abrasive Blast Cleaning.*

3.2.8 *Method H—Fluro-Titanic/Zirconic Polymer Treatment.*

NOTE 1—Materials employed in these methods of treatment are available from a number of sources as proprietary compounds or methods. Selection may be made from available sources.

NOTE 2—The use of solvents containing volatile organic compounds to prepare or treat the surface of metal components contributes to air pollution in the same manner as the use of solvent containing paints and coatings. The user of this standard must determine the applicability of appropriate regulations governing the volatile organic compound content of the materials used in a shop application (Miscellaneous Metal Parts), field painting (Architectural), or specific process industry.

3.3 Variations in surface preparation produce end conditions that differ, hence do not necessarily yield identical results when paints are subsequently applied. Service conditions will dictate the type of surface preparation to be selected, although the quality produced by any individual method may vary with different zinc coatings.

3.4 Galvanized surfaces are treated by using various methods and apparatus; satisfactory application may be made at the following locations:

	Mill	Plant	Field
Method A	Y	Y	Y
Method B	Y	Y	...
Method C	Y	Y	...
Method D	Y	Y	Y
Method E	Y
Method F	Y	Y	...
Method G	Y	Y	Y
Method H	Y	Y	...

3.5 This guide does not describe the cleaning necessary to provide a zinc-coated (galvanized) surface suitable for the application of the treatments. Many cleaning methods are applicable and should be agreed upon between the purchaser and the supplier.

NOTE 3—Most producers of zinc-coated (galvanized) steel sheets and coils have adopted the practice of applying an inhibitor to the zinc surface to give temporary protection against staining by moisture during shipping or storage. Some of these inhibitors interfere with proper reaction of most of the treatments described in these methods, and an unsatisfactory surface for painting results. It is strongly recommended that the purchaser consult the supplier of the chemical treatment to be used as to the suitability of the zinc surfaces for treatment by any of these methods (see Appendix X2).