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An American National Standard

Standard Guide for Evaluation of Aqueous Polymer Quenchants[1]

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1. Scope

1.1 This guide provides information, without specific limits, for selecting standard test methods for testing aqueous polymer quenchants for initial qualification, determining quality, and the effect of aging.

1.2 *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 requirements prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*

D 95 Test Method for Water in Petroleum Products and Bituminous Materials by Distillation[2]

D 445 Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)[2]

D 892 Test Method for Foaming Characteristics of Lubricating Oils[2]

D 1744 Test Method for Determination of Water in Liquid Petroleum Products by Karl Fisher Reagent[3]

D 1747 Test Method for Refractive Index of Viscous Materials[2]

D 1796 Test Method for Water and Sediment in Fuel Oils by the Centrifuge Method (Laboratory Procedure)[2]

D 2624 Test Method for Electrical Conductivity of Aviation and Distillate Fuels[2]

D 3519 Test Method for Foam in Aqueous Media (Blender Test)[4]

D 3601 Test Method for Foam in Aqueous Media (Bottle Test)[4]

D 3867 Test Methods for Nitrite-Nitrate in Water[5]

D 3946 Test Method for Evaluating the Bacteria Resistance of Water-Dilutable Metalworking Fluids[4]

D 4327 Test Method for Anions in Water by Chemically Suppressed Ion Chromatography[5]

D 5296 Test Method for Molecular Weight Averages and Molecular Weight Distribution of Polystyrene by High-Performance Size-Exclusion Chromatography[6]

D 6482 Test Method for Determination of Cooling Characteristics of Aqueous Polymer Quenchants by Cooling Curve Analysis with Agitation (Tensi Method)[7]

D 6549 Test Method for Determination of Cooling Characteristics of Quenchants by Cooling Curve Analysis with Agitation (Drayton Unit)[7]

E 70 Test Method for pH of Aqueous Solutions With the Glass Electrode[8]

E 686 Test Method for Evaluation of Antimicrobial Agents in Aqueous Metal Working Fluids[9]

E 979 Test Method for Evaluation of Antimicrobial Agents as Preservatives for Invert Emulsion and Other Water Containing Hydraulic Fluids[9]

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *austenite*, *n*—solid solution of one or more elements in face-centered cubic iron (gamma iron) and unless otherwise designated, the solute is generally assumed to be carbon **(1)**.[10]

3.1.2 *austenitizing*, *n*—forming austenite by heating a ferrous alloy into the transformation range (partial austenitizing) or above the transformation range (complete austenitizing). When used without qualification, the term implies complete austenitizing **(1)**.

3.1.3 *aqueous polymer quenchant*, *n*—a solution containing water, and one or more water-soluble polymers including poly(alkylene glycol), poly(vinyl pyrrolidone), poly(sodium acrylate), and poly(ethyl oxazoline) **(2, 3)** and additives for corrosion and foam control, if needed.

[1] This guide is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.L0.06 on Nonlubricating Process Fluids.

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[2] *Annual Book of ASTM Standards*, Vol 05.01.

[3] Discontinued; see 1999 *Annual Book of ASTM Standards*, Vol 05.01.

[4] *Annual Book of ASTM Standards*, Vol 05.02.

[5] *Annual Book of ASTM Standards*, Vol 11.01.

[6] *Annual Book of ASTM Standards*, Vol 08.03.

[7] *Annual Book of ASTM Standards*, Vol 05.04.

[8] *Annual Book of ASTM Standards*, Vol 015.05.

[9] *Annual Book of ASTM Standards*, Vol 11.05.

[10] The boldface numbers in parentheses refer to the list of references at the end of this standard.

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