Standard Specification for
Acrylic Acid

1. Scope

1.1 This specification covers glacial acrylic acid (99.0% grade) for use in paint, varnish, lacquer and related products.

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 limitations prior to use. For specific hazard statements, see Section 6.

1.3 For hazard information and guidance, see the supplier’s Material Safety Data Sheet.

2. Referenced Documents

2.1 ASTM Standards:
D 1209 Test Method for Color of Clear Liquids (Platinum-Cobalt Scale) 3
D 1364 Test Method for Water in Volatile Solvents (Karl Fischer Reagent Titration Method) 3
D 3125 Test Method for Monomethyl Ether of Hydroquinone in Colorless Monomeric Acrylate Esters and Acrylic Acid 3
D 4415 Test Method for Determination of Dimer in Acrylic Acid 3
E 300 Practice for Sampling Industrial Chemicals 4
E 301 Test Method for Total Acidity of Organic Acids 5

2.2 U.S. Federal Specification:
PPP-C-2020 Chemicals, Liquid, Dry, and Paste: Packaging of 2

3. Properties

3.1 Glacial acrylic acid shall conform to the following requirements:

<table>
<thead>
<tr>
<th>Property</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acrylic acid, weight %, min</td>
<td>99.0</td>
</tr>
<tr>
<td>Water, weight %, max</td>
<td>0.20</td>
</tr>
<tr>
<td>Color, Pt-Co scale, max</td>
<td>20</td>
</tr>
<tr>
<td>Inhibitor, monomethyl ether of</td>
<td>200 ± 20</td>
</tr>
<tr>
<td>hydroquinone, ppm 4</td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>clear, transparent, with no sediment</td>
</tr>
<tr>
<td>Dimer, as shipped, weight %, max</td>
<td>1.0</td>
</tr>
</tbody>
</table>

4. Sampling

4.1 Sample the material in accordance with Practice E 300. Use brown glass sample bottles and protect samples from light and heat at all times.

5. Test Methods

5.1 The properties enumerated in this specification shall be determined in accordance with the following ASTM test methods:

5.1.1 Purity—Test Method E 301.
5.1.2 Water—Test Method D 1364.
5.1.3 Color—Test Method D 1209.
5.1.4 Inhibitor—Test Method D 3125.
5.1.5 Dimer—Test Method D 4415.

6. Hazards

6.1 Avoid contamination that may cause violent reactions and dangerous pressures. Acrylic acid freezes at 12.3°C. Store between 15 and 25°C. If material freezes, exercise extreme caution in thawing, because rapid and violent polymerization may occur if frozen acrylic acid is exposed to excessive localized heat.

6.2 Use with adequate ventilation.

7. Packaging and Package Marking

7.1 Package size shall be agreed upon between the purchaser and the supplier.

7.2 Packaging shall conform to applicable carrier rules and regulations, or when specified, shall conform to Fed. Spec. PPP-C-2020.

8. Keywords

8.1 acrylic acid