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**Designation: D 2378 – 84 (Reapproved 1999)<sup>e1</sup>**



**Designation: D 2378 – 02**

## Standard Specification for Formaldehyde 50 % Grade Uninhibited and 37 % Grade Inhibited and Uninhibited<sup>1</sup>

This standard is issued under the fixed designation D 2378; 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.

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee ~~D-1~~ **D01** on Paint and Related Coatings, Materials and Applications and is the direct responsibility of Subcommittee D01.35 on Solvents, Plasticizers, and Chemical Intermediates.

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### 1. Scope\*

1.1 This specification covers 50 % uninhibited formaldehyde and 37 % uninhibited and inhibited formaldehyde.

1.2 The following applies to all specified limits in this standard; for purposes of determining conformance with this standard, an observed value or a calculated value shall be rounded off “to the nearest unit” in the last right-hand digit used in expressing the specification limit, in accordance with the rounding-off method of Practice E 29.

1.3 For specific hazard information and guidance, see the supplier’s Material Safety Data Sheet for materials listed in this specification.

### 2. Referenced Documents

#### 2.1 ASTM Standards:

D 891 Test Methods for Specific Gravity, Apparent, of Liquid Industrial Chemicals<sup>2</sup>

D 1209 Test Method for Color of Clear Liquids (Platinum-Cobalt Scale)<sup>3</sup>

D 2087 Test Method for Iron in Formaldehyde Solutions<sup>3</sup>

D 2194 Test Method for Concentration of Formaldehyde Solutions<sup>3</sup>

D 2379 Test Method for Acidity of Formaldehyde Solutions<sup>3</sup>

D 2380 Test Method for Methanol Content of Formaldehyde Solutions<sup>3</sup>

E 300 Practice for Sampling Industrial Chemicals<sup>4</sup>

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications<sup>5</sup>

#### 2.2 U.S. Federal Standard:

PPP-C-2020 Federal Specification For Packaging of Chemicals, Liquid, Dry, and Paste<sup>6</sup>

### 3. Properties

3.1 The physical and chemical properties of formaldehyde, 50 % uninhibited and 37 % uninhibited and inhibited, shall conform to the requirements specified in Table 1.

<sup>2</sup> Annual Book of ASTM Standards, Vol 15.05.

<sup>3</sup> Annual Book of ASTM Standards, Vol 06.04.

<sup>4</sup> Available from Superintendent

<sup>4</sup> Discontinued; see 2001 Annual Book of Documents, U.S. Government Printing Office, Washington, DC 20402; ASTM Standards, Vol 1505.

<sup>5</sup> Annual Book of ASTM Standards, Vol 14.02.

<sup>6</sup> Available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

**TABLE 1 Physical and Chemical Properties of Formaldehyde**

	Formaldehyde 50 % Grade	Formaldehyde 37 % Grade
Apparent specific gravity at 25/25°C	1.1470 – 1.1520	1.0749 – 1.1139
Formaldehyde content, weight %	49.75 – 50.5	37.0 – 37.4
Acidity, as formic acid, max, weight %	0.05	0.02
Color, max, Pt-Co scale	10	10
Iron, max, ppm (weight)	1.0	1.0
Methanol content, max, weight %	1.5	as agreed upon between the purchaser and seller
Appearance	clear and free of suspended matter	clear and free of suspended matter

#### 4. Sampling

4.1 The material shall be sampled in accordance with Practice E 300.

#### 5. Hazards

5.1 Formaldehyde and formaldehyde solutions are toxic and exposure to them should be minimized to avoid acute effects and possible sensitizing. Consult the supplier's Material Safety Data Sheet for specific hazard information.

#### 6. Test Methods

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

6.1.1 *Apparent Specific Gravity*—Test Methods D 891.

6.1.2 *Formaldehyde Content*—Test Method D 2194.

6.1.3 *Acidity*—Test Method D 2379.

6.1.4 *Color*—Test Method D 1209.

6.1.5 *Iron*—Test Method D 2087.

6.1.6 *Methanol Content*—Test Method D 2380.

#### 7. Packaging and Package Marking

7.1 Package size to be agreed upon between the purchaser and 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 acidity; color; formaldehyde; methanol

### SUMMARY OF CHANGES

Committee D01.35 has identified the location of selected changes to this standard since the last issue (D 2378 - 84 (1999<sup>e1</sup>)) that may impact the use of this standard.

(1) Added reference to Practice E 29 in Scope section.

(2) Added Practice E 29 to list of Referenced Documents.

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