



Designation: D 3852 – 06

Standard Practice for Sampling and Handling Phenol, Cresols, and Cresylic Acid¹

This standard is issued under the fixed designation D 3852; 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 approval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice is provided to ensure that phenol and cresylic acid are properly sampled to provide representative specimens for quality assurance analyses and that they are handled in a safe manner. In general, this practice also applies to cresols, xylenols, and some other alkylated phenolic materials; however, specific information regarding these materials should be sought and used if available.

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:*²

E 300 Practice for Sampling Industrial Chemicals

2.2 *Other Documents:*

OSHA Regulations, 29 CFR, paragraphs 1910.1000 and 1910.1200³

U.S. DOT Regulations, 49 CFR Transportation, Subchapter C, Parts 171 – 180³

NFPA No. 704-1996 Standard System for the Identification of the Hazards of Materials for Emergency Response⁴

3. Significance and Use

3.1 This practice is issued to provide information useful in establishing sampling and handling procedures. It is expected

that this information will only be utilized in conjunction with an existing health and safety program. The information provided cannot be used as a substitute for expert safety and medical advice, but rather as a supplement to such advice.

4. Description of Products

4.1 Phenol is a colorless to light pink crystalline material which melts at 40 to 41°C (104 to 106°F). Technical and USP grades melt at lower temperatures.

4.2 Phenol is both extremely hygroscopic and sensitive to discoloration. Therefore, it cannot be overemphasized that proper precautions must be undertaken when unloading or sampling the product. Moisture must be excluded. The use of sampling devices that contain metals that may catalyze discoloration (iron, copper) must also be avoided.

4.3 Cresylic acid is a common chemical name applied to mixtures of alkyl-substituted phenols. Included are mixtures of cresols, xylenols, and higher alkylated phenols. Many cresylic acid mixtures contain measurable amounts of phenol.

4.4 Most cresylic acid mixtures are liquids at ambient temperatures. However, at low temperatures (<0°C) they sometimes become very viscous and difficult to pour. Some mixtures containing high concentrations of high melting isomers may form thick slurries or become solids at low temperatures.

4.5 While phenol or cresylic acids are highly dangerous when handled improperly, particularly at the elevated temperatures sometimes required to unload tank cars or tank trucks, handling and sampling need not be hazardous provided the dangers are recognized. Proper precautionary measures must be provided and scrupulously adhered to as proscribed by the MSDS or other locally relevant guidelines.

4.6 Department of Transportation (DOT) Hazardous Materials Regulations regarding the shipment of this chemical are specified in 49 CFR.

5. Hazards

5.1 For information on toxicity consult the appropriate MSDS.

5.2 Consult current **OSHA regulations** suppliers' material safety data sheets (MSDS), and local regulations for all materials utilized in this practice.

5.3 *Health*—Phenol is very corrosive to the skin and produces painful and dangerous burns in a very short time. Since phenol is a skin anesthetic, the first reaction is not pain, but a

¹ This practice is under the jurisdiction of ASTM Committee D16 on Aromatic Hydrocarbons and Related Chemicals and is the direct responsibility of Subcommittee D16.08 on Handling and Sampling Aromatic and Cyclic Hydrocarbons.

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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 U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401.

⁴ Available from National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02269-9101.