



Designation: E2664 – 22

# Standard Practice for Methanol Wall Wash of Marine Vessels Handling Polyester Grade Monoethylene Glycol<sup>1</sup>

This standard is issued under the fixed designation E2664; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope\*

1.1 This practice covers the methanol wall wash procedure for cargo tanks of marine vessels handling polyester grade monoethylene glycol.

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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.* For specific hazard statements, see Section 7.

1.3 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

## 2. Referenced Documents

2.1 *ASTM Standards:*<sup>2</sup>

**E1547 Terminology Relating to Industrial and Specialty Chemicals**

2.2 *Other Documents:*

**OSHA Regulations, 29 CFR, paragraphs 1910.1000 and 1910.1200 Toxic and Hazardous Substances — Air contaminants; Hazard Communication**<sup>3</sup>

## 3. Terminology

3.1 See Terminology **E1547** for definitions of terms used in this practice.

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee **D16** on Aromatic, Industrial, Specialty and Related Chemicals and is the direct responsibility of Subcommittee **D16.14** on Alcohols & Glycols.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> Available from Superintendent of Documents, U.S. Government Printing Office, 732 N. Capitol St. NW, Mail Stop: SDE, Washington, DC 20401.

## 4. Significance and Use

4.1 The methanol wall wash practice is performed to determine the cleanliness and suitability of cargo tanks or compartments on a marine vessel prior to loading polyester grade monoethylene glycol. Polyester grade monoethylene glycol has very high quality requirements and must be handled with care, as it is adversely affected by oxygen, hydrocarbons, water, and chloride. It is especially susceptible to aromatic contamination, which degrades UV transmittance. Possible sources of contamination are the prior cargoes and cleaning agents. The methanol wall wash procedure provides a representative sampling of the impurities and contamination present on the sides of the cargo tank.

## 5. Reagents

5.1 *Purity of Reagents*—Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society (ACS) where such specifications are available.<sup>4</sup> Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

5.2 *Methanol*, ACS reagent grade with very low concentrations of chloride.

NOTE 1—Chloride in high purity methanol used for preparation of the chloride working standards should not exceed 0.01 mg/kg. This information should be provided by the supplier or determined by the analyst before use.

## 6. Quality Control

6.1 It is recommended that a control chart for the concentration of chloride in a methanol wall wash quality control sample be established and maintained according to common

<sup>4</sup> *ACS Reagent Chemicals, Specifications and Procedures for Reagents and Standard-Grade Reference Materials*, American Chemical Society, Washington, DC. For suggestions on the testing of reagents not listed by the American Chemical Society, see *Analar Standards for Laboratory Chemicals*, BDH Ltd., Poole, Dorset, U.K., and the *United States Pharmacopeia and National Formulary*, U.S. Pharmacopeial Convention, Inc. (USPC), Rockville, MD.

\*A Summary of Changes section appears at the end of this standard

guidelines.<sup>5</sup> Measure the control sample each time a test sample(s) is tested. If the measured value exceeds the action limit of the control chart, take appropriate action before proceeding with sample tests.

## 7. Hazards

7.1 Consult current OSHA regulations, suppliers' Safety Data Sheets, and local regulations for all materials used in this test method.

7.2 Each analyst must be acquainted with the potential hazards of the equipment, reagents, products, solvents and procedures before beginning laboratory work. Sources of information include: operation manuals, SDS, literature, and other related data. Safety information should be requested from the supplier. Disposal of waste materials, reagents, reactants, and solvents must be in compliance with laws and regulations from all applicable governmental agencies.

7.3 Methanol is a flammable and toxic substance. Methanol is absorbed through the skin and by breathing the vapors. Be careful when handling a flammable solvent and work in a well-ventilated area away from sources of ignition. Use the proper Personal Protective Equipment (PPE) to minimize exposure.

## 8. Procedure

8.1 All equipment must be clean and rinsed with reagent grade, low chloride methanol to prevent chloride contamination of the sample.

8.2 Pour approximately 1 L of reagent grade, low chloride methanol into a 1-L plastic squeeze bottle.

8.3 Use a plastic funnel that has been cut flat on one side to catch the methanol. The funnel and 1-L sample bottle should be rinsed with reagent grade, low chloride methanol immediately before sampling.

<sup>5</sup> ASTM Manual on Presentation of Data and Control Chart Analysis, 7th Edition, ASTM Services MNL 7A (revision of Special Technical Publication (STP) 15D).

8.4 Clean, chemical resistant gloves and eye protection should be worn for personal protection and to prevent contamination of the samples.

8.5 Do not test wet areas of a cargo tank. The tank must be dry before conducting the wall wash tests. The tank is not acceptable for testing if wet areas are more than a few spots.

8.6 Choose two sites on each tank wall (bulkhead) approximately 15 to 20 cm wide and as high as possible (approximately 2 m high). Start spraying methanol on the wall with the spray bottle approximately 15 cm from the wall. Collect the methanol with the special funnel into a clean 1-L glass bottle with the funnel placed at least 0.3 to 0.6 m below the spray. Continue spraying methanol while moving down the wall until approximately 0.6 m from the bottom. Use approximately 200 mL of methanol on each of the four sides of the tank. Be consistent with the spraying and collecting of the methanol. Do not scrap the tank wall with the funnel when collecting the methanol.

8.7 Include "non-typical" areas, such as discolored patches, lining breaks and exposed metal. If the "non-typical" areas are less than 20 % of the tank surface, include them in the four areas normally tested. If they are more than 20 % of the tank surface, test them separately.

8.8 Test separately any areas having crystalline deposits.

8.9 Collect the methanol from the four sides of a tank into the same sample bottle. Cap the bottle, label from which cargo tank it was taken and transport to the laboratory for analysis.

8.10 Include a sample of the methanol used in the wall wash procedure. This is the analytical "blank." This methanol will be analyzed with the tank samples and the results of the "blank" will be subtracted from each tank's wall wash sample's results.

## 9. Keywords

9.1 appearance; chloride; color; hydrocarbons; methanol; polyester grade monoethylene glycol; wall wash

## SUMMARY OF CHANGES

Subcommittee D16.14 has identified the location of selected changes to this standard since the last issue (E2644 – 16) that may impact the use of this standard. (Approved July 15, 2022.)

(1) Tests for appearance, color, hydrocarbons, and chloride were eliminated.

(2) A standard specification will be developed to specify the tests and limits for the methanol wall wash.