



Designation: C375 – 22

Standard Classification of Water Used in Milling of Porcelain Enamel¹

This standard is issued under the fixed designation C375; 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.

INTRODUCTION

This standard sets forth Class A, B, and C categories for water used for milling porcelain enamel based on the concentrations of allowable contaminants and the quality requirements of the fired finish.

1. Scope

1.1 This classification covers water used in the milling of porcelain enamel frit.

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.*

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:*²

D511 Test Methods for Calcium and Magnesium In Water

D512 Test Methods for Chloride Ion In Water (Withdrawn 2021)³

¹ This classification is under the jurisdiction of ASTM Committee B08 on Metallic and Inorganic Coatings and is the direct responsibility of Subcommittee B08.12 on Materials for Porcelain Enamel and Ceramic-Metal Systems.

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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 The last approved version of this historical standard is referenced on www.astm.org.

D513 Test Methods for Total and Dissolved Carbon Dioxide in Water

D516 Test Method for Sulfate Ion in Water

D858 Test Methods for Manganese in Water

D1068 Test Methods for Iron in Water

D1126 Test Method for Hardness in Water

D1293 Test Methods for pH of Water

D3370 Practices for Sampling Water from Flowing Process Streams

3. Classification

3.1 Three classes of water are covered, based on the maximum impurity analyses as defined in Table 1. For porcelain enamel frits, Class A water should cause no difficulties in the production of a high quality finish. Class B water may be used by slight compensations in processing. Mill addition water falling into Class C should be treated before use in order to preclude faulty enamel production.

4. Methods of Analysis

4.1 Determine the elements and properties listed in Table 1 in accordance with the following ASTM methods:

4.1.1 *Sampling*—Practice D3370.

4.1.2 *Bicarbonate*—Test Method D513.

4.1.3 *Calcium and Magnesium*—Test Method D511.

4.1.4 *Chloride*—Test Method D512.

4.1.5 *Hardness*—Test Method D1126.

4.1.6 *Iron*—Test Method D1068.

4.1.7 *Manganese*—Test Method D858.

4.1.8 *pH*—Test Method D1293.

4.1.9 *Sulfate*—Test Method D516.