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GB/T 22594-2018

Replacing GB/T 22594-2008

Water treatment chemicals – General rules for determination of density

水处理剂 密度测定方法通则

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Standardization Administration Committee.

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Foreword

This Standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This Standard replaces GB/T 22594-2008 “Water treatment reagent - General rules for the determination of density”. Compared with GB/T 22594-2008, in addition to the editorial modifications, the main technical changes are as follows:

- added U-shape vibrating tube method (see Clause 5).

This Standard was proposed by China Petroleum and Chemical Industry Federation.

This Standard shall be under the jurisdiction of Subcommittee on Water Treatment Agent of National Technical Committee on Chemistry of Standardization Administration of China (SAC/TC 63/SC 5).

The drafting organizations of this Standard: Zhejiang Shuizhiyin Testing Co., Ltd., Guangzhou Special Pressure Equipment Testing Institute, METTLER TOLEDO Instruments (Shanghai) Co., Ltd., Henan Qingshuiyuan Technology Co., Ltd., Shenzhen Junnuo Testing Co., Ltd., CNOOC Tianjin Chemical Research and Design Institute Co., Ltd., Shijiazhuang Zhiyuan Environmental Protection Technology Co., Ltd., China Petroleum & Chemical Corporation Beijing Beihua Institute Yanshan Branch, Tianjin Zhengda Technology Co., Ltd., Chongqing University.

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Version of standard substituted by this Standard is:

- GB/T 22594-2008.

Water treatment chemicals - General rules for determination of density

1 Scope

This Standard specifies general methods for density determination of water treatment chemicals.

This Standard is applicable to the density determination of water treatment chemicals.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 6682, *Water for analytical laboratory use - Specification and test methods*

3 Densitometer method

3.1 Method summary

The density of the liquid is read by the depth at which the densitometer is submerged in the equilibrium state of the sample to be tested.

3.2 Equipment and instruments

3.2.1 Densitometer: the division value is 0.001 g/cm^3.

3.2.2 Glass measuring cylinder: 250mL ~ 500mL.

3.2.3 Constant temperature water bath: temperature control at (20±0.1)°C.

3.3 Test steps

3.3.1 Determination of density at constant temperature (20°C): slowly inject the sample to be tested into a clean, dry cylinder without bubbles; place the measuring cylinder in a constant temperature water bath at (20±0.1)°C. After

Warning -- The reagent ammonium persulfate used in this method is a strong oxidant, which is irritating and corrosive. Avoid inhalation or contact with eyes and skin when using. If contact occurs, rinse immediately with plenty of water. If it is serious, seek medical attention immediately.

5.2.1 General rules

The reagents and water used in this method, unless otherwise specified, only use analytical reagents and grade three water in accordance with GB/T 6682.

5.2.2 Ammonium persulfate solution

Weigh 0.8 g of ammonium persulfate. Dilute to 100mL with water and shake well.

5.2.3 Standard sample

5.2.3.1 Air: air density value = 1.293 × (actual pressure / standard physical atmospheric pressure) × (273.15 / actual absolute temperature). At 20°C, an atmospheric pressure, the air density value is 0.001205 g/cm^3.

5.2.3.2 Water: grade 2 water in accordance with GB/T 6682; or standard water sample purchased of commercially available density. At 20°C, the water density value is 0.9982057 g/cm^3. See Annex A for density values of water at different temperatures.

5.3 Equipment and instruments

5.3.1 U-shape vibrating tube densitometer (referred to as densitometer): accuracy is ±0.001 g/cm^3; temperature accuracy is ±0.1°C.

5.4 Instrument preparation

5.4.1 Selection of washing solvent

Select volatile solvents according to the nature of the sample to be tested. Generally, water, acetone, absolute ethanol, etc. are commonly used.

5.4.2 Cleaning U-shape tube

5.4.2.1 Clean the U-shape tube with washing solvent and dry it with clean dry air.

5.4.2.2 When a precipitate appears in the U-shape tube, it is injected into the U-shape tube with ammonium persulfate solution. After draining the ammonium persulfate solution, it is washed with water, washed with a water-miscible washing solvent, and then dried with clean dry air.

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