Filming Amine (aliphatic amine) – Methyl Orange Method

Version 5 / May 2023

Applications and Industries

Boiler feedwater

References

ASTM D 2327-80, Mono- and Dioctadecylamines in Water

Chemistry

Filming amine reacts with methyl orange to form a colored complex that is extracted into an immiscible organic solvent. The intensity of the resulting yellow color is directly related to the concentration of “filming amine” in the sample. Results are expressed as ppm (mg/L) octadecylamine (ODA).

Available Analysis Systems

Visual colorimetric: CHEMets®

Storage Requirements

Products should be stored in the dark and at room temperature.

Shelf Life

When stored in the dark and at room temperature:

Visual colorimetric:

CHEMets refill, color comparator: at least 1 year

Accuracy Statement

Statements of accuracy are based on laboratory tests performed under ideal testing conditions using standards of known concentration prepared in deionized water.

CHEMets kit: ± 1 color standard increment

Safety Information

Safety Data Sheets (SDS) are available upon request and at www.chemetrics.com. Read SDS before using these products. Breaking the tip of a CHEMets ampoule in air rather than water may cause the glass ampoule to shatter. Wear safety glasses and protective gloves.

Interference Information

- The filming amines test works best with primary aliphatic amines. The test will also measure secondary and tertiary amines, but with less sensitivity and accuracy. The reactions of the test are common to long-chain aliphatic amines or compounds having a long-chain amine group in the molecule.
- The test will measure ethoxylated soy amines, but with less sensitivity and accuracy than aliphatic amines.
- Quaternary ammonium compounds and hydrazine interfere positively.
- Morpholine and cyclohexylamine (both neutralizing amines) at up to 500 mg/L do not interfere.
- Ferric iron and copper interfere.
- Chlorine is a significant negative interference at 2.5 ppm but does not interfere at 0.5 ppm.
- Only the reaction tube supplied with the kit should be used during analysis. Other types of plasticware or glassware will cause erroneous test results.
- Sample pHs up to at least 10 can be tolerated.
- Samples with hardness levels greater than 150 ppm as $CaCO_3$ should be diluted prior to analysis.

Sampling Information

Sampling technique is critical. Samples should be cooled to prevent flashing. Sample lines should be flushed thoroughly before sampling, and sampling points should be representative of the system. Filming amines will attach to the surface of sample containers. For best accuracy, the kit’s reaction tube should be cleaned between uses with a solution of 10% nitric acid followed by a rinse with the sample. Sampling should be performed directly into the reaction tube. Sample dilutions, if necessary, should be performed in the reaction tube to prevent loss of the amine during transfer from an alternate dilution vessel.