

Sulfur- Free Single Element Metallo-Organic Standard

Manganese (Mn)

Product #: VHG-OSF-MN-1000-A-50G

Matrix: 20 cSt Hydrocarbon Oil

Lot #: 710951491G

Element	Concentration and Uncertainty		
	Mn	Certified W/W	1000 µg/g

This solution is intended for use as a calibration or reference standard for the analysis of this analyte in petroleum products or other organic matrices using x-ray fluorescence (XRF) spectrometry.

Certification: This standard was prepared using sulfur-free raw materials to a nominal concentration of 1000µg/g by utilizing gravimetric methods. The certified concentration shown above is based upon the assayed concentration of the raw material and all gravimetric procedures used in the preparation of this certified standard. The uncertainty associated with the certified concentration is +/- 2% relative, which is the sum of the estimated errors due to the assay and purity of the raw material, the gravimetric preparation of the solution and transpiration through the container wall. Secondary verification of the certified concentration was done using ICP-AES or XRF and these data are traceable to NIST Standard Reference Materials when available. Plasma emission spectrometry (ICP-AES) was used to determine trace metal concentrations in this product.

Tools: The balance used to weigh materials used in the preparation of this standard is accurate to ± 0.0001g and is calibrated regularly using mass standards, which are traceable to NIST.

Concentrations in ppm

Phosphorus	44.5
Calcium	1.5

Recommendations: VHG guarantees the accuracy of this solution for **12 months** from the certification date below, provided it is kept tightly capped in its original container and stored under normal laboratory conditions. Do not freeze, heat, or expose to direct sunlight. Minimize exposure to moisture or high humidity. We recommend that the solution is thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. When diluting this standard, we recommend the addition of stabilizer (Product no. SF-STAB-4) to enhance the stability of the new diluted standard. To achieve the highest accuracy the analyst should (1) use only pre-cleaned containers and transfer-ware, (2) make dilutions using calibrated balances or certified volumetric class A flasks and pipettes, and, (3) dilute with the same matrix as the original standard, (4) never pour used product back into the original container.

VHG Labs, Inc.



Q.A. Manager

See exp date on Container

Certification Date

VHG Labs, Inc. waives all responsibility for any damages resulting from the usage and/or implementation of the products/data described herein.