



# National Institute of Standards & Technology

## Certificate of Analysis

### Standard Reference Material 1083

#### Wear-Metals in Lubricating Oil

This Standard Reference Material (SRM) is intended for use as a diluent base oil for SRMs 1084a and 1085a. It has been analyzed for 20 elements, including sulfur, that are important to wear metal analyses. The information values given below in Table 1 are not certified values but are conservative upper limits of the elements detected, except for sulfur and chlorine. The sulfur and chlorine values are based on a single method or technique that employs a primary standard for comparison. They are not certified because the measurement process did not meet NIST requirements for certification, i.e., the employment of two or more independent methods or techniques.

The information values given below are based on a minimum sample size of 0.5 g, which is the minimum amount to be used for analysis. SRM 1083 consists of 150 mL of base oil number 245 that is contained in a polyethylene bottle.

Table 1

<u>Element</u>	<u>Information Value, <math>\mu\text{g/g}</math></u>	<u>Method</u>	<u>Element</u>	<u>Information Value, <math>\mu\text{g/g}</math></u>	<u>Method</u>
Ag	(<0.05)	a	Mn	(<0.005)	b
Al	(<0.5)	a	Mo	(<0.01)	b
Cd	(<0.04)	b	Na	(<0.06)	b
Cl	(1.7)	b	Ni	(<0.4)	a
Co	(<0.01)	b	S	(980.)	c
Cr	(<0.02)	a,b	Si	(<1.)	a
Cu	(<0.5)	a	Sn	(<0.4)	a
Fe	(<1.)	a,b	Ti	(<5.)	a
Pb	(<0.04)	a	V	(<0.3)	d
Mg	(<0.1)	a	Zn	(<0.08)	b

#### Methods

- Atomic Absorption and Flame Emission Spectrometry
- Instrumental Neutron Activation Analysis
- Ion Chromatography
- Direct Current Plasma Emission Spectroscopy

The original direction and coordination of measurements leading to the development of this material were performed in the NIST Inorganic Analytical Research Division by E.L. Garner.

The technical and support aspects involved in the update preparation, certification, and issuance of this SRM were coordinated through the Standard Reference Materials Program by T.E. Gills.

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