



# Certificate of Analysis

## SULFUR AND CHLORINE IN LUBE OIL

AR-3513  
LOT # 513218  
LID # 513218

WEIGHT PERCENT SULFUR = 0.030  
EXPANDED UNCERTAINTY (k=2, 95%) = +/- 0.006

WEIGHT PERCENT CHLORINE = 0.030  
EXPANDED UNCERTAINTY (k=2, 95%) = +/- 0.006

METHOD: ASTM D7751 Chlorine and Sulfur by EDXRF scan

The intended use of this standard is for the calibration and verification of Sulfur and Chlorine by various valid test methods. This standard was produced gravimetrically using high purity materials, with balances calibrated and checked by precision NIST traceable weights, and verified by EDXRF. There are no known NMI reference materials of this type for traceability. The precision value represents the expanded degree of uncertainty based on errors from weighing of raw materials, and or analysis at a 95% confidence level (k=2). Typical sample size and minimum sample size is subject to the test method and your instrument manufacturer recommendations. When necessary, professional judgment is applied toward consideration of data and statistical information. The statistical analysis and the overall direction and coordination of the analytical measurements leading to certification were performed by K.E. Dyer, Chief Chemist at Alpha Resources. Normal ASTM procedures should be employed when using this standard. This includes using the *reproducibility* and *repeatability* factors for the ASTM method you wish to employ.

Before use, the contents of the bottle should be mixed through vigorous shaking. The contents should not be exposed to air for a lengthy period of time. This bottle contains 100ml nominal lube oil to be used as per your test method or instrument manufacturer. While unable to determine a definite shelf life this reference should be reviewed 20 years from the date of certification. Keep sealed and store under normal laboratory conditions. This reference standard was produced in accordance to ISO 17034 and ISO Guide 31.

This is a prepared Reference Material (RM), for good laboratory practice it is recommended that all standards be verified as fit for purpose prior to use. Remedies for any claimed defect in this product will be limited to product replacement or refund of the purchase price. In no event, shall Alpha Resources be liable for incidental or consequential damages. This certificate cannot be reproduced except in full.

### EXPIRATION DATE

THIS RM IS VALID FOR TWO YEARS FROM THE DATE OF OPENING

CERTIFIED March 1, 2018

Chief Chemist