

Alpha Resources, Inc.

Certificate Of Analysis

AR-2072 and AR2072S
Petroleum Crude Oil
Alaska North Slope
LOT # ANS721292

<u>ASTM Method</u>	<u>Test</u>	<u>Mean Result</u>	<u>Std. Dev.</u>
D 1298	API	28.2	0.3
D 4294	Sulfur (wt.%)	1.15	0.03
D 808	Total Chlorides (ppm)	1.50	0.6
D 4629	Nitrogen (ppm)	1780.00	125.0
D 3606	Benzene (wt.%)	0.18	0.02
D 3230	Salt (ptb)	2.8	1.4

One or more of the following methods were used:
(D 4951, 5105, 3605, IP 288)

Fe ppm	4.6	0.3
Ni ppm	16.9	0.6
Si ppm	1.3	0.6
V ppm	43.6	0.6
Cu ppm	0.3	0.1
Na ppm	2.6	0.5

NOTES:

The above value represents the mean from the data, as reported by Alpha Resources' round robin program.

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.

Normal ASTM procedures should be employed when using this standard. This includes using the reproducibility and repeatability factors. Use the reproducibility factor when establishing the first set of data, and then establish an internal repeatability factor as your guideline.

The material used in production of this standard was sampled in accordance with ARI 031. The above values relate only to the material used to produce this standard.

The overall direction and coordination of the analytical measurements leading to certification were performed by J.R. Shingledecker at Alpha Resources.

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 is a Certified Reference Material (CRM), and is traceable to the above-mentioned standards. For good laboratory practice it is recommended that all standards be verified prior to use.

EXPIRATION DATE
THIS CRM IS VALID FOR TWO YEARS FROM THE DATE OF OPENING

J.R. Shingledecker