

Ultra Low Kerosene (118 mL bottles)		
Alpha No.	Lot #	Sulfur
AR-6201	201309	0.0010% Sulfur
AR-6207	207208	0.0020% Sulfur
AR-6208	208105	0.0030% Sulfur
AR-6209	209410	0.0040% Sulfur
AR-6202	202503	0.0051% Sulfur
AR-6210	210100	0.00635% Sulfur
AR-6211	211100	0.00726% Sulfur
AR-6212	212100	0.00832% Sulfur
AR-6213	213100	0.00937% Sulfur
AR-6203	203203	0.0103% Sulfur
AR-6204	041003	0.0152% Sulfur
AR-6205	205502	0.0198% Sulfur
AR-6206	206893	0.0407% Sulfur

Residual Oil (118 mL bottles)		
Alpha No.	Lot #	Sulfur
AR-2891	891606	0.1065% Sulfur
AR-2811	811606	0.1503% Sulfur
AR-2892	892909	0.207% Sulfur
AR-2893	893510	0.303% Sulfur
AR-2809	809606	0.346% Sulfur
AR-2894	894611	0.42% Sulfur
AR-2895	895311	0.512% Sulfur
AR-2812	812808	0.6113% Sulfur
AR-2896	896312	0.70% Sulfur
AR-2813	813911	0.82% Sulfur
AR-2897	897510	0.898% Sulfur
AR-2814	814812	1.00% Sulfur
AR-2818	818411	1.49% Sulfur
AR-2815	151111	2.03% Sulfur
AR-2819	819310	2.51% Sulfur
AR-2816	816808	2.936% Sulfur
AR-2898	898510	3.45% Sulfur
AR-2817	171109	3.94% Sulfur
AR-2899	899113	4.52% Sulfur

Stabilized Crude Standards (118 mL bottles)		
Alpha No.	Lot #	Sulfur
AR-2941	941100	0.0102% Sulfur
AR-2942	942100	0.0205% Sulfur
AR-2943	943100	0.0313% Sulfur
AR-2944	944100	0.0415% Sulfur
AR-2041	041911	0.052% Sulfur
AR-2945	945100	0.0619% Sulfur
AR-2946	946100	0.0720% Sulfur
AR-2947	947100	0.0824% Sulfur
AR-2948	948100	0.0925% Sulfur
AR-2042	042904	0.144% Sulfur
AR-2043	043911	0.205% Sulfur
AR-2044	441208	0.41% Sulfur
AR-2045	045111	0.619% Sulfur
AR-2046	046911	0.816% Sulfur
AR-2047	047807	1.13% Sulfur
AR-2048	481211	2.01% Sulfur
AR-2049	049211	3.11% Sulfur
AR-2050	050211	4.24% Sulfur
AR-2051	511012	5.56% Sulfur

Kerosene & #1 Diesel Oil (118 mL bottles)		
Alpha No.	Lot #	Sulfur
AR-2849	849405	<0.0001% Sulfur
AR-2841	811103	0.0125% Sulfur
AR-2951	951100	0.0211% Sulfur
AR-2842	842600	0.0306% Sulfur
AR-2952	952100	0.0420% Sulfur
AR-2843	843812	0.049% Sulfur
AR-2953	953409	0.062% Sulfur
AR-2954	954610	0.071% Sulfur
AR-2955	955100	0.0801% Sulfur
AR-2956	956100	0.0898% Sulfur
AR-2844	811402	0.1313% Sulfur
AR-2845	845103	0.1968% Sulfur
AR-2846	461010	0.30% Sulfur
AR-2847	847795	0.395% Sulfur
AR-2848	849498	0.505% Sulfur

J P Fuels (118 mL bottles)		
Alpha No.	Lot #	Sulfur
AR-2921	9211200	0.0051% Sulfur
AR-2922	221211	0.0111% Sulfur
AR-2923	923902	0.0198% Sulfur
AR-2924	924807	0.0300% Sulfur
AR-2925	9251099	0.0433% Sulfur
AR-2926	9261099	0.0526% Sulfur
AR-2927	927111	0.062% Sulfur
AR-2928	9280897	0.0945% Sulfur

High Viscosity Residual Oil (118 mL bottles)		
Alpha No.	Lot #	Sulfur
AR-3181	893405	0.292% Sulfur
AR-3182	971003	0.9037% Sulfur
AR-3183	898901	3.46% Sulfur

Nitrogen in Crude Oil Standards (118 mL bottles)		
Alpha No.	Lot #	Nitrogen
AR-3032	CRU70792	67 ppm
AR-3033	033494	749 ppm
AR-3034	034494	1641 ppm

Waste Oil (59 mL bottles)					
Alpha No.	Lot #	Chlorine	Chromuim	Cadmium	Lead
AR-3161	161411	506 µg/g	5.07 µg/g	2.10 µg/g	49.8 µg/g
AR-3162	621010	1013 µg/g	9.8 µg/g	5.1 µg/g	98.7 µg/g
AR-3163	163398	1898 µg/g	20.7 µg/g	13.0 µg/g	210.2 µg/g

Waste Oil (59mL bottles)		
Alpha No.	Lot #	Arsenic
AR-3171	1711198	2.0 µg/g
AR-3172	1721198	4.2 µg/g
AR-3173	1731198	10.5 µg/g

Ultimate Residual Fuel Oil (118 mL contents)	
AR-1622	Lot# 622111
% Sulfur	2.08
% Carbon	85.54
% Hydrogen	12.37
% Nitrogen	0.16
Gross BTU	18,913
Iron	16.4
Nickel	4.6 µg/g
Silicon	4 µg/g*
Copper	<1 µg/g
Sodium	5 µg/g*

\* Reference Only

Chlorine in Paraffin Oil (118 mL bottles)		
Alpha No.	Lot #	Conc.
AR-2004	004595	0.0009%
AR-2005	005595	0.012%
AR-2006	006994	0.051%
AR-2007	007595	0.122%
AR-2008	008708	0.200%
AR-2009	009801	0.336%
AR-2010	010697	0.5605%
AR-2011	0111296	1.17%
AR-2012	012111	1.95%
AR-2013	013894	2.99%
AR-2014	0141293	4.01%
AR-2015	015709	5.04%

Lube Oil (118mL bottles)		
Alpha No.	Lot #	Sulfur
AR-2838	838808	0.0100% Sulfur
AR-2931	9311299	0.0207% Sulfur
AR-2932	9321299	0.0524% Sulfur
AR-2831	831996	0.073% Sulfur
AR-2933	933213	0.0805% Sulfur
AR-2934	934805	0.1008% Sulfur
AR-2832	832606	0.230 Sulfur
AR-2935	9351299	0.3537% Sulfur
AR-2833	833111	0.511% Sulfur
AR-2834	834596	0.753% Sulfur
AR-2936	9361299	0.8967% Sulfur
AR-2835	835411	1.00% Sulfur
AR-2937	9371299	1.5113% Sulfur
AR-2836	836610	2.00% Sulfur
AR-2938	9381299	2.5162% Sulfur
AR-2839	839202	3.020% Sulfur
AR-2939	939508	3.500% Sulfur
AR-2837	371010	4.07% Sulfur
AR-2857	8571099	5.010% Sulfur
AR-2858	8581099	6.043 Sulfur

Sulfur & Chlorine in Lube Oil Heavy Concentrations (118 mL bottles)			
Alpha No.	Lot #	% Sulfur	% Chlorine
AR-3501	501508	7.00	4.00
AR-3502	502408	5.00	2.00
AR-3503	031008	4.00	7.00
AR-3504	504508	2.00	5.00
AR-3505	505500	1.00	0.50
AR-3506	061008	0.50	1.00
AR-3507	507194	<0.0001	<0.0001

#2 Diesel Oil (118 mL bottles)		
Alpha No.	Lot #	Sulfur
AR-2821	821606	0.1417% Sulfur
AR-2961	961402	0.2060% Sulfur
AR-2822	822405	0.300% sulfur
AR-2962	962113	0.40% Sulfur
AR-2823	823909	0.500% Sulfur
AR-2963	631211	0.61% Sulfur
AR-2824	241009	0.694% Sulfur
AR-2964	964402	0.808% Sulfur
AR-2965	965106	0.8530% Sulfur
AR-2825	825912	1.02% Sulfur
AR-2826	826313	1.50% Sulfur
AR-2827	827606	1.867% Sulfur
AR-2828	281012	2.53% Sulfur
AR-2829	829312	2.95% Sulfur

Ultra Low #2 Diesel Oil (118 mL bottles)		
Alpha No.	Lot #	Sulfur
AR-2868	868113	<0.0001% Sulfur
AR-2882	821109	0.00049% Sulfur
AR-2881	811109	0.0010% Sulfur
AR-2869	869910	0.0021% Sulfur
AR-2879	791109	0.0025% Sulfur
AR-2878	781109	0.0052% Sulfur
AR-2871	871808	0.0102% Sulfur
AR-2872	872606	0.0207% Sulfur
AR-2873	873210	0.030% Sulfur
AR-2874	874606	0.0395% Sulfur
AR-2875	875111	0.0507% Sulfur
AR-2865	651210	0.0600% Sulfur
AR-2876	761211	0.069% Sulfur
AR-2866	866103	0.0786% Sulfur
AR-2867	867308	0.0900% Sulfur
AR-2877	877405	0.1055% Sulfur

**Desulfurized Hydrocarbon Standards**

(118 mL bottles)

Alpha No.	Lot #	Matrix	% Sulfur
AR-3116	116995	Isooctane	<0.00001
AR-3117	117995	Kerosene	<0.00001
AR-3118	118995	#1 Diesel	<0.00001
AR-3119	119995	#2 Diesel	<0.00001
AR-3120	SUP95	Paraffin Oil	<0.00001
AR-3121	121995	Gasoline	<0.00001

**Sulfur in Isooctane (118 mL bottles)**

Concentration µg/g

Alpha No.	Lot #	Sulfur
AR-3101	101310	0.9
AR-3102	102995	4.7
AR-3103	103995	12.4
AR-3104	104995	28.6
AR-3105	105995	52.1

**Sulfur in Gasoline (118 mL bottles)**

Alpha No.	Lot #	% Sulfur	g/Liter	g/Gallon
AR-3001	001809	0.000101	XXX	XXX
AR-3002	002910	0.0052	XXX	XXX
AR-3003	003910	0.0103	XXX	XXX
AR-3004	004312	0.0306	XXX	XXX
AR-3005	051112	0.049	XXX	XXX
AR-3006	006312	0.0703	XXX	XXX
AR-3007	007910	0.0908	XXX	XXX
AR-3008	Sold Out	(0.1200)	XXX	XXX
AR-3009	Sold Out	(0.2000)	XXX	XXX

**Flash Point Standards (118mL Container)**

Alpha No.	Lot #	Matrix	Flash Pt. (°F)
AR-3024	024901	#1 Diesel	219
AR-3025	0751099S288	#2 Diesel	162
AR-3026	082399	J-P 8	119
AR-3027	027294	Kerosene	136

**Bromine in Isooctane (118 mL bottles)**

Alpha No.	Lot #	% Bromine	g/Liter Bromine	g/Gallon Bromine
AR-2090			Complete Set	
AR-2091		0.0000	0.0000	0.0000
AR-2093		0.0001	0.0007	0.0026
AR-2094		0.0003	0.0021	0.0078
AR-2095		0.0005	0.0035	0.0131

**Biodiesel Contaminant**

In Synthetic Diesel

AR-2971	***	Blank
AR-2972	***	0.025 wt%
AR-2973	***	0.05 wt%
AR-2974	***	0.075 wt%
AR-2975	***	0.100 wt%

**Biodiesel Contaminant In #2 Diesel**

Alpha No.	Lot #	Conc.
AR-2980	***	Blank
AR-2981	***	0.025 wt%
AR-2982	***	0.050 wt%
AR-2983	***	0.075 wt%
AR-2984	***	0.100 wt%
AR-2985	***	0.500 wt%
AR-2986	***	1.00 wt%
AR-2987	***	3.00 wt%
AR-2988	***	5.00 wt%

\*\*\*Standard made on receipt of order



Ultimate Oil Analysis											
500ml btl Alpha No.	118ml btl Alpha No.	Lot #	Oil Type	Fe (ppm)	Ni (ppm)	V (pp)	Si (ppm)	Cu (ppm)	Na (ppm)		
AR-2070	AR-2070S	CRU70792	Wyoming Sweet Crude	1.94	0.92	0.39	0.42	0.82	2.74		
AR-2071	AR-2071S	EKO711192	North Sea Sweet Crude	4.33	2.24	1.91	1.05	0.1	5.76		
AR-2072	AR-2072S	ANS721292	Alaska North Slope Crude	4.6	16.9	43.6	1.3	0.3	2.6		
AR-2078	AR-2078S	BNM78792	Vacuum Gas Oil	0.18	0.055	0.13	0.15	0.14	0.87		
Alpha No.	Alpha No.	Lot #	Oil Type	API 60° F	Organic Cl ppm	Total Cl ppm	Benzene wt%	Nitrogen ppm	Sulfur wt%	Salt lb/Mbbbls	Carbon wt%
AR-2070	AR-2071S	CRU70792	Wyoming Sweet Crude		<1.0	3.16	0.42	67.00	0.082	0.75	
AR-2071	AR-2071S	EKO711192	North Sea Sweet Crude	39.75	<1.00	0.18	0.37	749.90	0.175	2.53	
AR-2072	AR-2072S	ANS721292	Alaska North Slope Crude	28.2		1.50	0.18	1780.00	1.15	2.8	
AR-2078	AR-2078S	BNM78792	Vacuum Gas Oil	20.20				438.80	0.342		0.0386

Ultimate Oil Analysis Plus Distillation												
Alpha No.	Lot #	Oil Type	Contents	Distillation (°F)								
				IBP1	5	10	20	30	40	50	60	
AR-2074	DISCONTINUED NO LONGER AVAILABLE		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
AR-2075	075300S288	#2 Diesel	500ml	375	416	434	457	473	491	507	523	
AR-2076	CRU761292	#1 Diesel	500ml	455	468	471.6	476.8	482.4	486	490	495	
Alpha No.	Lot #	Oil Type	Contents	Distillation (°F) Continued from above								
				70	80	90	95	EP				
AR-2074	DISCONTINUED NO LONGER AVAILABLE		N/A	N/A	N/A	N/A	N/A	N/A				
AR-2075	075300S288	#2 Diesel	500ml	540	560	586	605	640				
AR-2076	CRU761292	#1 Diesel	500ml	501	508	520	549					
Alpha No.	Lot #	Oil Type	Contents	API (60°F)	ConCarbon	Cetane	Index	Cloud Pt. (°C)	Pour Pt. (°C)	Sulfur (wt. %)	Viscosity (cst/100°F)	Flash Pt. (°F)
AR-2074	DISCONTINUED NO LONGER AVAILABLE		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
AR-2075	075300S288	#2 Diesel	500ml	35.3	<0.01			10.6°F	-7.2°F	0.0379	2.67	162.0
AR-2076	CRU761292	#1 Diesel	500ml	47.0	0.025	66.7		19.6°F	20.0°F	0.003	2.43	219.0

C, H, N, S, BTU Standards							
Alpha No.	Lot #	Description	Weight % Values				Gross BTU/Pound
			Carbon	Hydrogen	Nitrogen	Sulfur	
AR-000	000513	Paraffin Oil Standard	85.80	14.20	<0.0001	<0.0001	19,888
AR-100	100110	Residual Oil Standard	88.03	10.49	0.20	0.96	18,397
AR-150	150809	Residual Oil Standard	88.80	10.33	0.024	0.26	18,517
AR-327	271009	Kerosene Standard	85.47	13.97	0.0002	0.136	19,730
AR-330	330903	#2 Diesel Oil Standard	87.05	13.08	0.0098	0.034	19,418

Engine Oils (118 mL bottles)										
Alpha No.	Lot #	% Ash	% Zn	%Ca	%Mg	%P	%S	ASTM D2896 Base Number	(cst/100°C)	(cst/40°C)
AR-6301	AA	0.05	<0.001	<0.001	<0.001	<0.001	0.29	2.42	12.25	119.20
AR-6302	EO	0.22	0.122	0.0005	0.0005	0.103	0.22	2.83	12.56	124.87
AR-6303	100	0.83	0.101	0.009	0.105	0.084	0.40	5.42	11.44	102.70
AR-6304	LDO	0.81	0.119	0.058	0.087	0.095	0.56	6.27	12.81	73.51
AR-6305	300	0.78	0.155	0.168	0.052	0.126	0.57	7.07	11.52	98.74

Nitrogen in Vacuum Gas Oil (118 mL bottles)		
Alpha No.	Lot #	Concentration
AR-3151	151995	1.05 µg/g
AR-3152	152697	5.15 µg/g
AR-3153	153798	10.01 µg/g
AR-3154	154995	26.37 µg/g
AR-3155	155610	49 µg/g
AR-3156	156610	102 µg/g
AR-3157	1571296	432.0

High Sulfur Residual Oil (118 mL bottles)		
Alpha No.	Lot #	Sulfur
AR-2859	591108	5.00%
AR-2861	861694I	5.78%
AR-2862	862909	9.86%
AR-2863	631009	19.98%
AR-2864	864708	30.00%

Vacuum Gas Oil (118 mL bottles)		
AR-2077	Lot # CR771092	
Sulfur (wt.%)	0.45	
Nitrogen (ppm)	1267	

Low Sulfur Lube Oil Standards (118mL bottles)		
Alpha No.	Lot #	% Sulfur
AR-3521	5211093	<0.0001
AR-3522	522595	0.0036
AR-3523	523595	0.0052
AR-3524	524701	0.011
AR-3525	5251193	0.021
AR-3526	5261193	0.029
AR-3527	5271193	0.041
AR-3528	528398	0.0505



**Heavy Lube Oil V, Ni, S (59 mL bottles)**

Alpha No.	Lot #	ppm V	ppm Ni	% S
AR-2901	9011196	407	75	4.25
AR-2902	902695	271	50	3.11
AR-2903	903900	168	22	2.002
AR-2904	904500	104.01	18.1	1.053
AR-2905	905599	50.2	9.9	0.5263

**Lead in Gasoline (118 mL bottles)**

Alpha No.	Lot #	% Lead	g/ Liter	g/Gallon
AR-2067	067909	<0.0001	XXX	XXX
AR-2066	066909	0.0101	XXX	XXX
AR-2065	065909	0.0253	XXX	XXX
AR-2064	641210	0.050	XXX	XXX
AR-2063	063810	0.075	XXX	XXX
AR-2062	062810	0.125	XXX	XXX
AR-2061	611210	0.201	XXX	XXX

**Sulfur & Lead in Gasoline (118 mL bottles)**

Alpha No.	Lot #	Sulfur $\mu\text{g/g}$	Lead $\mu\text{g/g}$
AR-3111	111995	1023	3.1
AR-3112	112995	524	0.90
AR-3113	113995	106	40
AR-3114	114995	1.06	82
AR-3115	115995	<1	<1

**API Standards (500 mL contents)**

Alpha No.	Lot #	Matrix	API
AR-3045	045901	# 2 Diesel	35.3
AR-3046	046794	Crude Oil	28.2
AR-3047	047794	Reduced Crude	15.7

**Extreme Pressure Oil (118 mL bottles)**

Alpha No.	Lot #	% Sulfur
AR-2851	5191	2.00%
AR-2852	522	3.30%
AR-2853	853694I	4.19%

**Viscosity Standards (118 mL bottles)**

Alpha No.	Lot #	Matrix	Viscosity
AR-3028	028893	#1 Diesel	2.43 Centistokes @ 40°C
AR-3029	029893	#2 Diesel	2.88 Centistokes @ 40°C
AR-3030	030893	J-P 8	5.6 Centistokes @ -20°C
AR-3031	031893	Kerosene	1.33 Centistokes @ 40°C