



## Consumables for Elemental Analyzers Consumables & Supplies Reference Cards New Instruments

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### Petroleum and Fuel

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Last Updated 01/11/2019

#### Ultra Low Kerosene (100 mL minimum) 4 oz bottle

Part #	Lot #	% Sulfur	Expanded Uncertainty
<a href="#">AR6201</a>	201217	0.0011%	0.0002
<a href="#">AR6207</a>	207208	0.0020%	0.0003
<a href="#">AR6208</a>	208105	0.0030	0.0015
<a href="#">AR6209</a>	209410	0.0040%	0.0008
<a href="#">AR6202</a>	202503	0.0051%	0.0003
<a href="#">AR6210</a>	210105	0.0057%	0.0003
<a href="#">AR6211</a>	211916	0.0070%	0.0007
<a href="#">AR6212</a>	212100	0.00832%	0.0065
<a href="#">AR6213</a>	213916	0.0090%	0.0008
<a href="#">AR6203</a>	203203	0.0103%	0.0007
<a href="#">AR6204</a>	041003	0.0152%	0.0006
<a href="#">AR6205</a>	205502	0.0198%	0.0010
<a href="#">AR6206</a>	206893	0.400%	0.0009

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#### Residual Oil (100mL minimum) 4 oz bottle

Part #	Lot #	% Sulfur	Expanded Uncertainty
AR2891	891418	0.125%	0.015
AR2811	811606	0.1503%	0.0045
AR2892	892716	0.200%	0.010
AR2893	893515	0.30%	0.03
AR2809	809606	0.346%	0.013
AR2894	941017	0.403%	0.034
AR2895	895418	0.51%	0.02
AR2812	812808	0.6113%	0.0332
AR2896	896312	0.70%	0.03
AR2813	813915	0.78%	0.04
AR2897	897510	0.898%	0.014
AR2814	814417	1.02%	0.03
AR2818	818411	1.49%	0.06
AR2815	815918	1.98%	0.06
AR2819	191214	2.50%	0.12
AR2816	161016	3.02%	0.15
AR2898	898615	3.55%	0.16
AR2817	817217	4.09%	0.1
AR2899	899113	4.52	0.12

### Crude Oil (100mL minimum) 4 oz bottle

Part #	Lot #	% Sulfur	Expanded Uncertainty
AR2941	941100	0.0102%	0.0009
AR2942	942100	0.0205%	0.0012
AR2943	943100	0.0313%	0.0023
AR2944	944100	0.0415%	0.0028
AR2041	411213	0.053%	0.005
AR2945	945100	0.0619%	0.0030
AR2946	946100	0.0720%	0.0034
AR2947	947100	0.0824%	0.0045
AR2948	948100	0.0925%	0.0044
AR2042	042218	0.100%	0.010
AR2043	431216	0.22%	0.01
AR2044	441208	0.41%	0.06
AR2045	045111	0.619%	0.04
AR2046	046911	0.816%	0.052
AR2047	471216	0.99%	0.04
AR2048	481216	2.01%	0.05
AR2049	491017	3.08%	0.14
AR2050	050211	4.24%	0.41
AR2051	511012	5.56%	0.24

### Kerosene (100mL minimum) 4 oz bottle

Part #	Lot #	% Sulfur	Expanded Uncertainty
AR2849	849405	<0.001%	
AR2841	841103	0.0125%	0.0015

AR2951	951100	0.0211%	0.0019
AR2842	421213	0.029%	0.004
AR2952	952100	0.0420%	0.0051
AR2843	843812	0.049%	0.002
AR2953	953409	0.062%	0.007
AR2954	954610	0.071%	0.003
AR2955	955100	0.0801%	0.0016
AR2956	956714	0.090%	0.004
AR2844	844402	0.1313%	0.0083
AR2845	845103	0.1968%	0.0070
AR2846	461010	0.30%	0.02
AR2847	847795	0.395%	0.014
AR2848	849498	0.505%	0.006

### JP Fuels (100mL minimum) 4 oz bottle

Part #	Lot #	% Sulfur	Expanded Uncertainty
AR2921	9211200	0.0051%	0.0003
AR2922	221211	0.011%	0.002
AR2923	923902	0.0198%	0.0006
AR2924	924807	0.0300%	0.0016
AR2925	9251099	0.0433%	0.0027
AR2926	926614	0.050%	0.002
AR2927	927111	0.062	0.009
AR2928	928813	0.093	0.003

### High Viscosity Residual Oil (100mL minimum) 4 oz bottle

Part #	Lot #	% Sulfur	Expanded Uncertainty
AR3181	893405	0.292%	0.11
AR3182	971003	0.9037%	0.0320

### Nitrogen in Crude Oil (100mL minimum) 4 oz bottle

Part #	Lot #	Nitrogen
AR3032	CRU70792	67 ppm
AR3033	033494	749 ppm
AR3034	034494	1641 ppm

### Waste Oil (50mL minimum) 2 oz bottle

Part #	Lot #	Chlorine	Chromium	Lead
AR3161	161411	506 µg/g	5.07 µg/g	49.8 µg/g
AR3162	621010	1013 µg/g	9.8 µg/g	98.7µg/g
AR3163	163398	1898 µg/g	20.7µg/g	210.2µg/g

#### Waste Oil (50mL minimum) 2 oz bottle

Part #	Lot #	Arsenic
AR3171	1711198	2.0 µg/g
AR3172	1721198	4.2 µg/g
AR3173	1731198	10.5µg/g

## Ultimate Residual Fuel Oil (100mL minimum) 4 oz bottle

AR1622	Lot # 622318
% Sulfur	2.01
% Carbon	86.34
% Hydrogen	11.95
% Nitrogen	0.16
Gross BTU	18,861
Iron	(9.9) µg/g
Nickel	2.39 µg/g
Silicon	<0.01 µg/g
Copper	<0.01 µg/g
Sodium	(2.6)

( ) Reference Only

## Chlorine in Paraffin Oil (100mL minimum) 4 oz bottle

Part #	Lot #	Concentration
AR2004	004595	0.0009%
AR2005	005595	0.012%
AR2006	006994	0.051%
AR2007	007595	0.122%
AR2008	008708	0.200%
AR2009	009998	0.4462%
AR2010	010697	0.5605%
AR2011	011117	1.00%
AR2012	012111	1.95%
AR2013	013515	3.06%
AR2014	014515	3.98%
AR2015	015709	5.04%

## Lube Oil (100mL minimum) 4 oz bottle

Part #	Lot #	% Sulfur	Expanded Uncertainty
AR2838	381016	0.0100%	0.0012
AR2931	9311299	0.0207%	0.0009
AR2932	9321299	0.0524%	0.0015
AR2831	831996	0.073%	0.002
AR2933	933213	0.0805%	0.002
AR2934	934816	0.10	0.01
AR2832	832606	0.230%	0.004
AR2935	935118	0.350%	0.020
AR2833	833111	0.511%	0.04
AR2834	834596	0.753%	0.014
AR2936	936614	0.87%	0.05
AR2835	835411	1.00%	0.10
AR2937	371218	1.50%	0.06
AR2836	836616	2.00%	0.10
AR2938	9381299	2.5162%	0.0326
AR2839	839202	3.020%	0.050

AR2939	939508	3.500%	0.175
AR2837	371010	4.07%	0.32
AR2857	8571099	5.010%	0.018
AR2858	8581099	6.043%	0.037

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**Sulfur & Chlorine in Lube Oil Heavy Concentrations (100mL  
oz bottle**

**minimum) 4**

Part #	Lot #	% Sulfur	% Chlorine
AR3501	501213	7.00	4.00
AR3502	502408	5.00	2.00
AR3503	031008	4.00	7.00
AR3504	504508	2.00	5.00
AR3505	505317	1.00	0.50
AR3506	061008	0.50	1.00
AR3507	507194	<0.0001	<0.0001
AR3513	513218	0.030	0.030

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**Ultra Low #2 Diesel Oil (100mL minimum) 4 oz bottle**

Part #	Lot #	% Sulfur	Expanded Uncertainty
AR2868	868113	<0.0001%	
AR2882	821109	0.00048%	0.6
AR2881	811109	0.0010%	0.0001
AR2869	869910	0.0021%	0.0003
AR2879	791109	0.0025	0.0002
AR2878	878813	0.0049%	0.0004
AR2871	711015	0.0105%	0.0012
AR2872	872606	0.0207%	0.0014
AR2873	873217	0.030%	0.001
AR2874	874814	0.040%	0.002
AR2875	751218	0.049%	0.002
AR2865	651210	0.0600%	0.0045
AR2876	761211	0.069%	0.002
AR2866	866103	0.0786%	0.0052
AR2867	867613	0.089%	0.005
AR2877	877405	0.1055%	0.0045

**#2 Diesel Oil (100mL minimum) 4 oz bottle**

Part #	Lot #	% Sulfur	Expanded Uncertainty
AR2821	821516	0.150%	0.010
AR2961	961402	0.2060%	0.0094
AR2822	822613	0.305%	0.010
AR2962	962113	0.40%	0.02
AR2823	823413	0.53%	0.03
AR2963	631211	0.61%	0.02
AR2824	824714	0.70%	0.02
AR2964	964402	0.808%	0.0300

AR2965	965106	0.8530%	0.300
AR2825	825417	1.01%	0.02
AR2826	826313	1.50%	0.08
AR2827	827606	1.867%	0.075
AR2828	281012	2.53%	0.12
AR2829	829119	2.96%	0.11

### Desulfurized Hydrocarbon Standards (100mL minimum) 4 oz bottle

Part #	Lot #	Matrix	% Sulfur
AR3116	116995	Isooctane	<0.0001
AR3117	117995	Kerosene	<0.0001
AR3118	118995	#1 Diesel	<0.0001
AR3119	119995	#2 Diesel	<0.0001
AR3120	SUP95	Paraffin Oil	<0.0001
AR3121	121915	Gasoline	<0.0001

### Sulfur in Isooctane (100mL minimum) 4 oz bottle

Part #	Lot #	Concentration $\mu\text{g/g}$ Sulfur	Expanded Uncertainty
AR3101	101310	0.9	0.3
AR3102	102995	4.7	0.8
AR3103	103995	12.4	1.4
AR3104	104995	28.6	2.4
AR3105	105995	52.1	3.8

### Sulfur in Gasoline (100mL minimum) 4 oz bottle

Part #	Lot #	% Sulfur
AR3001	011218	0.0001
AR3002	002910	0.0052
AR3003	003910	0.0103
AR3004	041015	0.0308
AR3005	050417	0.0500
AR3006	006312	0.0703
AR3007	007910	0.0908
AR3008	081214	0.119
AR3009	Sold Out	(0.2000)
AR3011	011217	
AR3012	012117	0.0000
AR3013	013117	0.0010
AR3014	014117	0.0015
AR3015	015117	0.0020

### Viscosity Standards (100mL minimum) 4 oz bottle

Part #	Lot #	Matrix	Viscosity
AR3028	028893	#1 Diesel	2.43 cSt @ 40°C
AR3029	029893	#2 Diesel	2.88 cSt @ 40°C
AR3030	030893	JP 8	5.6 cSt @ -20°C
AR3031	031893	Kerosene	1.33 cSt @ 40°C

## Ultimate Oil Analysis

500 mL bottle Part #	118mL bottle Part #	Lot #	Oil Type	Fe (ppm)	Ni (ppm)	V (ppm)	Si (ppm)	Cu (ppm)	Na (ppm)
AR2070	AR2070S	CRU70792	Wyoming Sweet Crude	1.94	0.92	0.39	0.42	0.82	2.74
AR2071	AR2071S	EKO711192	North Sea Sweet Crude	4.33	2.24	1.91	1.05	0.1	5.76
AR2072	AR2072S	ANS721292	Alaska North Slope Crude	4.6	16.9	43.6	1.3	0.3	2.6
AR2078	AR2078S	BNM78792	Vacuum Gas Oil	0.18	0.055	0.13	0.15	0.14	0.87

Part #	Part #	Lot #	Oil Type	API 60° F	Organic Cl ppm	Total Cl ppm	Benzene weight %	Nitrogen ppm	Sulfur Weight %	Salt lb/Mbbls	Carbon weight %
AR2070	AR2070S	CRU70792	Wyoming Sweet Crude		<1.0	3.16	0.42	67.00	0.082	0.75	
AR2071	AR2071S	EKO711192	North Sea Sweet Crude	39.75	<1.00	0.18	0.37	749.90	0.175	2.53	
AR2072	AR2072S	ANS721292	Alaska North Slope Crude	28.2		1.50	0.18	1780.00	1.15	2.8	
AR2078	AR2078S	BNM78792	Vacuum Gas Oil	20.20				438.80	0.342		0.0386

## Ultimate Oil Analysis Plus Distillation Distillation (°F)

Part #	Lot #	Oil Type	Contents	IBP1	5	10	20	30	40	50	60
AR2074	074513	Kerosine (K-1)	500mL	369	391	399	409	418	427	435	446
AR2075	751015	#2 Diesel	500mL	363	417	437	459	476	495	510	526
AR2076	CRU761292	#1 Diesel	500mL	455	468	471.6	476.8	482.4	486	490	495

## Distillation (°F) Continued from Above

Part #	Lot #	Oil Type	Contents	70	80	90	95	EP
AR2074	074513	Kerosine (K-1)	500mL	454	467	486	503	523
AR2075	075300S288	#2 Diesel	500mL	544	566	595	619	635
AR2076	CRU761292	#1 Diesel	500mL	501	508	520		549

Part #	Lot #	Oil Type	Contents	API 60° F	ConCarbon	Cetane Index	Cloud Pt.	Pour Pt.	Sulfur Weight %	Viscosity cSt	Flast Pt. (°F)
AR2074	074513	Kerosine (K-1)	500mL	40.2	<0.1	44.3	-48°C	-53°C	0.0006	1.69@ 40C	138
AR2075	075300S288	#2 Diesel	500mL	35.1	<0.01	-	10.6°F	-7.2°F	0.0379	2.67 @ 100°C	162.0
AR2076	CRU761292	#1 Diesel	500mL	47.0	0.025	66.7	19.6°F	20.0°F	0.003	2.49 @ 100°C	219.0

## C, H, N,S, BTU Standards (100mL minimum) 4 oz bottle

Part #	Lot #	Description	% Carbon	% Hydrogen	% Nitrogen	% Sulfur	Gross BTU/Pound
AR000	000513	Paraffin Oil Standard	85.80	14.20	<0.0001	<0.0001	19,888
AR100	100614	Residual Oil Standard	88.0	10.1	0.19	0.93	18,408
AR150	150614	Residual Oil Standard	89.0	10.29	0.018	0.26	18,514
AR327	271009	Kerosene Standard	85.47	13.97	0.0002	0.136	19,730
AR330	330903	#2 Diesel Oil Standard	87.05	13.08	0.0098	0.034	19,418

## Engine Oils (100mL minimum) 4 oz bottle

Part #	Lot #	% Ash	% Zn	% Ca	% Mg	% P	% S	ASTM D2896	Viscosity	Viscosity
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								Base Number	(cSt 100°C)	(cSt/40°C)
AR6301	AA	0.05	<0.001	<0.001	<0.001	<0.001	0.29	2.42	12.25	119.2
AR6302	EO	0.22	0.122	0.0005	0.0005	0.103	0.22	2.83	12.56	124.87
AR6303	100	0.83	0.101	0.009	0.105	0.084	0.40	5.42	11.44	102.70
AR6304	LDO	0.81	0.119	0.058	0.087	0.095	0.56	6.27	12.81	73.51
AR6305	300	0.78	0.155	0.168	0.052	0.126	0.57	7.07	11.52	98.74

### Nitrogen in Vacuum Gas Oil (100mL minimum 4 oz bottle)

Part #	Lot #	Concentration
AR3151	151995	1.05 µg/g
AR3152	152697	5.15 µg/g
AR3153	153798	10.01 µg/g
AR3154	154995	26.37 µg/g
AR3155	155610	49 µg/g
AR3156	156414	90 µg/g
AR3157	1571296	432 µg/g

### High Sulfur Residual Oil (100mL minimum) 4 oz bottle

Part #	Lot #	% Sulfur	Expanded Uncertainty
AR2859	591108	5.00%	0.12
AR2861	861514	5.90%	0.12
AR2862	862909	9.86%	0.62
AR2863	863917	20.00%	0.43
AR2864	864708	30.00%	2.10

### Vacuum Gas Oil (100mL minimum) 4 oz bottle

AR2077	Lot # CR771092
Sulfur (wt%)	0.45
Nitrogen (ppm)	1267

### Low Sulfur Lube Oil (100mL minimum) 4 oz bottle

Part #	Lot #	% Sulfur	Expanded Uncertainty
AR3521	5111093	<0.0001	
AR3522	522595	0.0036	0.0006
AR3523	523595	0.0052	0.0004
AR3524	524701	0.011	0.002
AR3525	5251193	0.021	0.002
AR3526	526215	0.031	0.006
AR3527	5271193	0.041	0.004
AR3528	528398	0.0505	0.0016

### Heavy Lube Oil V, Ni, S (50mL minimum) 2 oz bottle

Part #	Lot #	ppm V	ppm Ni	% S
AR2901	9011196	407	75	4.25
AR2902	902695	271	50	3.11



AR2903	903900	168	22	2.002
AR2904	9004500	104.01	18.1	1.053
AR2905	905599	50.2	9.9	0.5263

### Lead in Gasoline (100mL minimum) 4 oz bottle

Part #	Lot #	% Lead
AR2067	067909	<0.0001
AR2066	066217	0.0100
AR2065	065909	0.0253
AR2064	641210	0.050
AR2063	063810	0.075
AR2062	062810	0.125
AR2061	611210	0.201

### Sulfur & Lead in Gasoline (100mL minimum) 4 oz bottle

Part #	Lot #	Sulfur µg/g	Lead µg/g
AR3111	111995	1023	3.1
AR3112	112995	524	0.90
AR3113	113995	106	40
AR3114	114995	1.06	82
AR3115	115995	<1	<1

### API Standards (500mL contents)

Part #	Lot #	Matrix	API
AR3045	451015	#2 Diesel	35.1
AR3046	046794	Crude Oil	28.2

### Extreme Pressure Oil (100mL minimum) 4 oz bottle

Part #	Lot #	% Sulfur	Expanded Uncertainty
AR2851	5191	2.00	0.03
AR2852	521013	2.95	0.10
AR2853	853694I	4.19	0.04

### JP-8 Jet Fuel

Part #	Lot #	Total Acid (mg KOH/g)	Aromatics (vol%)	Olefins (vol%)	Total Sulfur (wt%)	Mercaptan Sulfur (wt%)	API Gravity (60° F)
AR5201	5201	0.0025	17.70	2.45	0.178	0.0019	41.85
	Freeze Pt (°F)	BTU (/lb)	Smoke Pt	Flast Pt D93	Flast Pt D56	Viscosity (cSt)	
	-42.75	18536	21 (mm)	124.1° F	117.4° F	6.14 @ -4°F	