

STANDARD SPECIFICATIONS FOR PETROLEUM PRODUCTS

The following test methods are referenced in published specifications for petroleum products. For a complete listing of available Koehler testing equipment for each product type, please refer to the applicable catalog sections.

Product Type	Test Method	Page No.	
Fuels			
	Automotive Gasolines	Anti-Rust Properties.....	98
		Autoignition Temperature.....	39
		Color.....	44-47
		Copper Corrosion.....	90-91
		Density.....	48-50, 64
		Distillation.....	55-57
		Existent Gum by Evaporation.....	86-87
		Flash Point (Tag Closed).....	33, 35
		Kinematic Viscosity.....	2-13
Lead Content.....		60	
Iron Corrosion.....	88		
Octane Analyzer.....	102		
Oxidation Stability.....	80-84		
Oxygenate Detection.....	Upon Request		
Rapid Flash Point Tester.....	38		
Reid Vapor Pressure.....	92-94		
Sampling.....	66-67		
Silver Corrosion.....	99		
Sulfur.....	Upon Request		
Vapor-Liquid Ratio.....	Upon Request		
Vapor Pressure.....	Upon Request		
Water Content (Karl Fischer Titrator).....	51		
Aviation Fuels	Aromatics.....	104	
	Copper Corrosion.....	90-91	
	Density.....	48-50	
	Distillation.....	55-57	
	Electrical Conductivity.....	Upon Request	
	Existent Gum by Evaporation.....	86-87	
	Flash Point (Tag Closed).....	33, 35	
	Freezing Point.....	96-97	
	Kinematic Viscosity.....	2-13	
	Lead Content.....	60	
Lubricity, BOCLE.....	145		
Mercaptan Sulfur.....	75		
Naphthalene Content.....	Upon Request		
Net Heat of Combustion.....	76		
Oxidation Stability.....	80-84		
Rapid Flash Point Tester.....	38		
Reid Vapor Pressure.....	92-94		
Sampling.....	66-67		
Saybolt Color.....	44, 46-47		
Silver Corrosion.....	99		
Smoke Point.....	95		
Sulfur Content.....	Upon Request		
Thermal Stability.....	Upon Request		
Total Acidity.....	Upon Request		
Water Separation.....	Upon Request		
Biodiesel Fuels	Acid Number.....	75	
	Ca, K, Mg and Na Content.....	Upon Request	
	Carbon Residue, % Wt.....	56-57, 59-60	
	Cetane Index.....	56-57	
	Cetane Number.....	Upon Request	
	Cloud Point.....	132-133	
	Copper Corrosion.....	90-91	
	Distillation Vacuum.....	53-54	
	Flash Point (Pensky-Martens).....	32, 34	
	Free and Total Glycerine.....	Upon Request	
Phosphorous Content.....	Upon Request		
Kinematic Viscosity @ 40°C.....	2-13		
Sulfated Ash.....	63		
Sulfur.....	Upon Request		
Water and Sediment.....	62		
Burner, Diesel & Industrial Gas Turbine Fuels	API Gravity.....	48-50	
	ASTM Color.....	45-46	
	Density.....	48-50, 64	
	Distillation.....	55-57	
	Existent Gum.....	86-87	
	Flash Point (Pensky-Martens).....	32, 34	
	Flash Point (Tag Closed).....	33, 35	
	Kinematic Viscosity.....	2-13	
	Oxidation Stability.....	80-84	
	Pour Point.....	132-133	
Diesel Fuels	API Gravity.....	48-49	
	Aromaticity.....	104	
	Ash.....	63	
	Cetane Index.....	56-57	
	Cetane Number.....	Upon Request	
	Cloud Point.....	132-133	
	Cold Filter Plugging Point.....	100-101	
	Copper Corrosion.....	90-91	
	Distillation.....	55-57	
	Electrical Conductivity.....	Upon Request	
Flash Point (Pensky-Martens).....	32, 34		
Kinematic Viscosity.....	2-13		
Low Temperature Flow Test.....	105		
Lubricity, HFRR.....	145		
Oxidation Stability.....	80-84		
Pour Point.....	132-133		
Ramsbottom Carbon Residue.....	59		
Rapid Flash Point Tester.....	38		
Rust Preventing Characteristics.....	128-129		
Sulfur.....	Upon Request		
Water and Sediment.....	62		
Wax Appearance Point.....	94		
Fuel Oils	API Gravity.....	48-50, 64	
	Ash.....	63	
	ASTM Color.....	45-46	
	Copper Corrosion.....	90-91	
	Distillation.....	55-57	
	Flash Point (Pensky-Martens).....	32, 34	
	Flash Point (Tag Closed).....	33, 35	
	Flocculation.....	52	
	Kinematic Viscosity.....	2-13	
	Oxidation Stability.....	119-123	
Pour Point.....	132-133		
Ramsbottom Carbon Residue.....	59		
Rapid Flash Point Tester.....	38		
Sampling.....	66-67		
Sediment Extraction.....	61		
Sulfur.....	Upon Request		
Water and Sediment by Centrifuge.....	62		
Water Content by Distillation.....	72		
Water Content (Karl Fischer Titrator).....	51		
Vacuum Distillation.....	53-54		
Aviation Turbine Fuels Containing Synthesized Hydrocarbons	Aromatics.....	104	
	Copper Corrosion.....	90-91	
	Density.....	48-49, 64	
	Distillation.....	56-57	
	Electrical Conductivity.....	Upon Request	
	Existent Gum by Evaporation.....	86-87	
	Flash Point (Tag Closed).....	33, 35	
	Freezing Point.....	96-97	
	Kinematic Viscosity.....	2-13	
	Mercaptan Sulfur.....	75	
Naphthalene Content.....	Upon Request		
Net Heat of Combustion.....	76		
Rapid Flash Point Tester.....	38		
Smoke Point.....	95		
Sulfur.....	Upon Request		
Thermal Stability.....	Upon Stability		
Total Acidity.....	Upon Request		
Water Separation.....	Upon Request		
Kerosene	Copper Corrosion.....	90-91	
	Distillation.....	55-57	
	Flash Point (Tag Closed).....	33, 35	
	Freezing Point.....	96-97	
	Kinematic Viscosity.....	2-13	
	Mercaptan Sulfur.....	75	
	Rapid Flash Point Tester.....	38	
	Saybolt Color.....	44, 46-47	
	Smoke Point.....	95	
	Sulfur.....	Upon Request	

STANDARD SPECIFICATIONS FOR PETROLEUM PRODUCTS (CONTINUED)

Product Type	Test Method	Page No.	Product Type	Test Method	Page No.	
Liquefied Petroleum Gas (LPG)	Copper Strip Corrosion	89	Steam Turbine Lubricating Oils	Low Temperature Brookfield Viscosity	14-15	
	Density	103		Pour Point	132-133	
	Hydrocarbon Determination by GC	Upon Request		Oxidation Stability	114-118	
	Residues in LPG	105		Rust Prevention Characteristics	128-129	
	Sampling	66-67		Sludge Tendency	119-122	
	Sulfur Content	58		Specific Gravity	48-50, 64	
	Vapor Pressure	92-94		Thermal Stability	Upon Request	
	Volatility	105		Water Separation	111	
	Lubricants Aircraft Engine Lubricant	API Gravity		48-50, 64	Air Release Properties	113
Conradson Carbon Residue		60		ASTM Color	45-46	
Copper Corrosion		131		Copper Corrosion	131	
Corrosiveness and Oxidation Stability		119, 124-125		Evaporation Loss by Noack Method	136	
Flash and Fire Points (Cleveland)		33, 36		Flash and Fire Points (Cleveland)	33, 36	
Foaming Characteristics		108-110		Foaming Characteristics	108-110	
Kinematic Viscosity		2-13		Kinematic Viscosity	2-13	
Oxy Overpressure Method for Fuel Storage Stability		85		Load Carrying Capacity (FZG)	Upon Request	
Pour Point		132-133		Oxidation Characteristics	119-122	
Rapid Flash Point Tester		38		Oxidation Stability (RPVOT)	114-118	
Sampling		66-67		Pour Point	132-133	
Water & Sediment Content by Centrifuge Method		62	Rapid Flash Point Tester	38		
Water Content (Karl Fischer Titrator)		51	Rust Preventing Characteristics	128-129		
Wax Appearance Point		94	Sampling	66-67		
Automatic Transmission Fluid		Copper Corrosion	131	Specific Gravity	48-50, 64	
	Density	48-49, 64	Water Content (Karl Fischer Titrator)	51		
	Foaming Characteristics	108-110	Water Separability	111		
	Rust Preventing Characteristics	128-129	Turbine Oils and Synthetic Lubricants	Air Release Properties	113	
	Automotive Engine Oil	API Gravity		48-49, 64	Ash	63
ASTM Color		45-47		Density	48-50, 64	
Conradson Carbon Residue		60		Distillation	55-57	
Density		48-50		Evaporation Loss by Noack Method	136	
Distillation at Reduced Pressures		53-54		Flash Point (Pensky-Martens)	32, 34	
Evaporation Loss by Noack Method		136		Foaming Characteristics	108-110	
Flash and Fire Points (Cleveland)		33, 36		Kinematic Viscosity	2-13	
Flash and Fire Points (Tag Open)		37		Oxidation Stability (RPVOT/TFOUT)	114-118	
Flash Point (Pensky-Martens)		32, 34		Pour Point	132-133	
Flash Point (Tag Closed)		33, 35		Ramsbottom Carbon Residue	59	
Foaming Characteristics		108-110		Rapid Flash Point Tester	38	
Kinematic Viscosity		2-13		Sulfur	Upon Request	
Low Temperature Brookfield Viscosity		14-15		Water and Sediment	62	
Pour Point		132-133		Other Products Bituminous Materials (including waxes)	Blocking and Picking Point	177
Ramsbottom Carbon Residue		59			Ductility	170
Rapid Flash Point Tester	38	Flash and Fire Points (Cleveland)			33, 36	
Saybolt Color	44, 46-47	Flash Point (Tag Open)			37	
Water Content (Karl Fischer Titrator)	51	Float Test			176	
Water Content by Distillation	72	Melting Point of Waxes	178			
Automotive Lubricating Grease	Apparent Viscosity	157	Penetration		24-26, 29	
	Corrosion Preventive Properties	154	Rapid Flash Point Tester		38	
	Dropping Point	150-151	Residue and Oil Distillate by Distillation		176	
	Evaporation Loss	148-149	Rolling Thin-Film Oven Test		175	
	Four-Ball Wear and Extreme Pressure	140	Saybolt Viscosity		16-17	
	High Temperature Life	161	Softening Point		172	
	Leakage Tendencies	160	Viscosity by Vacuum Capillary Viscometer		2-13	
	Life Performance	161	Water Content by Distillation		72	
	Low Temperature Brookfield Viscosity	14-15	Electrical Insulating Oils		Aniline Point	42-43
	Low Temperature Torque	159		ASTM Color	45-46	
	Oil Separation	165		Flash and Fire Points (Cleveland)	33, 36	
	Oxidation Stability	152-153		Kinematic Viscosity	2-13	
	Penetration	24-29		Oxidation Stability (RPVOT/TFOUT)	114-118	
	Rust Protection	65		Pour Point	132-133	
	Water Washout	162		Saybolt Viscosity	16-17	
Gear Oils	Air Release Properties	113		Visual Examination	45	
	Copper Corrosion	131		Solvents	Aniline Point	42-43
	Demulsibility Characteristics	112			API Gravity	48-50, 64
	Foaming Characteristics	108-110			ASTM Color	45-46
	Kinematic Viscosity	2-13			Copper Corrosion	90-91
	Oxidation Stability	120-123			Distillation	55-57
	Rust Preventing Characteristics	128-129			Flash Point (Pensky-Martens)	32, 34
	Saybolt Viscosity	16-17			Flash Point (Tag Closed)	33, 35
	Thermal Oxidation Stability	127	Kinematic Viscosity		2-13	
	Water Content (Karl Fischer Titrator)	51	Rapid Flash Point Tester		38	
	Hydraulic and Metalworking Fluids	Corrosiveness and Oxidation Stability	119, 124-125		Sampling	66-67
		Flash and Fire Points (Cleveland)	33, 36		Saybolt Color	44, 46-47
		Four Ball Wear Test	140		Vapor Pressure	92-94
					Volatility	105
					Water Content (Karl Fischer Titrator)	51

GENERAL INDEX

A

Accelerated Aging of Asphalt Binder using a Pressurized Aging Vessel (PAV)	173
Accelerated Iron Corrosion Tester (AICT)	88
Acidity (Inorganic) of Petroleum Products	60
Acidity and Alkalinity in Greases	Upon Request
AFNOR Standards	
See AFNOR Index.....	218
AFT	52
Air Jet Erosion Tester	146
American Association of State Highway and Transportation Officials (AASHTO) Standards	
See AASHTO Index.....	217
American Petroleum Institute (API) Standards	
See API Index.....	217
Anhydride Purity Bath	68
Aniline Point of Petroleum Products	42-43
Antirust Properties of Petroleum Products Pipeline Cargoes	98
AOCS Penetration Cone	27
API Gravity Hydrometers	48
Apparent Viscosity of Lubricating Grease	157
Aqueous Engine Coolant Solution, Freezing Point of	68
Ash Determination	63
Asphaltene Precipitation	52
Asphalt Institute Viscometers	13
Asphalts	
Please refer to the "Bitumens and Waxes" section.....	169-180
Assessing Distillate Fuel Storage Stability by Oxygen Overpressure	85
ASTM Copper Strip Corrosion Standards	89-91, 155
ASTM Metric Thermohydrometers	48
ASTM Test Methods	
See ASTM Index.....	215-216
ASTM Thermometers	184-191
ATF Lubricity Test Rig (BOCLE)	145
Autoignition Temperature of Liquid Chemicals	39
Automated/Automatic	
Air Release Value Apparatus.....	113
Aniline Point.....	42
Calorimeter.....	76
Centrifuge.....	62
Cloud and Pour Point.....	133
Cold Filter Plugging Point.....	101
Color Measurement.....	46-47
Density Meter.....	64
Dielectric Breakdown Tester.....	134
Distillation.....	54, 56-57
Ductility and Elastic Recovery (Semi-Auto).....	170
Filter Plugging Tendency Analyzer (FPT).....	76
Flash Point.....	32-33
Flocculation Titrimeter.....	52
Freezing Point.....	97
Karl Fischer Titrator.....	51
Low Temperature Filterability Test Analyzer (LTFT).....	105
Melting Point Range.....	69
Noack, Non-Woods Metal.....	136
Penetration.....	25
Potentiometric Titrator.....	75
Refractive Index.....	73
Saybolt Viscosity.....	16
Smoke Point.....	Upon Request
Softening Point.....	171
Automotive Gasoline	
See Standard Specifications for Petroleum Products Index.....	219
Aviation Fuels	
See Standard Specifications for Petroleum Products Index.....	219

Aviation Turbine Fuels Containing Synthesized Hydrocarbons

See Standard Specifications for Petroleum Products Index.....219

B

Bacon Bomb Samplers	66
Ball-On-Cylinder Lubricity Evaluator (BOCLE)	145
Bath Oil	8
Baths	
General Purpose.....	70-71
Penetrometer.....	29
See individual product/test listings	
Bearing Compatibility of Turbine Oils	131
Bearing and Grease Noise Characteristics	146
Bending Apparatus	172
Benzene, Toluene, and Total Aromatics Standards	182
Biodiesel Fuels	
See Standard Specifications for Petroleum Products Index.....	219
Bituminous Materials	
Please refer to "Bitumens and Waxes" section.....	169-180
Penetration Test (See "Penetration" section).....	23-30
Water Content by Distillation.....	72
Blocking and Picking Points of Petroleum Wax	177
Bomb Calorimeter	76
Bomb (Pressure Vessel)	80, 114, 152
Breaking Point of Bitumen, Fraass Method	172
Brookfield Viscosity Bath	14-15
BS/IP/RF U-Tube Opaque Viscometers	12
BS/IP/MSL Miniature Suspended Level Viscometers	13
BS/IP/SL Suspended Level Viscometers	13
BS/IP/SL(S) Suspended Level Viscometers	13
BS/U/M Miniature U-Tube Viscometers	12
BS/U-Tube Transparent Viscometers	12
Bold Series Rotational Viscometer	15, 21
Burning Characteristics	Upon Request
Burst Disk Assembly	81-82

C

Calibration Baths	
High temperature and low temperature of liquid-in-glass thermometers.....	74
Calibration Kit, for Penetrometer	24-25
Calorimeter	76
Capillary Viscometers	
Cannon®-Fenske Viscometers.....	10-11
Cannon®-Manning Viscometers.....	12-13
Cannon®-Ubbelohde Viscometers.....	11
Carbon Residue	
Conradson.....	60
Ramsbottom.....	59
Catalysts	
for Lubricating Oil Oxidation Stability Tests.....	122
for (RPVOT) RBOT.....	117
for TFOOT.....	117
Centrifuge	
Laboratory.....	62, 63
Portable.....	63
Cetane No. Analyzer	102
Chlorides	58
Chlorine Photometer	Upon Request
Chromometer, Saybolt	44
Cigre Bath	126
Circulators, Refrigerated	70-71

GENERAL INDEX (CONTINUED)

Cleveland Open Cup Flash Tester	33, 36	Diffuser Stones, for Foaming Characteristics Test	110
Cloud Point of Petroleum Oils	132-133	Digital	
Coking Bulbs	59	Penetrometer	25
Coking Index	52	Stopwatch	8
Coking Tendency of Oil	135	Tachometer	112
Cold Cranking Simulator Viscosity Standards	19	Thermometer	59, 149, 177
Cold Filter Plugging Point of Distillate Fuels	100-101	Distillation	
Color		of Petroleum Products	55-57
Automated Colorimeter	46-47	of Petroleum Products at Reduced Pressure	53-55
ASTM	45-46	Water Content by	72
of Electrical Insulating Oils	45-46	Draft Shield	
of Gasoline	46-47	for Tag Open Cup Flash Tester	37
of Maleic and Phthalic Anhydrides	68	Drop Melting Point	Upon Request
Saybolt	44, 46-47	Dropping Point of Lubricating Greases	150-151
Compactors	Upon Request	Drum Thief	67
Conductivity		Dry Abrasion Tester	146
General Purpose	74	Ductility of Bituminous Materials	170
of Aviation and Distillate Fuels	Upon Request	Dynamic Viscosity by Rotational Viscometer	20-21
Cones, Penetrometer	26-27		
Conradson Carbon Residue	60	E	
Constant Temperature Baths		Effect of Heat and Air on Asphaltic Materials (Thin-Film Oven Test)	174
See individual product listings		Effect of Heat and Air on a Moving Film of Asphalt (Rolling Thin Film Oven Test)	175
Copper Corrosion from Petroleum Products		Elastic Recovery of Bituminous Materials	170
(Copper Strip Tarnish Test)	90-91, 131, 155	Electrometric Salt Determinator	61
Copper Strip Corrosion by Liquefied Petroleum (LP) Gases	89	Emcor Grease Testing Machine	144
Core-Type Sampling Thief (Tulsa Oil Thief)	67	Estimation of Deleterious Particles in Lubricating Grease	166
Corrosion of Aviation Fuels		Evaporation Bath	
(Silver Strip Tarnish Test)	99	for Existent Gum in Fuels	86
Corrosion of Cast Aluminum Alloys in Engine Coolants	Upon Request	for Lubricating Greases and Oils	148-149
Corrosion of Lead by Lubricating Oils	130	Evaporation Cabinet, for Oil Content of Petroleum	179
Corrosion Inhibition Properties of Greases	144	Evaporation Loss	
Corrosion Preventive Properties of Lubricating Greases	154	by NOACK Method	136
Corrosiveness and Oxidation Stability of Petroleum Oils	119, 124-125	of Lubricating Oils and Greases	148-149
Coulometric Karl Fischer Titrator	51	Existent Gum in Fuels by Jet Evaporation	86-87
Cross-Arm Viscometers	12	Extension Rods, for Sample Thief	66
Crude Oil		Extraction Apparatus	60-61
Density, Relative Density or API Gravity of	48-50, 64	Extreme Pressure Lubricants	
Distillation, Vacuum	54	Demulsibility Characteristics	112
Salt Content of	61	Oxidation Stability	120-122
Sediment in	61-63		
		F	
D		Federal Test Method Standards	
Data Acquisition		See FTM Index	217
for Low Temperature Torque of Lubricating Greases	159	Filter Stick Assembly	179
for Oxidation Stability of Gasoline and Aviation Fuels	80, 83-84	Fire Point Tester	33, 36
for Reid Vapor Pressure of Petroleum Products and LPG	93	Flash Point Testers	
for (RPVOT) RBOT	114-115	Cleveland Open Cup	33, 36
for TFOUT	114-115	Pensky-Martens	32, 34
for Tribology Equipment	141	Rapid Tester (Open and Closed Cup)	38
Daylight Lamp	44	Tag Closed Cup	33, 35
Dean and Stark Apparatus	72	Tag Open Cup	37
Deleterious Particles Determination Apparatus	166	Float Test for Bituminous Materials	176
Demulsibility Characteristics	112	Flocculation Titrimeter	52
Density		Fluorescent Indicator Absorption Apparatus	104
of Light Hydrocarbons by Pressure Hydrometer	103	Foaming Characteristics of Lubricating Oils	108-110
of Petroleum Products	48-50, 64	Four Ball Wear and Friction Test	140
Deutsche Norm (DIN) Standards		Four Ball EP Test	140
See DIN Index	218	Fraass Method	172
Dew Point	88	Freezing Point Apparatus	
Dielectric Breakdown Voltage of Insulating Liquids	134	for Aqueous Engine Coolant Solution	68
Diesel Fuels			
See Standard Specifications for Petroleum Products Index	219		
Soot Content in	Upon Request		

GENERAL INDEX (CONTINUED)

for Aviation Fuels	96-97
for Distillate Fuels	96-97
for Purity of Styrene	Upon Request
Friction and Wear Test Equipment	139-146
Front View Distillation Apparatus	55
Fuel Dilution Monitoring	Upon Request
Fuel Oils	
See Standard Specifications for Petroleum Products Index	219
Fuels	
Please refer to the "Fuels" section	79-106
Fuel Storage Stability	85
Furnace	63
Furol Orifice	17
FZG Tester	Upon Request
G	
Gas Chromatography	Upon Request
Gauging Pole	Upon Request
General Purpose Baths	70-71
Glassware for ASTM Methods	192-196
See individual product listing	
Grease Cutter	26
Grease in Water and Wastewater by IR	166
Grease Mobility Test	158
Grease Noise Characteristics	143
Grease Noise Tester	146
Grease Ventability	167
Grease Workers	28
H	
Half Scale Penetration Equipment	27
See "Penetration" section	23-30
Heat of Combustion	76
Heat Transfer Fluid	8
Heating- Cooling Tube for Aniline Point Apparatus	42
Heithaus Titrimetry	52
Herschel Emulsifier (Water Separability)	111
Heterogeneous Propellants Yield Stress of	
See "Penetration" section	23-30
High Temperature	
Dropping Point Apparatus	151
General Purpose/Utility Baths	70-71
Evaporation Loss Tester	149
Kinematic Viscosity Bath	6
Wheel Bearing Grease Tester	161
High Frequency Reciprocating Rig (HFRR)	141
High Resolution Digital Microscope, for Four Ball Tester	140
High Viscosity Standards, for Asphalts and Polymers	19
High Voltage Insulating Oil Tester	134
Horizontal Disc Rust Test	128-129
Hot Air Gun for Autoignition Test	39
Humidity Cabinet	65
Hydrocarbon Types in Liquid Petroleum Products	104
Hydrometers and Accessories	48-50
I	
Immersion Viscometer	Upon Request
Infrared Analyzer (IR)	166
Institute of Petroleum (IP) Standards	
See IP Standards Index	217
Interfacial Tension	Upon Request
Insulating Oil Tester	134
ISO International Standards	
See ISO Index	218
K	
Kansas Road Oil Orifices	17
Karl Fischer Titrator	51
Kinematic Viscosity	2-13
Viscometers	5, 10-13
L	
L-60-1 Performance Test	127
Lead Corrosion Apparatus	130
Lead in Gasoline	60
Leakage Tendencies of Automotive Wheel Leveling Device	160
for Tag Open Cup Flash Tester	37
Life Performance of Automotive Wheel Bearing Greases	161
Lincoln Ventmeter	167
Liquefied Petroleum (LP) Gases	
Copper Strip Corrosion	89
Corrosion Test Cylinders	89
Density	103
Residues in	105
Sample Containers	67
Sulfur Content	58
Vapor Pressure of	92-94
Volatility of	105
Loss on Heating of Oil and Asphaltic Compounds	174
Low Temperature	
Brookfield Viscosity Bath	14-15
Cloud Point and Pour Point	132-133
Cold Filter Plugging Point (CFPP)	100-101
Filterability by Low Temperature Flow Test (LTFT)	105
Freezing Point	96-97
Grease Mobility Tester	158
Kinematic Viscosity Bath	6
Pressure Viscometer	157
Viscosity Standards	19
Low Temperature Torque of Lubricating Greases	159
Lubricating Ability of Greases	146
Lubricating Greases	
Please refer to the "Lubricating Greases" section	147-168
Penetration Tests	23-30
Lubricating Oils	
Please refer to the "Lubricating Oils" section	107-138
M	
Manometer for RVP Test	94
Marshall Apparatus	Upon Request
Master Series Rotational Viscometer	20
Mechanical and Dynamic Behavior of Greases	146
Mechanical Stability of Greases	146
Melting Point Apparatus	69
Melting Point of Petroleum Wax	178
Mercaptan Sulfur	75
Metal Test Specimens	
See individual product listing	
See "Test Specimens" section	197
Metalworking Fluids	
Corrosiveness and Oxidation Stability	124-125

GENERAL INDEX (CONTINUED)

Flash and Fire Points (Cleveland).....	33, 36
Four Ball Wear Test	140
Oil Separation	164-165
Oxidation Stability.....	114-118
Roll Stability.....	156
Water Washout Characteristics	162
Micro-Tribometer	Upon Request
Microprocessor Based Penetrometer	25
Mineral Oil.....	8
Modified Koppers Viscometer.....	13
Muffle/Ashing Furnace	63
Multispecimen Tester.....	146

N

NACE Corrosion Test for Pipeline Products.....	98
Navy Work Factor Machine.....	130
Needles, Penetrometer.....	26
Noack Evaporation Loss Tester.....	136
Norma Hoffman Pressure Vessel (Bomb).....	152

O

Octane Analyzer.....	102
Oil in Water and Wastewater by IR	166
Oil Comparator.....	45
Oil Content of Petroleum Waxes.....	179
Oil Separation-from Lubricating Grease	164-165
Optical Sensors, for Kinematic Viscosity Bath	5
Orifices, Saybolt	17
Oven Rolling Thin Film Oven Test (RTFO)	175
Overflow Ring.....	28
Oxidata® Pressure Measurement System	
for Oxidation Stability of Gasoline and Aviation Fuels.....	83-84
for Oxidation Stability of Lubricating Greases.....	152-153
for RPVOT (RBOT) and TFOUT Methods	114-115, 118
Oxidation Pressure Vessel.....	80, 114, 152-153
Oxidation Test for Lubricating Oil	126
Oxidation Stability	
See also "Corrosiveness and Oxidation Stability"	119-125
of Automotive Gasoline	80-84
of Automotive Gear Lubricants.....	127
of Aviation Fuels.....	80-84
of Extreme Pressure Lubricating Oils	119-122
of Foods, Oils, Fats and Biodiesel Fuels.....	77
of Gasoline Automotive Engine Oils (TFOUT)	114-118
of Gasoline (Induction Period Method)	80-84
of Inhibited Mineral Insulating Oils.....	126
of Inhibited Mineral Insulating Oils	
by Rotating Pressure Vessel (Bomb)	114-118
of Inhibited Mineral Oils	119-122
of Inhibited Mineral Turbine Oils.....	126
of IP Methods.....	126
of Lubricating Grease	152-153
of Mineral Insulating Oils	123, 126
of Distillate Fuel Oils	119-122
of Steam Turbine Oils by Rotating Pressure Vessel (Bomb).....	114-118
of Straight Mineral Oil	126
Oxy-Hydrogen Burner.....	58
Oxygen Bomb Calorimeter.....	76
Oxygen Overpressure	85
Oxygenates Standards	182

P

Panel Coking Test Apparatus.....	135
---	------------

Pastes, Penetration of.....	24-25, 27
Penetrometers and Accessories	24-29
Pensky-Martens Closed Cup Flash Testers	32, 34
Petrolatum, Penetration of	24-25, 27, 29
Petroleum Colorimeter.....	45
Petroleum Standards/Certified Reference Materials (CRM).....	182
Petroleum Waxes	
Please refer to the "Bitumens and Waxes" section	
Penetration Test	24-29
pH Meter.....	74
Pin and V-Block Test.....	145
Pin-on-Disc Tester	142
Pour Point of Petroleum Oils.....	132-133
Power Series Rotational Viscometer	15, 21
Precooling Apparatus.....	105
Pressure Bleeding Test Cell	165
Pressure Gauge	
for Oxidation Stability of Gasoline and Aviation Fuels	84
for Oxidation Stability of Lubricating Greases	152
for Reid Vapor Pressure.....	92
Pressure Hydrometer Cylinder	103
Pressure Measurement and Recording Systems	
for Reid Vapor Pressure of Petroleum Products and LPG	93
for Oxidation Stability of Gasoline and Aviation Fuels	80, 83-84
for Oxidation Stability of Lubricating Greases.....	152-153
for RPVOT (RBOT) and TFOUT Methods.....	114-115, 117-118
Pressure Recorder	
for Oxidation Stability of Gasoline and Aviation Fuels	84
for RPVOT (RBOT) Test	117
Pressure Vessel	85
Pressure Viscometer	157
Programmable Ashing/Muffle Furnace.....	63
Purity of Styrene by Freezing Point Method.....	Upon Request

Q

Quarter Scale Penetration Equipment	27
See "Penetration" section.....	23-30

R

R2F Grease Testing Machine	146
ROF Grease Testing Machine.....	146
Ramsbottom Carbon Residue.....	59
Rapid Flash Tester	38
Reciprocatory Friction Tester	141
Refractive Index	73
Refrigerated Baths and Circulators	
General Purpose	70-71
See individual product listings	
Reichert Tester.....	146
Reid Vapor Pressure	92-94
Relative Density of Petroleum Products	48-50, 64
Residue and Oil Distillate in Emulsified Asphalts by Distillation	176
Residues in Liquid Petroleum (LP) Gases.....	105
Resistance of Lubricating Grease to Water Spray	163
Resistance to Plastic Flow of Bituminous Mixtures Using	
Marshall Apparatus.....	Upon Request
Ring and Ball Apparatus	171-172
Roll Stability of Lubricating Grease.....	156
Rolling Thin Film Oven Test (RTFOT).....	175
Rotating Bomb Oxidation Tests (RPVOT/RBOT).....	114-118
Rust Preventing Characteristics.....	98, 128-129
Rust Protection by Metal Preservatives	65

GENERAL INDEX (CONTINUED)

S

Salt Content	
Electrometric Method	61
Extraction Method	60
Sample Thiefs	66-67
Saybolt Chromometers	44
Saybolt Viscosity	16-17
Scratch Tester	144
Sediment in Crude Oils and Fuel Oils	
by Extraction	61
by Centrifuge	62, 63
Separatory Funnel	112
Sequence IV Foaming Characteristics Test	108-110
Sharp Series Rotational Viscometer	21
Shear Stability	146
Sighting Device, for Smoke Point Lamp	95
Silicone Heat Transfer Fluid	8
Silver Corrosion by Aviation Turbine Fuels	99
Slurry Abrasion Tester	146
Slurry Erosion Tester	146
Smoke Point of Aviation Fuels	95
Softening Point of Bitumen	171, 172
Solvent Extractables in Petroleum Waxes	179
Soot Levels in Diesel Engine Oils	Upon Request
Spare Parts	198-209
Specific Gravity	48-50, 64
Stability-Corrosion Test for Non-Aqueous Fire Resistant Fluids	126
Stability of Lubricating Oils (Work Factor)	130
Standards	
Petroleum Test Standards	182
Steam Generator for Existent Gum in Fuels	87
Steam Superheater	87
Stirrer Motor	
for Freezing Point Apparatus	96
for Pensky-Martens Closed Tester	34
Stopwatch, Digital	8
Sulfur in Petroleum Products and Liquefied Petroleum (LP) Gases	58
Sulfur Standards	182

T

Table Socket	81
Tag Closed Cup Tester	33, 35
Tag Open Cup Flash Tester	37
Tank Car Gauging Pole	Upon Request
Tapping Torque Tester	146
Test Tube Bath	90
Test Bomb Bath	90
Test Specimens	197
Thermal Oxidation Stability of Automotive Gear Lubricants	127
Thermal Oxidation Stability of Aviation Turbine Fuels	Upon Request
Thermohydrometers	48-49
Thermometers	184-191
Calibration Bath	74
Digital Thermometer	59, 149, 177
Thin Film Aniline Point Apparatus	43
Thin-Film Oven Test	174
Thin Film Oxidation Uptake Test (TFOUT)	114-118
Thin Film Oven Test, Rolling	175
Timken Test	143
Titration	51, 75
Titrimeter	52
Torque Wrench for Leakage Tendencies Test	160
Trace Quantities of Total Sulfur	58
Traces of Volatile Chlorides in Butane-Butene Mixtures	58
Transfer Dish	26

Tribology	139-146
Measurement and Data Acquisition System	141
Turbidimeter	Upon Request
Turbine Oils	
See Standard Specifications for Petroleum Products Index	220

U

U-Tube Aniline Point Apparatus	43
Ubbelohde Viscometers	11
Universal Micro-Tribometer	Upon Request
Universal Orifices	17
Universal Wear Test	146
Un sulfonated Residue of Petroleum Plant Spray Oils	Upon Request
Utility Heater	72

V

V2F Grease Testing Machine	146
Vacuum Distillation Apparatus	53-54
Vacuum Manifold	12
Vacuum Pump for Viscosity of Asphalts by Vacuum	
Capillary Viscometers	13
Vacuum Regulator	13
Vane Pump Wear	146
Vapor Identification System	Upon Request
Vapor Pressure of Petroleum Products and Liquefied	
Petroleum (LP) Gases	92-94
Ventability of Grease	167
Ventmeter	167
Viscometer Cleaning and Drying Apparatus	9
Viscometer Holders	8
Viscometers	10-13
See Apparent Viscosity, Brookfield Viscosity, Kinematic Viscosity, Saybolt Viscosity, Dynamic Viscosity and Thomas Stormer Apparatus	
Viscosity	1-22
Viscosity Standards	18-19
Volatility of Liquefied Petroleum (LP) Gases	105
Volumetric Karl Fischer Titration	75

W

Water and Sediment Content by Centrifuge Method	62, 63
Water Baths	70-71
Water in Petroleum Products	
by Centrifuge	62, 63
by Distillation	72
by Coulometric Karl Fischer Titration	51
by Volumetric Karl Fischer Titration	75
Water Separability of Petroleum Oils and Synthetic Fluids	111
Water Spray Apparatus for Lubricating Grease	163
Water Washout Characteristics of Lubricating Greases	162
Wax Appearance Point of Distillate Fuels	94
Wax Coating Device	177
Wax Melting Point Apparatus	178
Waxes	
See "Bitumens and Waxes" section	169-180
Penetration Test—See "Penetration" section	24-26, 29
Saybolt Color of	44, 46
Wear Testing Equipment	139-146
Weathering Test for LPG	105
Weighted Beaker	67
Wet Test Gas Meter	110
Wickbold Combustion Apparatus	58
Wicks, for Smoke Point Lamp	95