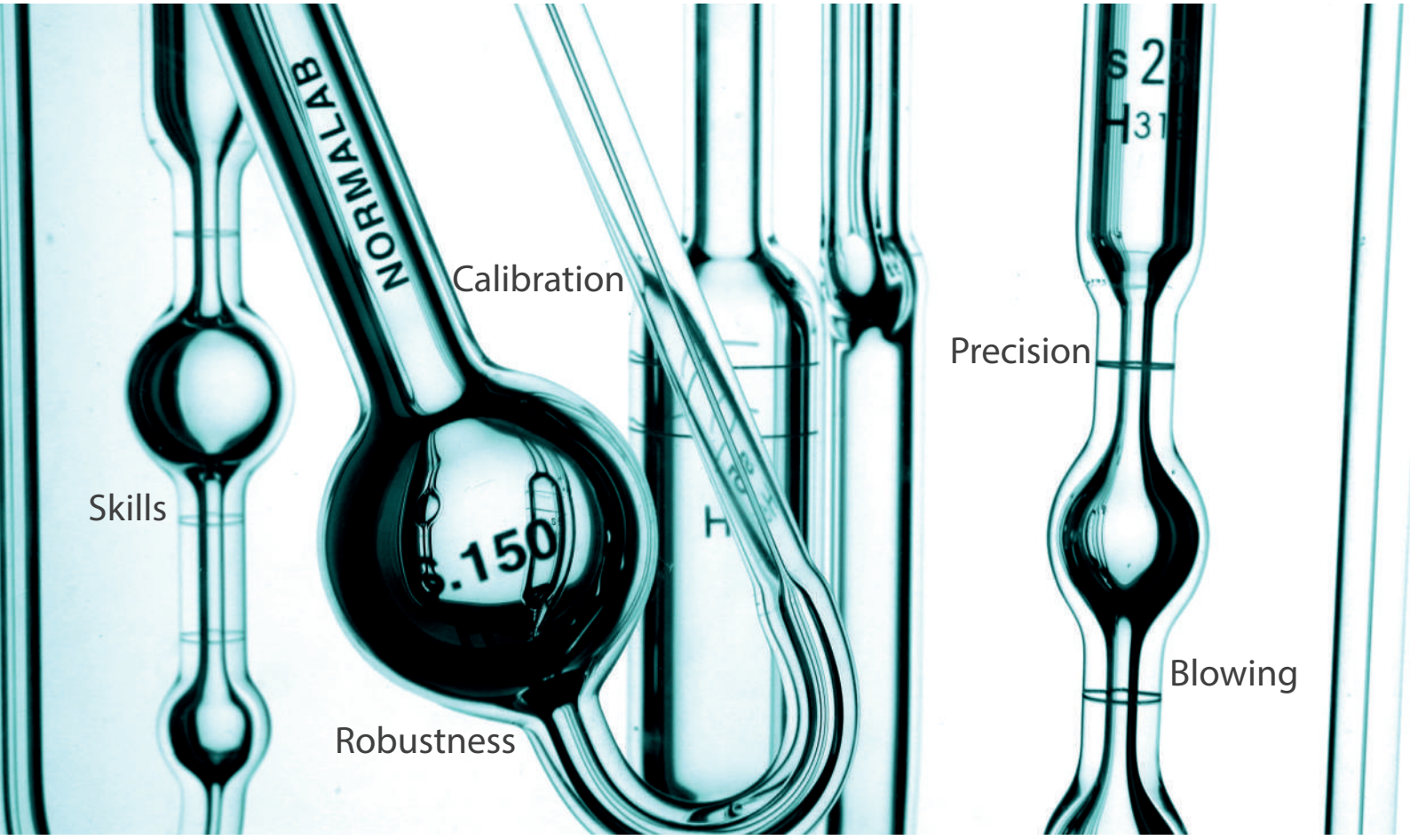
PETROLEUM GLASSWARE CATALOG



NORMALAB

www.normalab.com

EDITORIAL

Thanks to **NORMALAB** expertise for over 50 years in manufacturing, testing equipments and in petroleum glassware, we offer to our clients quality services in order to complete their laboratory project. The strength of our workshop is renowned in the laboratories, that's why it is important to present our expertise and our customized realizations.

NORMALAB is taking care of its experience and your needs for laboratory analysis. The 5th generation of automatic analysers uses new technologies, as **NORMALAB** also implements some of these ideas to extend its range of instruments.

Our R&D team is working on extending new features and creating new products according to standard requirements. In order to improve our instruments, investments are planned for research and development during the upcoming years.

Today, **NORMALAB** reorganizes its production process to improve the productivity. Each product is controlled and tested to assure the quality and the reliability. This optimization appears also in our world distribution network through this new management. Marketing supports are added to expand business in new markets. To respond to your needs, our team is dedicated to better support your projects and be present in the local exhibitions.

Our goal is to stay competitive in the market with a strengthened service. Our technical team is always available for your maintenance management, advices and complementary information.

NORMALAB ADOPT THE PROPER SOLUTION

TABLE OF CONTENTS PER TYPE OF ANALYSES

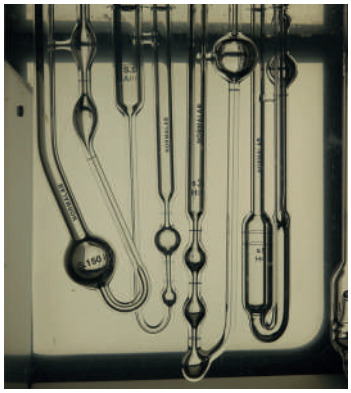
SEE INDEX ON PAGE 29 FOR COMPLETE LIST OF AVAILABLE STANDARDS

GLASS WORKSHOP

NORMALAB France SAS specializes in scientific glass blowing since the company was founded in 1963. Thanks to this knowledge over more than 50 years and to a team of blowers who are used to working with various techniques, the **NORMALAB** workshop is the French leader in scientific glassblowing specialized in petroleum glassware.

Activities and know-how are vast. Our glassblowers share their time between:
- Standard production
- OEM manufacturing (outsourcing)
- Custom design
- Repairing

Specialized in petroleum glassware, we also offer a wide range of glassware. Thanks to the flexibility of our workshop, our team will adapt to your most specific needs. We are able to produce technical glassware, industrial glassware, laboratory glassware as well as customized pieces ...



OUR TAILOR-MADE KNOW-HOW

Our blowing workshop is equipped with all the necessary tools for the different techniques used (lathe work for large diameters and torch blowing for complex parts). Our glassblowers are qualified technicians and trained on all the techniques of working with hot or cold glass (lapping, polishing, engraving ...)

Our design office studies any type of project, from prototyping to production in small and medium series, whatever your business sector. We present you with scale plans according to the standards in order to realize your products. All the plans are kept in order to reproduce the identical parts upon request of the client.

For OEM service, we manufacture the products to your image. **NORMALAB** offers tailored solutions to each type of customer, from simple customization to complete product design and certification.

Our sales department is at your disposal to study your projects and your needs.

CALIBRATION

In addition, to offer a full service to its customers, **NORMALAB** offers the verification and calibration of various glass items. Calibration is done in our laboratory to bring you a certificate of accuracy.

To guarantee the quality of the processes, the company is ISO 9001 certified since 1998. Certificates issued guarantee compliance with international standards such as ASTM, IP, EN, ISO ...

NORMALAB's reputation for distillation flasks and viscometric tubes is weel-known in analytical laboratories. Their precision and resistance make them a world reference.

Quality, robustness and precision of work is the daily goal of this historic workshop.

OUR REPAIR SERVICE

NORMALAB allows you to recycle inoperable glassware from your lab by repairing it. We will study your request and check possibilities.

Chipped or cracked glassware pieces can often be repaired. This service allows you to recycle used parts and save money. Do not hesitate to contact your sales representative.

OUR PACKAGING CHOICES

In order to guarantee the proper delivery of our laboratory glassware, **NORMALAB** has put in place packaging precautions according to the products.

Our products are mainly wrapped in cushion paper to prevent shocks. Some also have tubular nets for safer packaging. Then they are packed in a carton according to the orders.

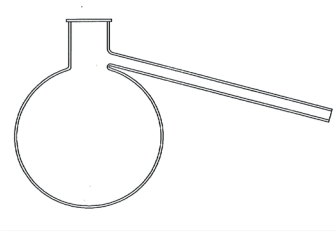
For the most fragile ones, we use cardboard with pre-cut foams to hold the pieces in place.

In addition, we are likely to use recycled supplies (especially cartons and rigging) for our expeditions to act on sustainable development.

VOLATILITY

ASTM D 402 - D 20 - AFNOR T66003 - IP 27 - NF EN 13358

Standard Test Method for Distillation of Cutback Asphalt



19378

REF.	DESCRIPTION
19378	Distillation flask (500 mL)
12613	Graduated cylinder with neck (100 mL)

ASTM D 86 - D 1078 - E 133 - IP 123 - IP 191 - DIN 51751 - NF EN ISO 3405

Standard Test Method for Distillation of Petroleum Products and Liquid Fuels at Atmospheric Pressure

24019

REF.	DESCRIPTION
	For Normalab NDI 450
19420	Distillation flask 100 mL (ASTM D86 - ASTM E133)
24019	Distillation flask 125 mL (minimum order of 5)
19422	Distillation flask 200 mL (ASTM D850, D1078, D86 groups 1&2 and IP 195)
40052	Distillation flask 125 mL **black bottom** (ASTM D86)
40043	Distillation flask 200 mL **black bottom** (ASTM D1078)
12609EC	Graduated cylinder 5 mL Simax
26111	Cylinder 100 mL
24500	Glass foot graduated receiver engraved 100 mL (all methods)
60516	Glass foot graduated receiver 100 mL with special treatment to avoid condensation
19426	Cylinder 200 mL

26111 19425

	For Normalab NDI Classic and NDI Basic
24019	Distillation flask 125 mL (minimum order of 5)
19422	Distillation flask 200 mL (ASTM D850, D1078, D86 groups 1&2 and IP 195)
19425	Graduated receiver 100 mL
12609EC	Graduated cylinder 5 mL Simax
26111	Cylinder 100 mL

25030

ASTM D 86 - D 1078 - E 133 - IP 123 - IP 191 - DIN 51751 - NF EN ISO 3405

Standard Test Method for Distillation of Petroleum Products and Liquid Fuels at Atmospheric Pressure

REF.	DESCRIPTION
	For Optidist
25030	Distillation flask 125 mL for "Optidist" (minimum order of 5)
50021	Distillation flask 125 mL for "Optidist" without logo (minimum order of 5)
25032	Distillation flask 200 mL for "Optidist"
25031	Graduated receiver 100 mL for "Optidist"
50020	Graduated receiver 100 mL for "Optidist" without logo

20082

	For ADU 4
19429	Distillation receiver with brass foot (100 mL) for auto version (brass base (12921), cylinder (12919), joint (30187N))
20082	Distillation flask 125 mL with CN 19/26F and line (minimum order of 5)

	Other options and application
23375	Distillation flask 125 mL with shank & holed cork for probe (minimum order of 5)
23376	Distillation flask 200 mL with shank & holed cork for probe
19423	Distillation flask 250 mL
23378	Male/Female shank for condenser tube entry
11174	Receiver conical bottom foot 100 mL for manual version
25641	Graduated receiver (5 mL) Simax 0.4 mL
12609	Graduated cylinder (5 mL) Schott 0.9 mL

12852

13142

ASTM D 95 - AFNOR T60113 - IP 74 - ISO 3733

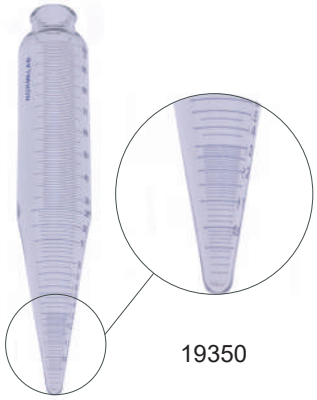
Standard Test Method for Water in Petroleum Products and Bituminous Materials by Distillation

REF.	DESCRIPTION
12852	Round bottom flask 500 mL - CN 24/29 F
13142	Liebig condenser 400 mm - CN 24/29
19413	Dean Stark 2 mL at 1/20e - CN 24/29
21455	Dean Stark 5 mL at 1/10e - CN 24/29
19357	Dean Stark graduated 10 mL at 1/10e - conical bottom - CN 24/29
21456	Dean Stark graduated 25 mL at 1/5e - conical bottom - CN 24/29
12609EC	Graduated receiver 5 mL Simax
12614EC	Graduated receiver 250 mL

ASTM D 322 - IP 23 - DIN 51565

Standard Test Method for Gasoline Diluent in Used Gasoline Engine Oils by Distillation

REF.	DESCRIPTION
12855	Round bottom flask 1000 mL - CN 24/29 F
13142	Liebig condenser 400 mm - CN 24/29
17966	Trap 5 mL - CN 24/29 - 5 mL at 1/10e



19350

ASTM D 1837 - D 2158 - AFNOR M41012 - IP 317

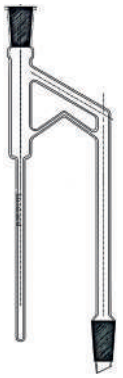
Standard Test Method for Volatility of Liquefied Petroleum (LP) Gases

REF.	DESCRIPTION
19350	Graduated weathering cylinder 100 mL

ASTM D 4006

Standard Test Method for Water in Crude Oil by Distillation

REF.	DESCRIPTION
21182	Condenser CN 24/40M down et CN 14/23F up
21183	Drying tube (supplied with rubber stopper)
21184	Dean-Stark CN 24/40 of 5 mL at 1/20e
21185	Flask 1 Liter CN 24/40F round bottom



21184

ASTM E 123 - NF T60113

Standard Specification for Apparatus for Determination of Water by Distillation

REF.	DESCRIPTION
19357	Dean-Stark 10 mL cone-shaped - CN 24/29 - 10 mL at 1/10e
19418	Dean-Stark 5 mL - CN 24/40 - 5 mL at 1/10e
19419	Dean-Stark 10 mL - CN 24/40 - 10 mL at 1/10e

19357

IP 188 - AFNOR M07032

Standard Method for Separation of Tetraethyllead and Tetramethyllead in Gasoline

REF.	DESCRIPTION
12622	Plugged test tube 100 mL with stopper (Amber graduation) - CN 24/29F
19338	Flask 200 mL CN 24/29F
19339	Distillation column with cap - CN 24/29M down - GL 14 up - CN 14/23M lat
19340	Condenser with CN 14/23F up

12622

COLD FLOW PROPERTIES

ASTM D 97 - D 2500 - AFNOR T60105 - IP 15 - ISO 3016

21147

Standard Test Method for Pour Point of Petroleum Products

REF.	DESCRIPTION
19439	Test tube - 1 line - for manual apparatus
21146	Test tube for Pour Point for automatic apparatus
21147	Test tube for Cloud and Pour Point for apparatus auto., **Glass mirror**
21150	Test tube for Cloud and Pour Point for apparatus auto., **Platinum mirror**

ASTM D 1177


19439

Standard Test Method for Freezing Point of Aqueous Engine Coolants

REF.	DESCRIPTION
23239	Dewar freezing tube **NON** silver with 2-hole cork

ASTM D 2386 - NF EN ISO 3013 - IP 16 - DIN 51421


513462

Standard Test Method for Freezing Point of Aviation Fuels

REF.	DESCRIPTION
513462	Jacketed sample tube
513463	Stopper for sample tube
513465	Manual stirrer (spiral)
513466	Dewar flask (double wall) **NON** silver

IP 309 - ASTM D 6371 - NF EN 116 - AFNOR M07042


17885


21916 17881 20881

Determination of cold filter plugging point pour diesel and domestic heating fuels

REF.	DESCRIPTION
17881	Automatic pipette with female RIS **without line**
17885	CFPP test tube
20882	Manual filtration set
20942	RIS male tip for pipette CFPP auto
21916	CFPP automatic pipette for NORMALAB version II **without** RIS **without line**
23231	Pipette for manual apparatus **without** RIS **with line**
20881	Pipette for manual apparatus **with** RIS **with line**

OXIDATION

16138

ASTM D 381 - ISO 6246 - IP 131 - DIN 51784

Standard Test Method for Gum Content in Fuels by Jet Evaporation

REF.	DESCRIPTION
16138	Beaker for existent gums 100 mL
19035	Beaker without spout
27113	Graduated receiver (class A) 50 mL (pack of 2)

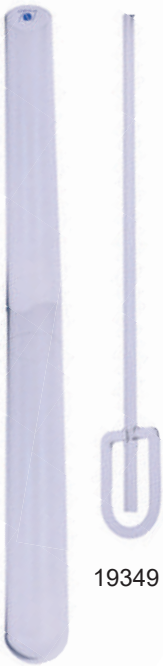
513513

ASTM D 525 - NF EN ISO 7536 - M07013

Standard Test Method for Oxidation Stability of Gasoline (Induction Period Method)

REF.	DESCRIPTION
21688	Glass test container **without** cover
513513	Glass test container **with** cover
513514	Cover for container

19348



19349

19347

ASTM D 943 - D 2274 - D 4310 - NF EN ISO 12205 - 4263 - DIN 51587

Standard Test Method for Oxidation Characteristics of Inhibited Mineral Oils

REF.	DESCRIPTION
19347	Test container
19348	Mushroom condenser with vertical barbed fitting
19349	Oxygen delivery tube (D943)
19351	Mushroom condenser with horizontal barbed fitting D 2274
21696	Complete oxidation cell for ASTM D 943 and D 2893, with condenser with vertical barbed fitting ** spare parts possible at retail*
21697	Complete oxidation cell for ASTM D 2274 and 4310, with condenser with horizontal barbed fitting ** spare parts possible at retail*
12442EC	Low graduated beaker with spout 1000 mL

21389

ASTM D 2272 - IP 229

Standard Test Method for Oxidation Stability of Steam Turbine Oils by Rotating Pressure Vessel

REF.	DESCRIPTION
21338	Sample container, made of borosilicate glass
21389	Catalyst copper coil (ready to use) - individually packed with dry sac

FUEL CARACHERISTICS

10143

40546

ASTM D 611 - AFNOR M07021 Method II

Standard Test Methods for Aniline Point and Mixed Aniline Point of Petroleum Products and Hydrocarbon Solvents

REF.	DESCRIPTION
10142	2-stroke pipette 5 mL 2 lines with safety ball **Class A**
10143	2-stroke pipette 10 mL 2 lines **Class A**
12780	Test tube with straight edge round bottom
19322	Jacket
513113	Manual stiring
40546	U-tube for NAE 440, 2 stations aniline point tester - Line at 20 mL

19332

19334

ASTM D 1266 - AFNOR M07031 - IP 107

Standard Test Method for Sulfur in Petroleum Products (Lamp Method)

REF.	DESCRIPTION
19330	Absorber - CN 24/40F - Sintered disc P O
19331	Chimney - CN 14/10F - CN 24/40M
19332	Burner for non-aromatic samples - CN 14/10
19333	Spray trap - CN 24/40F (100 mL)
19334	Flask (25 mL) for non-aromatic samples - CN 14/10F
19335	Burner for aromatic samples - CN 14/10
19336	Flak (25 mL) for aromatic samples - CN 14/10F

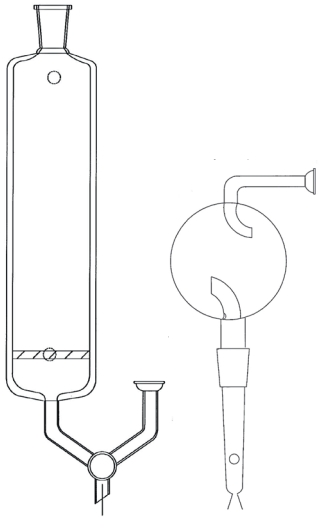
21700

19582

ASTM D 1319 - AFNOR M07024 - IP 156 - ISO 3837 - DIN 51791

Standard Test Method for Hydrocarbon Types in Liquid Petroleum Products by Fluorescent Indicator Adsorption

REF.	DESCRIPTION
19023	Standard wall tubing (lower part) FIA (Pack of 10)
19325	FIA True Bore adsorption column - RIS 28/12F and RIS 12/2M
19572	Upper connection RIS 28/12M for gas supply
19582	Outlet for true bore column RIS 12/2F
21700	Standard adsorption column (upper part) FIA - RIS 28/12F
21701	Low parts for FIA standard column (Pack of 25)



20983 20984

ASTM D 2784 - NF EN 24260 - ISO 4260

Standard Test Method for Sulfur in Liquefied Petroleum Gases (Oxy-Hydrogen Burner or Lamp)

REF.	DESCRIPTION
20928	Combustion chamber **Quartz** - CN 19/40F - RIS 18 M
20983	Absorber with fritted plate for Wickbold - CN 19/26F up - Faucet glass lane of 4 mm down
20984	Trap for Wickbold - RIS up 18/9F - CN 19/26M down

12007

IP 227

Determination of the corrosive tendencies towards silver of aviation turbine fuel, automotive spark-ignition engine oils or automotive gasoline

REF.	DESCRIPTION
12007	Complete condenser kit (amber glass)
12376	Test tube round bottom CN 45/40F (amber glass)
12377	Cold-finger condenser with hook (amber glass)
12008	Cradle (amber glass)
20523	Complete condenser kit (clear glass)
20524	Test tube round botton CN 45/40F (clear glass)
20525	Cold-finger condenser with hook (clear glass)

COLOR

ASTM D 156

Standard Test Method for Saybolt Color of Petroleum Products (Saybolt Chromometer Method)

REF.	DESCRIPTION
941525	Set of 2 tubes (1 ungraduated, 1 graduated) **with** connector and tap
9415202	Set of 2 tubes (1 ungraduated, 1 graduated) **without** connector
941526	Set of 2 tubes (1 ungraduated, 1 graduated) **with** connector for waxes

19353

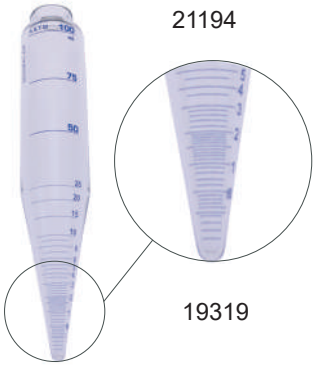
ASTM D 1500 - ISO 2049 - IP 196 - DIN 51578

Standard Test Method for ASTM Color of Petroleum Products (ASTM Color Scale)

REF.	DESCRIPTION
19353	Color tube with spout

CARBON & SEDIMENTS

21194



19319

ASTM D 91 - D 96 - D 893 - D 1796 - D 4007 - NF ISO 3731 - T60156 - IP 75 - DIN 51793

Standard Test Method for Precipitation Number of Lubricating Oils

REF.	DESCRIPTION
19319	8" cone-shaped tube (100 mL)
19435	8" cone-shaped tube (100 mL) with a capillary tip capable of measuring 0.01-mL and readable by estimation to 0.005 mL
19321	6" cone-shaped tube (100 mL)
19437	Pear shaped tube (100 mL) with 3 mL graduated tip
19438	Pear shaped tube (100 mL) with 1.5 mL graduated tip
21194	Stopper for tubes ref 19435
21784	Stopper for tubes ref 19319 (pack of 50)

10739

ASTM D 473 - ISO 3735 - IP 53 - DIN 51789

Standard Test Method for Sediment in Crude Oils and Fuel Oils by the Extraction Method

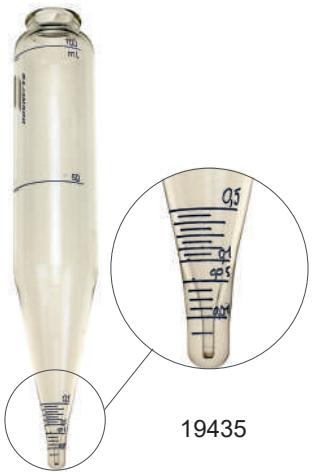
REF.	DESCRIPTION
10738	Complet set
10739	Water cup with glass hook
10763	Extraction thimble, alundun
19012	Extraction flask
941282	Condenser
941244	Basket

19365

ASTM D 524 - AFNOR T60117 - IP 14

Standard Test Method for Ramsbottom Carbon Residue of Petroleum Products

REF.	DESCRIPTION
19365	Heat-resistant glass coking bulb



19435

ASTM D2273

Standard Test Method for Trace Sediment in Lubricating Oils

REF.	DESCRIPTION
19435	Bulb glass cone-shaped capillary 100 mL

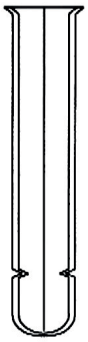
ASTM D 4530 - ISO 10370

Standard Test Method for Determination of Carbon Residue (Micro Method)

REF.	DESCRIPTION
	For Normalab apparatus
41001	Borosilicate glass sample vials small model 2 mL (pack of 150)
41002	Borosilicate glass sample vials big model 16 mL (pack of 45)
41003	Sample vial ash content **Quartz** small model 2 mL
41004	Sample vial ash content **Quartz** big model 16 mL
41026	Vial 4 mL - ISO 10370 (pack of 75)
41046	Vial 16 mL single use (pack of 144)
41047	Vial 2 mL single use (pack of 144)

41002 41026 41001

LUBRICANTS

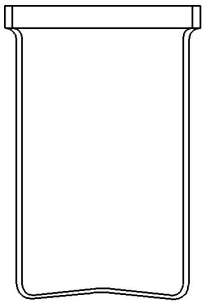


19381

ASTM D 566 - D2265 - AFNOR T60102

Standard Test Method for Dropping Point of Lubricating Grease

REF.	DESCRIPTION
19381	Dropping point test tube



19382

ASTM D 665 - D 3603 - AFNOR T60151 - IP 135 - DIN 51585

Standard Test Method for Rust-Preventing Characteristics of Inhibited Mineral Oil in the Presence of Water

REF.	DESCRIPTION
19382	Beaker 400 mL

24795 19369

ASTM D 892 - NF ISO 6247 - IP 146 - DIN 51566

Standard Test Method for Foaming Characteristics of Lubricating Oils

REF.	DESCRIPTION
19369	Foam test tube 1 Liter amber graduation
20740	Borosilicate glass tank 20 Liters with spout
24795	Diffuser stone, calibrated (with certificate, supplied with rod)
24803	Stainless steel diffuser stone (with certificate, supplied with rod)
24805	Stainless steel diffuser stone (with certificate, supplied without rod)
19371	Foam test tube 1 Liter amber graduation
19366	Drying gas column for foaming test
27077	Foam test tube amber graduation - CN 45/40, type "Petrotest"
27518	Foam test tube without foot T 60129
9416412	Graduated cylinder 1000 mL with ring ballast for D 892
9411302	Borosilicate glass vessel for foaming 30 L

11470

ASTM D 1401 - AFNOR T60125 - ISO 6614

Standard Test Method for Water Separability of Petroleum Oils and Synthetic Fluids

REF.	DESCRIPTION
11470	Demulsification test tube 100 mL amber graduation

12627

12629 12628

ASTM D 3427 - NF ISO 9120 - T60149

Standard Test Method for Air Release Properties of Hydrocarbon Based Oils

REF.	DESCRIPTION
12627	Complete sample glassware **Impinger** (**with** spherical joints, clamps and barbed fitting)
12628	Plunger numbered (amber) 5 mL
12629	Plunger numbered (amber) 10 mL
19379	Complete Impinger graduated receiver **without** RIS (head + body)

BITUMENS, WAXES & GREASES

ASTM D 36 - NF EN 1427 - ISO 4625

Standard Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus)

17487

REF.	DESCRIPTION
17487	Graduated beaker ASTM D36 - Total volume 770 mL Volume under line 584 mL
17490	Graduated beaker ISO 1427 - Total volume 770 mL Volume under line 561 mL

ASTM D 70 - NFEN ISO 3838 - IP 190

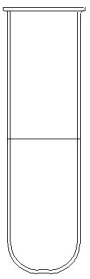
Standard Test Method for Density of Semi-Solid Asphalt Binder (Pycnometer Method)

20847

REF.	DESCRIPTION
20847	Pycnometer A - 24/30 mL (Hubbard model)
24624	Pycnometer B - 24/30 mL (Bingham model)
23229	Pycnometer C - 24/30 mL (Warden model)
23230	Pycnometer D - 24/30 mL (Capillary-stopper)

ASTM D 87 - D 402 - AFNOR T60

Standard Test Method for Melting Point of Petroleum Wax (Cooling Curve)



19361

REF.	DESCRIPTION
19361	Paraffin test tube (3 mL)

517565

ASTM D 721 - D 3235 - AFNOR T60120 - IP 158 - DIN 515771-2

Standard Test Method for Oil Content of Petroleum Waxes

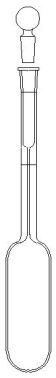
REF.	DESCRIPTION
19367	Complete filter assembly - CN 24/29
21001	Complete filter assembly with certificate (calibrated and numbered) - RIS 35/20
517565	Filter with filter rod
517564	Test container
23240	Weighing bottle 15 mL with ground cap

19386

ASTM D 941 - D 1481 - IP 142 - DIN 51757

Standard Test Method for Density and Relative Density (Specific Gravity) of Viscous Materials by Lipkin Bicapillary Pycnometer

REF.	DESCRIPTION
19386	Lipkin pycnometer



19393

ASTM D 1217

Standard Test Method for Density and Relative Density (Specific Gravity) of Liquids by Bingham Pycnometer

REF.	DESCRIPTION
19393	Bingham density bottle 25 mL

23680

ASTM D 2872

Standard Test Method for Effect of Heat and Air on a Moving Film of Asphalt (Rolling Thin-Film Oven Test)

REF.	DESCRIPTION
23680	Standardized glass container RTFOT concave
23681	Standardized glass container RTFOT convex

ASTM D 6560 - IP 143 - DIN 51595 - NF T60115

Determination of asphaltenes (heptane insolubles) in crude petroleum and petroleum products

23884

REF.	DESCRIPTION
19364	Condenser CN 34/35M
21918	Conical flask 500 mL CN 29/32F
21919	Reflux extractor CN 34/35F et CN 29/32M
23883	Conical flask 500 mL without stopper CN 24/29F
23884	Reflux extractor CN 34/35 F - CN 24/29M
14694	Glass evaporation capsule
13226	Glass stopper 24/29
12600	Glass funnel (200 mL)
12612 EC	Graduated cylinder 50 mL
12613 EC	Graduated cylinder 100 mL
23885	Glass rod

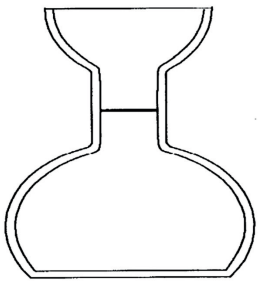
ASTM D 6560 - IP 143 - DIN 51595 - NF T60115

Determination of asphaltenes (heptane insolubles) in crude petroleum and petroleum products

24472

REF.	DESCRIPTION
	For ASPHAN 02 apparatus
24472	Complete instrument ASPHAN 02
21364	Lower boiler 500 mL - Rolatex 41/25F
21365	Upper boiler 1000 mL with stopper
21368	Condenser of the collector with coil
21369	Solvent collecting flask 500 mL
21366	Double effect condenser
21367	Pressurizing condenser with notch

VISCOSITY



11438

ASTM D 88 - D 224 - E 102

Standard Test Method for SAYBOLT Viscosity

REF.	DESCRIPTION
11175	Graduated receiver 20-25-75 mL
11438	Saybolt flask 60 mL

ASTM D 1665

Standard Test Method for ENGLER Viscosity

REF.	DESCRIPTION
521155	Engler flask 50 mL
27253	Engler flask 100 + 100 mL
27254	Engler flask 200 + 40 mL

IP 70

Standard Test Method for REDWOOD Viscosity

REF.	DESCRIPTION
521341	Redwood flask 50 mL 1 line

VISCOMETER TUBES

ASTM D 445 - ASTM D 446 - ASTM D 2171 - ASTM D 7279 - ISO 3104 - IP 71

INTRODUCTION

The following pages present the various types of viscometric tubes we have been manufacturing for years in our factories and calibration laboratory.

FABRICATION

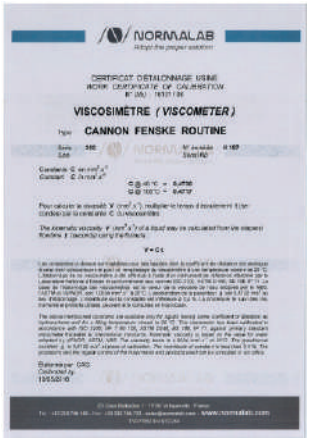
NORMALAB's viscometric tubes are made out of low-expanding Duran 50 glass. The tubes are made with high accuracy capillaries (+/-0.001 mm). Scores and figures are marked using an indelible process, which makes the viscometers tubes lmore solid. Each tube has its serial number and is supplied in an individual packaging. The standard capillary viscometers can be delivered with engraved constant on customer's request against additional cost.

CALIBRATION

2 options are available for most of the models:

a) *Without certificate*

b) *With calibration certificate*
NORMALAB viscometers are calibrated in our laboratory using reference viscometers calibrated by the French « Laboratoire National d'Essais » (National Testing Laboratory). Those viscometers are checked at regular intervals by means of viscosity oil standards. **NORMALAB** has been assessed and registered as meeting the requirements of ISO 9001 for laboratory and associated services of repair, calibation and verification of laboratories devices.


NORMALAB
VISCOSIMÈTRE (VISCOMETER)
CANNON FENSKE ROUTINE

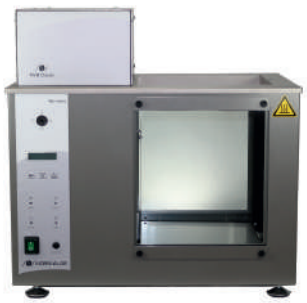
WARRANTY

Our certificates attest to the manufacture date of the viscometer. Our packaging is sealed with a tamper-proof seal to guarantee tubes for 10 years.

ACCESSOIRES

REF.	DESCRIPTION
17433	Black rubber stopper for visco tubes (pack of 12)

OUR MEASURING AND CLEANING DEVICES



Manual viscosity bath
NVB CLASSIC - Ref 23207

Automatic viscometer tube washer
VTW CLASSIC - Ref 18450

Automatic chronometer
CHRONOTECH – Ref 41900

CANNON-FENSKE ROUTINE VISCOMETERS FOR TRANSPARENT LIQUIDS

A: without certificate
B: with calibration certificate

Size	Approx. constant	Viscosity (cSt)	Reference A	Reference B
25	0.002	0.5 to 2	14046	14002
50	0.004	0.8 to 4	14047	14003
75	0.008	1.6 to 8	14048	14004
100	0.015	3 to 15	14049	14005
150	0.035	7 to 35	14050	14006
200	0.1	20 to100	14051	14007
300	0.25	50 to 250	14052	14008
350	0.5	100 to 500	14053	14009
400	1.2	240 to 1200	14054	14010
450	2.5	500 to 2500	14055	14011
500	8	1600 to 8000	14056	14012
600	20	4000 to 20000	14057	14013
650	45	10000 to 40000	14058	14014
700	100	20000 to 80000	14059	14015

CANNON-FENSKE REVERSE FLOW VISCOMETERS FOR OPAQUE LIQUIDS

A: without certificate
B: with calibration certificate

Size	Approx. constant	Viscosity (cSt)	Reference A	Reference B
25	0.002	0.4 to 2	12181	14016
50	0.004	0.8 to 4	12182	14017
75	0.008	1,6 to 8	12183	14018
100	0.015	3 to 15	12184	14019
150	0.035	7 to 35	12185	14020
200	0.1	20 to 100	12186	14021
300	0.25	50 to 200	12187	14022
350	0.5	100 to 500	12188	14023
400	1.2	240 to 1200	12189	14024
450	2.5	500 to 2500	12190	14025
500	8	1600 to 8000	12191	14026
600	20	4000 to 20000	12192	14027
650	45	10000 to 40000	12193	14028
700	100	20000 to 80000	12194	14029

CANNON-MANNING VACCUM VISCOMETER

ASTM D 2171

A: without certificate
B: with calibration certificate

Size	Approx. Cst Bulb B	Approx. Cst Bulb C	Viscosity (P)	Reference A	Reference B
4	0,002	0,0006	0.036 to 0.8	18870	18892
5	0,006	0,002	0.12 to 2.4	18871	18893
6	0,02	0,006	0.36 to 8	18872	18894
7	0,06	0,02	1.2 to 24	18873	18895
8	0,2	0,06	3.6 to 80	18874	18896
9	0,6	0,2	12 to 240	18875	18897
10	2	0,6	36 to 800	18876	18898
11	6	2	120 to 2400	18877	18899
12	20	6	360 to 8000	18878	18900
13	60	20	1200 to 24000	18879	18901
14	200	60	3600 to 80000	18880	18902

CANNON-UBBELOHDE VISCOMETER FOR AVS WITH THREADED END FOR TRANSPARENT LIQUIDS WITHOUT WASHER FITTING

A: without certificate
B: with calibration certificate

Size	Approx. constant	Reference A	Reference B
0C	0.003	22874	22883
0A	0.005	22873	22882
1	0.01	22875	22884
1C	0.03	22876	22885
2	0.1	22877	22886
2C	0.3	22878	22887
3	1	22879	22888
3C	3	22880	22889
4	10	22881	22890

CANNON-UBBELOHDE VISCOMETERS FOR AVS AND TRANSPARENT LIQUIDS

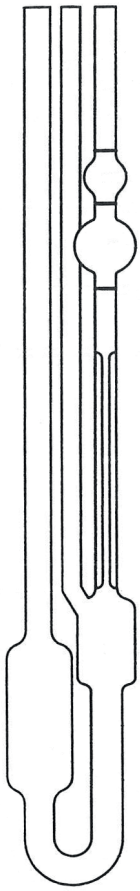
A: without certificate
B: with calibration certificate

Size	Approx. constant	Reference A	Reference B
0C	0.003	11179	15253
0A	0.005	11180	15255
1	0.01	11181	15256
1C	0.03	11182	15257
2	0.1	11183	15259
2C	0.3	11184	15260
3	1	11185	15263
3C	3	11186	15264
4	10	11187	15266

UBBELOHDE VISCOMETERS FOR TRANSPARENT LIQUIDS

A: without certificate
B: with calibration certificate

Size	Approx. constant	Viscosity (cSt)	Reference A	Reference B
0	0.001	0.3 to 1	13975	14030
0C	0.003	0.6 to 3	13976	14031
0B	0.005	1 to 5	13977	14032
0A	0.007/8	1.5 to 7	13978	14033
1	0.01	2 to 10	13979	14034
1C	0.03	6 to 30	13980	14035
1B	0.05	10 to 50	13981	14036
2	0.1	20 to 100	13982	14037
2C	0.3	60 to 300	13983	14038
2B	0.5	100 to 500	13984	14039
2A	0.7/0.8	150 to 750	13985	14040
3	1	200 to 1000	13986	14041
3C	3	600 to 3000	13987	14042
3B	5	1000 to 5000	13988	14043
4	10	2000 to 10000	13989	14044
4C	30	6000 to 30000	13990	14045
4B	50	10000 to 50000	13991	13993
5	100	20000 to 100000	13992	13994



BS / IP SL VISCOMETERS FOR TRANSPARENT LIQUIDS

A: without certificate
B: with calibration certificate

Size	Approx. constant	Viscosity (cSt)	Reference A	Reference B
1	0.01	3.5 to 10	19265	19283
1A	0.03	6 to 30	19266	19284
2	0.1	20 to 100	19267	19285
2A	0.3	60 to 300	19268	19286
3	1	200 to 1000	19269	19287
3A	3	600 to 3000	19270	19288
4	10	2000 to 10000	19271	19289
4A	30	6000 to 30000	19272	19290
5	100	20000 to 100000	19273	19291

BS / IP U RF VISCOMETERS FOR OPAQUE LIQUIDS

A: without certificate
B: with calibration certificate

Size	Approx. constant	Viscosity (cSt)	Reference A	Reference B
1	0.003	0.6 to 3	18648	18670
2	0.01	2 to 10	18649	18671
3	0.03	6 to 30	18650	18672
4	0.10	20 to 100	18651	18673
5	0.3	60 to 300	18652	18674
6	1	200 to 1000	18653	18675
7	3	600 to 3000	18654	18676
8	10	2000 to 10000	18655	18677
9	30	6000 to 30000	18656	18678
10	100	20000 to 100000	18657	18679
11	300	60000 to 300000	18658	18680

SIL VISCOMETERS FOR TRANSPARENT LIQUIDS

A: without certificate
B: with calibration certificate

Size	Approx. constant	Viscosity (cSt)	Reference A	Reference B
0C	0.003	0.6 to 3	19623	19631
1	0.01	2 to 10	19624	19632
1C	0.03	6 to 30	19625	19497
2	0.1	20 to 100	19626	19498
2C	0.3	60 to 300	19627	19499
3	1	200 to 1000	19628	19500
3C	3	600 to 3000	19628	19501
4	10	2000 to 10000	19630	19502

BAUME VIGNERON VISCOMETERS FOR TRANSPARENT LIQUIDS

A: without certificate
B: with calibration certificate

Viscosity (cSt)	Reference A	Reference B
0.63	14719	14740
1	14720	14741
1.6	14721	14742
2.5	14722	14743
4	14723	14744
6.3	14724	14745
10	14725	14746
16	14726	14747
25	14727	14748
40	14728	14749
63	14729	14750
100	14730	14751
160	14731	14752
250	14732	14753
400	14733	14754
630	14734	14755
1000	14735	14756
1600	14736	14757
2500	14737	14758
4000	14738	14759
6300	14739	14760

HOUILLON VISCOMETERS FOR TRANSPARENT LIQUIDS

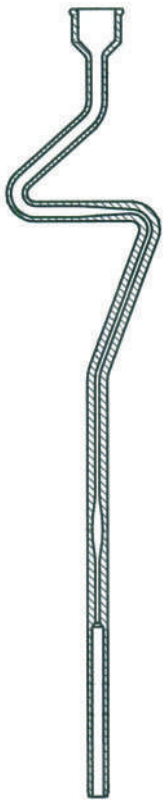
A: without certificate
B: with calibration certificate

Size	Approx. constant	Viscosity (cSt)	Reference A	Reference B
50	0.016	0.8 to 3.2	13923	13932
75	0.032	1.6 to 6.4	13924	13933
100	0.06	3 to 12	13925	13934
150	0.14	7 to 28	13926	13935
200	0.4	20 to 80	13927	13936
300	1	50 to 200	13928	13937
350	2	100 to 400	13929	13938
400	4.8	240 to 960	13930	13939
450	10	500 to 2000	13931	13940

HOUILLON VISCOMETERS - FOR « Omnitek » FOR TRANSPARENT LIQUIDS

The below tubes do perfectly fit with Omnitek range of instruments

A: without certificate



Nominal constant mm²/s²	Measuring range mm²/s² (cSt)	Reference A
0.01	0.3 to 2.0	21280
0.02	0.6 to 4.0	21281
0.03	0.9 to 6.0	21282
0.05	1.5 to 10	21283
0.07	2.1 to 14	21284
0.10	3.0 to 20.00	21285
0.20	6.0 to 40.00	21286
0.30	9.0 to 60.00	21287
0.50	15 to 100	21288
0.70	21 to 140	21289
1.00	30 to 200	21290
2.00	60 to 400	21291
3.00	90 to 1000	21292
5.00	300 to 2000	21293
10.00	450 to 3000	21294

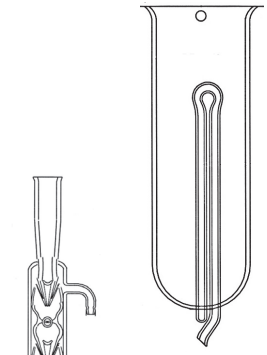
GLASSWARE SETS

ORSAT DEVICE

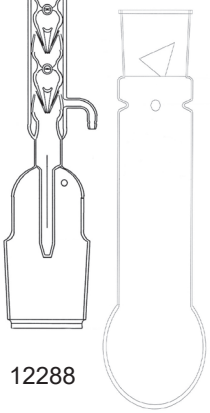
Smoke analyzer used to dose the component of a gas by absorption into the bells to liquid reagents (carbon dioxide, unsaturated hydrocarbons, oxgen) and determination of hydrogen by combustion of copper oxide, methane and ethane combustion on spiral platinum.

REF.	DESCRIPTION
13907	3-position device for dosing CO, CO_2, O_2, delivered in hard case with carrying handle. Complete booklet (no reagent)
13917	Absorber
14155	Rubber gas bulb
13918	Jacket
13919	Burette 0-30% at 1/5% and 50-90% at 1%
13920	Bottle
13921	Drying tube
13950	3-position ramp with tap
13953	Rubber stopper for top cover (pack of 2)
13954	Rubber stopper for bottom cover (pack of 2)

KUMAGAWA EXTRACTOR



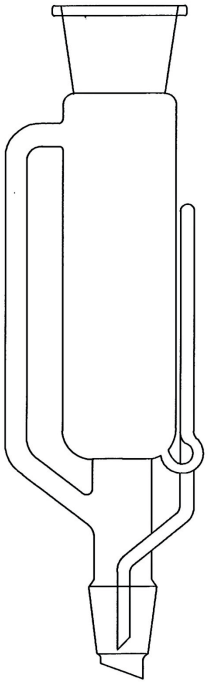
12286



12288

REF.	DESCRIPTION
12280*	Complete extractor, 125 mL capacity
12284*	Complete extractor, 250 mL capacity
12288*	Complete extractor, 500 mL capacity
12281	Spare flask (250 mL) for 12280 - CN 50/42F
12285	Spare flask (500 mL) for 12284 - CN 60/46F
12289	Spare flask (1000 mL) for 12288 - CN 85/70F
12282	Spare extractor tube (125 mL)
12286	Spare extractor tube (250 mL)
12290	Spare extractor tube (500 mL)
12283	Spare condenser CN male 50/42
12287	Spare condenser CN male 60/46
12291	Spare condenser CN male 85/70

SOXHLET EXTRACTOR



12130

REF.	DESCRIPTION
12128	Complete extractor, 60 mL capacity
12133	Complete extractor, 125 mL capacity
12138	Complete extractor, 200 mL capacity
12143	Complete extractor, 500 mL capacity
12148	Complete extractor, 1000 mL capacity
12129	Spare flask (100 mL) for 12128 - CN 24/29F
12849	Spare flask (250 mL) for 12133 - CN 24/29F
12853	Spare flask (500 mL) for 12138 - CN 29/32F
12856	Spare flask (1000 mL) for 12143 - CN 29/32F
12149	Spare flask (2000 mL) for 12148 - CN 40/38F
12130	Spare extractor tube (60 mL) - CN 34/35F - 24/29M
12135	Spare extractor tube (125 mL) - CN 45/40F - 24/29M
12140	Spare extractor tube (200 mL) - CN 50/42F - 29/32M
12145	Spare extractor tube (500 mL) - CN 71/51F - 29/32M
12150	Spare extractor tube (1000 mL) - CN 85/55F - 40/38M
30211	Condenser 4 balls - CN 24/29M
12142	Condenser 4 balls - CN 29/32M
12147	Condenser 6 balls - CN 29/32M
12152	Condenser 8 balls - CN 29/32M

INDEX - STANDARD METHODS

ASTM standards

DIN standards

EN standards

IP standards

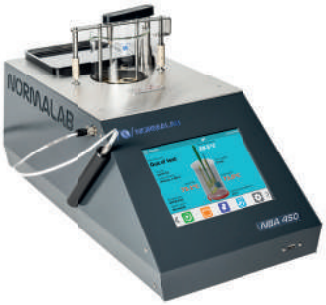
ISO standards

NF standards

OUR STAR PRODUCTS

NPM 450
ASTM D 93, ISO 2719, IP 34
Pensky Martens Flash Point Tester

NDI 450
ASTM D 86, ISO 3405; IP 123
Atmospheric Distillation Unit



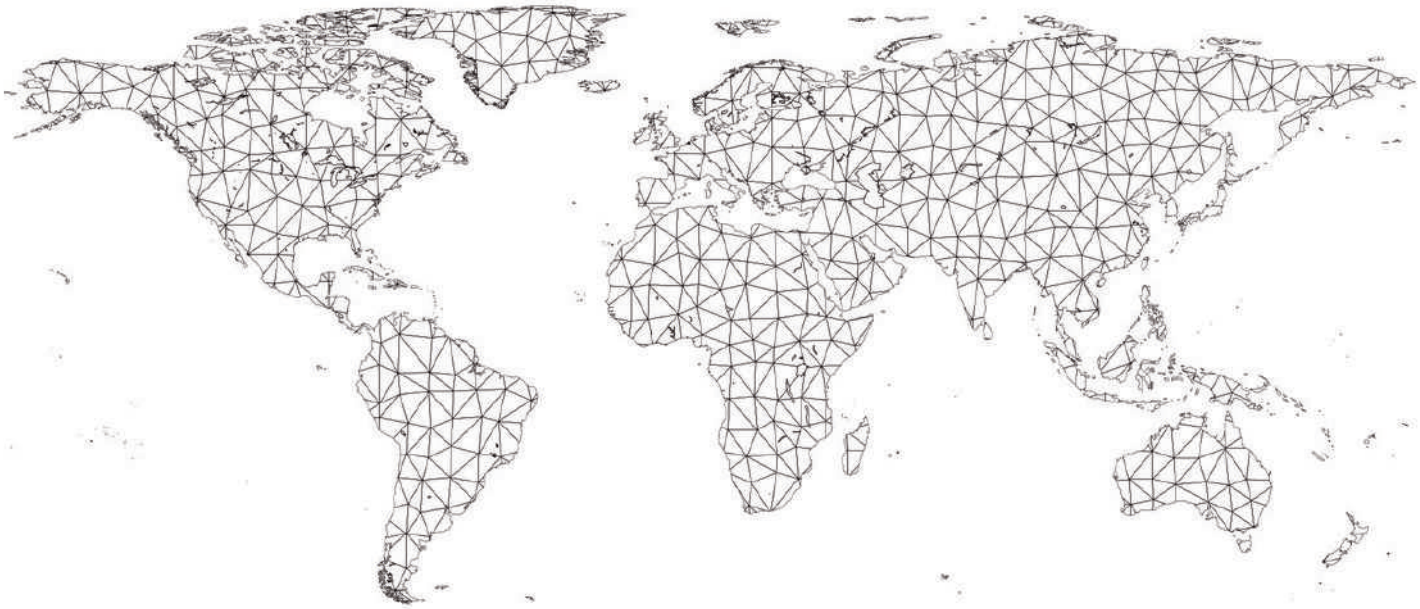
NBA 450
ASTM D 36, ISO 4625, IP 58
Softening Point Tester (Ring and Ball Method)

NSB TECH
ASTM D 3230, IP 265
Salt in Crude Oils Tester

NABLEND
ASTM D 613, D 2699, D 2700
Automatic Blending Unit for Cetane and Octane

PENETROMETER
ASTM D 5, D 217, D 937, D 1321, D 1403, EN 1426
Penetrometer Multiple Application

NORMALAB ADOPT THE PROPER SOLUTION



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