PETROLEUM GLASSWARE CATALOG

NORMALAB

www.normalab.com

Scientific glass blowing

Normalab France S.A.S. is specialized in the scientific glass blowing since the beginning of the company in 1963.

Thanks to this experience of more than fifty years and a team of nine glass-blowers accustomed to work with various techniques, Normalab's workshop is the French leader of scientific glass blowing specialized in the oil field.

The activity and know-how are vast. The specialists share their time between:

- Standard production
- OEM manufacturing
- Custom-tailord design
- Repair

From the beginning the workshop works with three types of glass:

- Sodocalcique (ordinary)
- Borosilicate (Duran®)
- Quartz

The blowers master various techniques:

- Blowtorch works
- Turned glass
- The moulding
- Inactinic glass (scented with amber)
- Silvering
- Grinding and polishing
- Marking (engraving and transfer)

Also in order to offer a complete service to its customers, Normalab proposes the checking and the calibration of various articles made of glass. With this intention the company is certified according to ISO 9001. Delivered certificates ensure a conformity with the international standards like ASTM, IP, EN, ISO, DIN, JIS, GOST …

Certificat FR13/018319

NORMALAB FRANCE SAS
NORMALAB TECHNOLOGIES

14, rue des Lilas
76210 LINTOT
France

Site de stockage :
ZA Les bosquets
76210 SAINT EUSTACHE LA FORET

ISO 9001 : 2008

- Distribution, installation, maintenance, réparation et étalonnage d'équipements de test pétroliers et pétrochimiques.
- Fabrication, vente de verrerie scientifique et étalonnage de tubes viscosimétriques.
- Approvisionnement et vente de matériel et de produits de laboratoire.
- Conception, fabrication, test d'équipements de test pétroliers et pétrochimiques.

Ce certificat est valable du 29 septembre 2013 au 28 septembre 2016
et reste valide jusqu'à décision satisfaisante à l'issue des audits de suivi
Date de renouvellement de certification 28 juin 2016
Version 1. Certifié depuis septembre 2013

Autorisé par

SGS ICS
29, avenue Aristide Briand 94111 Arcueil Cedex France
t +33 (0)1 41 24 87 75 f +33 (0)1 73 01 71 29 www.sgs.com

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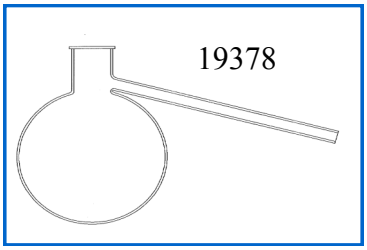
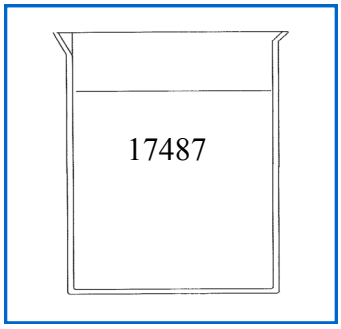
ASTM D 20 - D402 - AFNOR T66003 - IP 27

CAT N°	NOMENCLATURE
12613	Graduated cylinder with neck (100 ml)
19378	Distillation flask (500 ml)



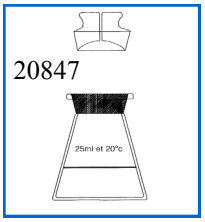


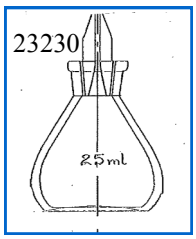
ASTM D 36 - NF EN 1427 - ISO 4625

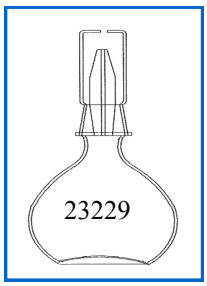
CAT N°	NOMENCLATURE
17487	Calibrated beaker ASTM D36
17490	Calibrated beaker ISO 1427

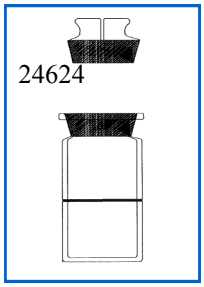
ASTM D 70 - NF EN ISO 3838 - IP 190

CAT N°	NOMENCLATURE
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)





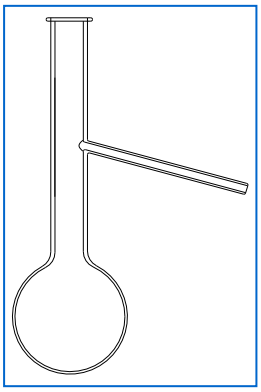




ASTM D 86 - D 1078 - E 133 - NF EN ISO 3405 - IP 123 - IP 191 - DIN 51751

CAT N°	Nomenclature
19420	Distillation flask (100 ml)
24019	Distillation flask (125 ml)
19422	Distillation flask (200 ml)
19423	Distillation flask (250 ml)
19425	Graduated receiver (100 ml)
19426	Cylinder 200 ml
19429	Distillation receiver with brass foot (100 ml) for auto version (Brasse base ref 12921, cylinder ref 12919, joint ref 30187N)
26111	Graduated receiver glass with foot (100 ml)

CAT N°	Nomenclature
12919	Distillation flask (125 ml)
11174	Receiver 100 ml for manual version
23375	125 ml distillation flasj with shank & holed cork for probe
23376	200 ml distillation flask with shank & holed cork for probre
23378	M/F shank for condenser tube entry
60516	Graduated receiver glass with foot (100 ml) with NORMALAB no condensation treatment
25641	Graduated receiver (5 ml) Simax 0,4ml
12609	Graduated cylinder (5 ml) Schott 0.9 ml
12609EC	Graduated cylinder economic (5 ml) Simax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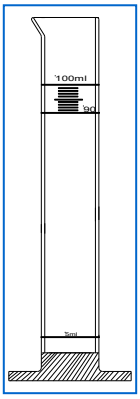

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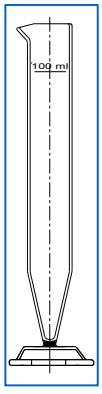
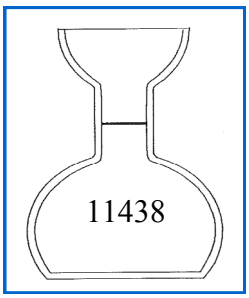


11174

ASTM D 87 - D402 - AFNOR T60114 - IP 55

CAT N°	NOMENCLATURE
19361	Test tube with paraffin (3ml)

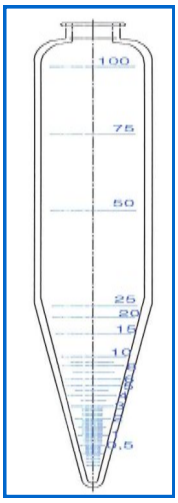


ASTM D 88 - D 224 - E 102

CAT N°	NOMENCLATURE
11175	Graduated receiver 20-25-75 ml
11438	Saybolt flask (60 ml)

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

CAT N°	NOMENCLATURE
19319	8" 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



19319

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

CAT N°	NOMENCLATURE
12852	Round bottom flask CN24/29 (500 ml)
13142	Liebig condenser CN24/29 (400 mm)
19357	Dean Stark trap (10ml in 0.1)
21456	25 ml : 1/5 Dean Stark with conical bottom

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

CAT N°	NOMENCLATURE
19439	Test tube for manual apparatus
21146	Test Tube for Pour Point
21147	Test tube with glass mirror for Cloud and Pour Point
21150	Test Tube with platinum mirror for Cloud and Pour Point

ASTM D 322 - IP 23 - DIN 51565

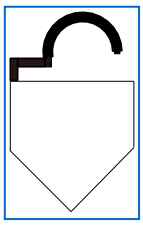
CAT N°	Nomenclature
12855	Round bottom flask CN24/29 (1 l)
13142	Liebig condenser CN24/29 (400 mm)
17966	Trap CN24/29 (5 ml)

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

CAT N°	Nomenclature
16138	Test cell (100 ml)

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

CAT N°	NOMENCLATURE
10739	Water cup with glass hook
10763	Extraction thimble, alundum
19012	Extraction flask (1 litre)



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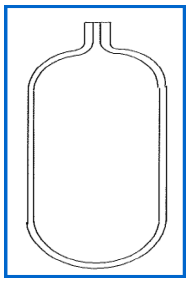
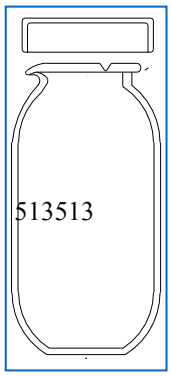


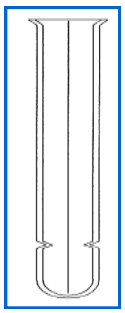
ASTM D 524 - AFNOR T60117 - IP 14

CAT N°	NOMENCLATURE
19365	Heat-resistant glass coking bulb

ASTM D 525 - NF EN ISO 7536 - M07013

CAT N°	NOMENCLATURE
21688	Glass test container without cover
513513	Glass test container with cover
513514	Cover for container





ASTM D 566 - D 2265 - AFNOR T60102

CAT N°	NOMENCLATURE
19381	Dropping point test tube

ASTM D 611 - AFNOR M07021 Méthode II

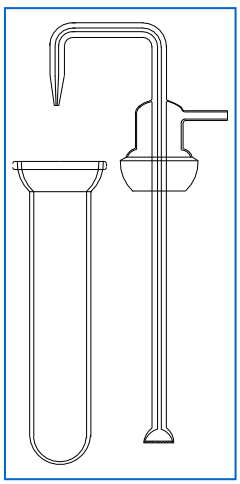
CAT N°	NOMENCLATURE
10142	2-stroke pipette (5 ml)
10143	2-stroke pipette (10 ml)
12780	Test tube 25x150mm
19322	Jacket
513113	Manual stirring

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

CAT N°	NOMENCLATURE
19382	Beaker (400 ml)

ASTM D 721 - D 3235 - AFNOR T60120 - IP 158 - DIN 51571-2

CAT N°	NOMENCLATURE
19367	Complete filter assembly CN 24
21001	Complete filter assembly with certificate



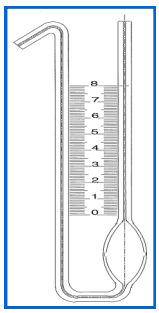
21001

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

CAT N°	NOMENCLATURE
19369	Graduated cylinder (1 liter)
24795	Diffuser stone, calibrated (with certificate)
24803	Stainless steel diffuser stone
20740	Borosilicate glass tank

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

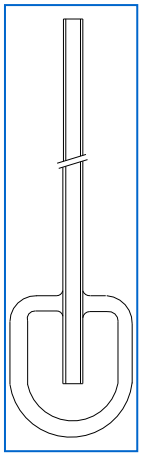
CAT N°	NOMENCLATURENOMENCLATURE
19386	Lipkin pycnometer



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

CAT N°	NOMENCLATURE
19347	Test container
19348	Mushroom condenser
19349	Oxygen delivery tube (D 943)
19351	Mushroom condenser (D2274)

CAT N°	NOMENCLATURE
21696	Oxidation cell (D 943/D 2893)
21697	Oxidation cell (D 2274 / D 4310)



19349

ASTM D 1177

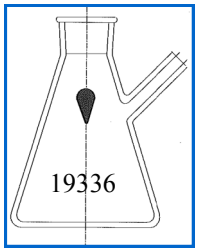
CAT N°	NOMENCLATURE
23239	Dewar freezing tube

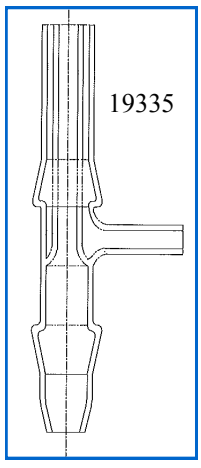
ASTM D 1217

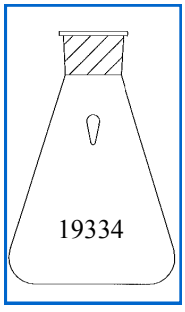
CAT N°	NOMENCLATURE
19393	Bingham density bottle (25 ml)

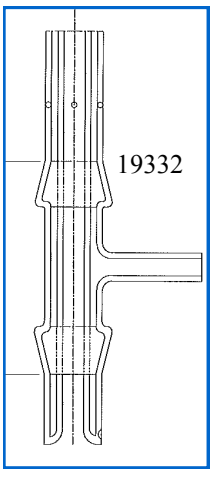
ASTM D 1266 - AFNOR M07031 - IP 107

CAT N°	NOMENCLATURE
19330	Absorber
19331	Chimney
19332	Burner for nonaromatic samples
19333	Spray trap
19334	Flask (25 ml) for nonaromatic samples
19335	Burner for aromatic samples
19336	Flak (25 ml) for aromatic samples



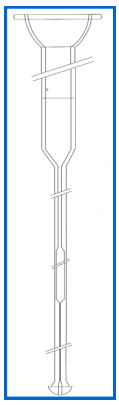






ASTM D 1319 - AFNOR M07024 - IP 156 - ISO 3837 - DIN 51791

CAT N°	NOMENCLATURE
19023	Standard wall tubing (lower part)
19325	FIA True Bore adsorption column
19572	Upper connection RIS 28/12
19582	Outlet for true bore column (S12/2)
21700	Standard adsorption column (upper part)
21701	Low parts for FIA standard column (pack of 25)



ASTM D 1401 - AFNOR T60125 - ISO 6614

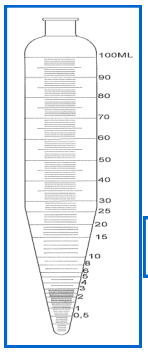
CAT N°	NOMENCLATURE
11470	Borosilicate glass graduated cylinder (100 ml)

ASTM D 1500 - ISO 2049 - IP196 - DIN 51578

CAT N°	NOMENCLATURE
19353	Glass sample jar

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

CAT N°	NOMENCLATURE
19350	Graduated weathering cylinder (100 ml)



19350

ASTM D 2001

CAT N°	NOMENCLATURE
19398	Set of glassware for depentanization

ASTM D 2002

CAT N°	Nomenclature
19399	Complete adsorption column (method B)

ASTM D 2003

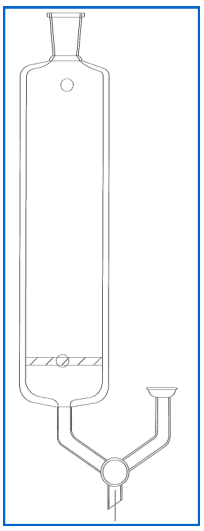
CAT N°	NOMENCLATURE
13603	Spherical ground joint with nipple
19400	High efficiency column

ASTM D 2272 - IP 229

CAT N°	NOMENCLATURE
21338	Sample container, made of borosilicate glass
21339	Catalyst copper coil (ready to use)

ASTM D 2273

CAT N°	NOMENCLATURE
19435	Bulb glass cone-shaped capillary 100 ml



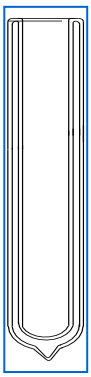
20983

ASTM D 2784 - NF EN 24260 - ISO 4260

CAT N°	NOMENCLATURE
20928	Quartz combustion chamber
20983	Absorber with fritted plate
20984	Trap

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

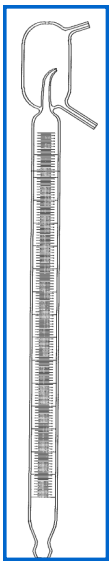
CAT N°	NOMENCLATURE
513462	Jacketed sample tube
513466	Dewar flask (double wall)



513462

ASTM D 2623

CAT N°	NOMENCLATURE
Burette for reference mixture	
19326	Lead burette (3 ml)
19327	Lead burette (4 ml)
19358	Burette (100 ml) without ball nor valve
19434	Burette (400 ml) auto-fill with tap, graduated in 0.5% and 2 ml
20935	Burette (200 ml) without ball nor valve
19329	Burette 100 ml with ball valvle without stop-cock
20936	Burette (400 ml) with ball without valve



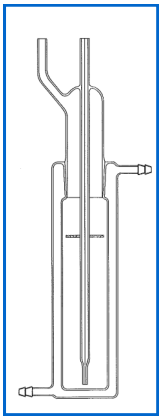
19358

ASTM D 2872

CAT N°	NOMENCLATURE
23680	Standardized glass container RTFOT

ASTM D 3427 - NF ISO 9120 - T60149

CAT N°	NOMENCLATURE
12627	Complete sample glassware
12628	Plunger (5 ml)
12629	Plunger (10 ml)
19379	Complete Impinger graduated receiver



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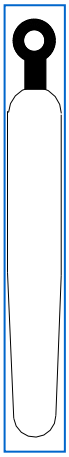


12628

ASTM D 4006

CAT N°	NOMENCLATURE
21182	Condenser CN 24/40 down
21183	Drying tube
21184	Dean Stark (5 ml) CN 24/40
21185	CN 24/40 ball (1 liter) round bottom

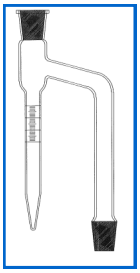
ASTM D 4530 - ISO 10370

CAT N°	NOMENCLATURE
For NORMALAB device	
41001	Borosilicate glass sample vials (2 ml) - Pack of 150
41002	Borosilicate glass sample vials (16 ml) - Pack of 45
41003	Quartz sample vial ash content (2 ml)
41004	Quartz sample vial ash content (16 ml)

CAT N°	NOMENCLATURE
41026	Vials (4 ml) ISO 10370 x75
41046	Vials (16 ml) single use x 144
41047	Vials (2 ml) single use x 144

ASTM E 123 - NF T60113

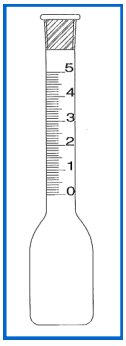
19357



CAT N°	NOMENCLATURE
19357	Dean-Stark (10 ml) cone-shaped - CN 24/29
19418	Dean-Stark (5 ml) - CN 24/40
19419	Dean-Stark (10 ml) - CN 24/40

ISO 3840 - IP 145

CAT N°	NOMENCLATURE
19315	Standard sulfonation flask (10 ml)
19316	Precision sulfonation flask (10 ml)
19317	Precision sulfonation flask (5 ml)
19318	Flask methode II - M07016 AFNOR



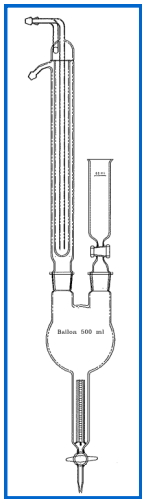
19317

AFNOR M07032 - IP 188

CAT N°	NOMENCLATURE
12622	Plugged test tube (100ml) - CN 24/29
19338	Flask (20 ml) - CN 24/29
19339	Distillation column with cap
19340	Condenser with CN 14/23

AFNOR M07039 - EN 13 - EN 41 - IP 96

CAT N°	NOMENCLATURE
12923	Protection tube
19312	Complete glassware without CN
19313	Complete glassware with CN 29
513312	Flask (500 ml) with resistance and CN
513314	Hopkins condenser with CN
513315	Separatory funnel with CN



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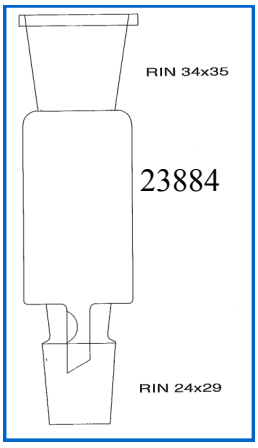
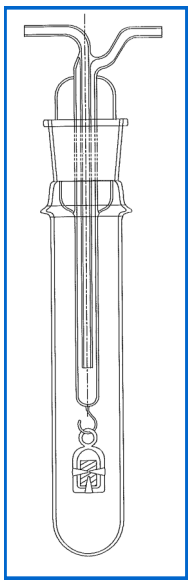


AFNOR T60115 - IP 143 - DIN 51595

CAT N°	NOMENCLATURE
19364	Condenser CN 34/35
21918	Conical flask (500 ml) CN29
21919	Reflux extractor CN29/34
23883	Conical flask (500 ml) CN24
23884	Reflux extractor CN24/34

IP 70

CAT N°	NOMENCLATURE
521341	Redwood flask (50 ml)



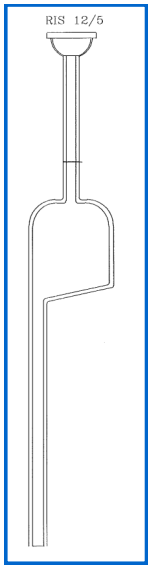
12007

IP 227

CAT N°	NOMENCLATURE
12007	Complete condenser kit (amber glass)
12008	Cradle (amber glass)
12376	Test tube (amber glass)
12377	Cold-finger condenser (amber glass)
20523	Complete condenser kit
20524	Test tube
20525	Cold-finger condenser

IP 309 - NF EN 116 - AFNOR M07042

CAT N°	NOMENCLATURE
17881	RIS Automatic pipette
17885	CFPP test tube
20881	RIS Pipette for manual apparatus
20942	RIS male tip
21916	CFPP pipette
23231	Pipette for manual apparatus without RIS



20881

Viscometer Tubes

Introduction

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

Construction

Normalab's voscometric 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 instread of the conventional engraving method. The viscometers result less fragiles (less breakages due to score discontinuities). Each viscometric is dedicated a serial number and supplied in carefully studied single packing.
The standard capillary viscometers are delivered without any engraved constant. This may be archieved on customer's special request against small additional cost.

Calibration

3 options are available for most of the models:

a) Without certificate

b) « Factory » certificate

The constant is obtained by using only one pure mineral oil grade of which viscosity has been previously determined with viscometer tube calibrated by « Laboratoire National d'Essais » or using a Cannon calibrated tube.
Any type of viscometer may be manufactured with the constant required by customers and providing 10% accuracy or better if requested at the ordering time.

c) Calibration certificate

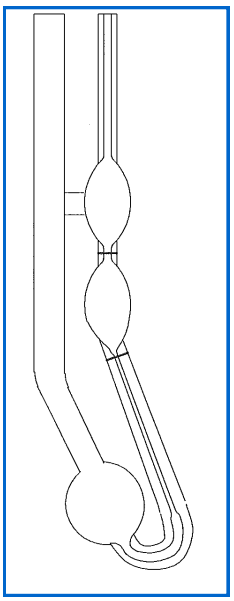
Normalab viscometers are calibrated in our laboratory using reference viscometers calibrated by the French « Laboratoire National d'Essais » (*National Testing Laboratory*). Those viscometers are checked at regular intervals by means of viscosity oil standards. Normalab has been assessed and registered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

CANNON-FENSKE routine viscometers for transparent liquids

ASTM D 445 - IP 71 - ISO 3104 - 3105

A: without certificate
B: with factory certificate
C: with calibration certificate

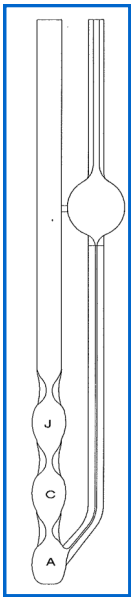
Size	Approx. constant	Viscosity (cSt)	Reference A	Reference B	Reference C
25	0.002	0.5 to 2	14046	16874	14002
50	0.004	0.8 to 4	14047	16875	14003
75	0.008	1.6 to 8	14048	16876	14004
100	0.015	3 to 15	14049	16877	14005
150	0.035	7 to 35	14050	16878	14006
200	0.1	20 to100	14051	16879	14007
300	0.25	50 to 250	14052	16880	14008
350	0.5	100 to 500	14053	16881	14009
400	1.2	240 to 1200	14054	16882	14010
450	2.5	500 to 2500	14055	16883	14011
500	8	1600 to 8000	14056	16884	14012
600	20	4000 to 20000	14057	16885	14013
650	45	10000 to 40000	14058	16886	14014
700	100	20000 to 80000	14059	16887	14015



CANNON-FENSKE reverse flow viscometers for opaque liquids
ASTM D 445 - D 2170 - IP 71 - ISO 3104 - 3105

A: without certificate
B: with factory certificate
C: with calibration certificate

Size	Approx. constant	Viscosity (cSt)	Reference A	Reference B	Reference C
25	0.002	0.4 to 2	12181	16979	14016
50	0.004	0.8 to 4	12182	16980	14017
75	0.008	1,6 to 8	12183	16981	14018
100	0.015	3 to 15	12184	16982	14019
150	0.035	7 to 35	12185	16983	14020
200	0.1	20 to 100	12186	16984	14021
300	0.25	50 to 200	12187	16985	14022
350	0.5	100 to 500	12188	16986	14023
400	1.2	240 to 1200	12189	16987	14024
450	2.5	500 to 2500	12190	16988	14025
500	8	1600 to 8000	12191	16989	14026
600	20	4000 to 20000	12192	16990	14027
650	45	10000 to 40000	12193	16991	14028
700	100	20000 to 80000	12194	16992	14029

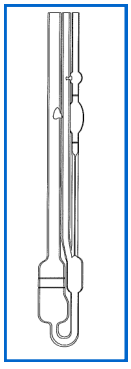


UBBELOHDE viscometers for transparent liquids

ASTM D 445 - IP 71 - ISO 3104 - 3105

A: without certificate
B: with factory certificate
C: with calibration certificate

Size	Approx. constant	Viscosity (cSt)	Reference A	Reference B	Reference C
0	0.001	0.3 to 1	13975	16700	14030
0C	0.003	0.6 to 3	13976	16701	14031
0B	0.005	1 to 5	13977	16702	14032
0A	0.007/8	1.5 to 7	13978	16703	14033
1	0.01	2 to 10	13979	16704	14034
1C	0.03	6 to 30	13980	16705	14035
1B	0.05	10 to 50	13981	16706	14036
2	0.1	20 to 100	13982	16707	14037
2C	0.3	60 to 300	13983	16708	14038
2B	0.5	100 to 500	13984	16709	14039
2A	0.7/0.8	150 to 750	13985	16710	14040
3	1,0	200 to 1000	13986	16711	14041
3C	3,0	600 to 3000	13987	16712	14042
3B	5,0	1000 to 5000	13988	16713	14043
4	10	2000 to 10000	13989	16714	14044
4C	30	6000 to 30000	13990	16715	14045
4B	50	10000 to 50000	13991	16716	13993
5	100	20000 to 100000	13992	16717	13994



HOUILLON viscometers for transparent liquids

B: with factory certificate
C: with calibration certificate

Size	Approx. constant	Viscosity (cSt)	Reference B	Reference C
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

Viscometer tubes CANNON-MANNING VACUUM ASTM D 2171

A: without certificate
C: with calibration certificate

Size	Approx. Cst Bulb B	Approx. Cst Bulb C	Viscosity (P)	Reference A	Reference C
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

BS / IP SL viscometers for transparent liquids
ASTM D 445 - IP 71 - ISO 3104 - 3105

A: without certificate
B: with factory certificate
C: with calibration certificate

Size	Approx. constant	Viscosity (cSt)	Reference A	Reference B	Reference C
1	0.01	3.5 to 10	19265	19274	19283
1A	0.03	6 to 30	19266	19275	19284
2	0.1	20 to 100	19267	19276	19285
2A	0.3	60 to 300	19268	19277	19286
3	1	200 to 1000	19269	19278	19287
3A	3	600 to 3000	19270	19279	19288
4	10	2000 to 10000	19271	19280	19289
4A	30	6000 to 30000	19272	19281	19290
5	100	20000 to 100000	19273	19282	19291

BS / IP U RF viscometers for opaque liquids
ASTM D 445 - D 2170 - IP 71 - ISO 3104 - 3105

A: without certificate
B: with factory certificate
C: with calibration certificate

Size	Approx. constant	Viscosity (cSt)	Reference A	Reference B	Reference C
1	0.003	0.6 to 3	18648	18659	18670
2	0.01	2 to 10	18649	18660	18671
3	0.03	6 to 30	18650	18661	18672
4	0.10	20 to 100	18651	18662	18673
5	0.3	60 to 300	18652	18663	18674
6	1	200 to 1000	18653	18664	18675
7	3	600 to 3000	18654	18665	18676
8	10	2000 to 10000	18655	18666	18677
9	30	6000 to 30000	18656	18667	18678
10	100	20000 to 100000	18657	18668	18679
11	300	60000 to 300000	18658	18669	18680

SIL viscometers for transparent liquids

ASTM D 445 - IP 71 - ISO 3104 - 3105

A: without certificate
C: with calibration certificate

Size	Approx. constant	Viscosity (cSt)	Reference A	Reference C
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

CANNON-UBBELOHDE viscometers for AVS - for transparent liquids

ASTM D 445 - IP 71 - ISO 3104 - 3105

A: without certificate
B: with factory 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

BAUME VIGNERON viscometers for transparent liquids

A: without certificate
C: with calibration certificate

Viscosity (cSt)	Reference A	Reference C
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

CANNON-UBBELOHDE viscometer for AVS

- with screwed end - for transparent liquids -

ASTM D 445 - IP 71 - ISO 3104 - 3105

A: without certificat

B: with factory 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

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 ethanecombustion on spiral platinum.

CAT N°	NOMENCLATURE
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)

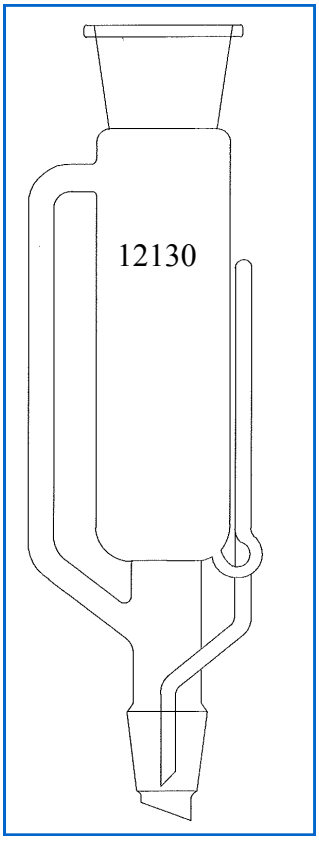
KUMAGAWA Extractor (borosilicate glass)

CAT N°	NOMENCLATURE
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
12285	Spare flask (500 ml) for 12284
12289	Spare flask (1000 ml) for 12288
12282	Spare extractor tube (125 ml)
12286	Spare extractor tube (250 ml)
12290	Spare extractor tube (500 ml)
12283	Spare condenser RIN male 50/42
12287	Spare condenser RIN male 60/46
12291	Spare condenser RIN male 85/70

* The capacity of an extractor is the one of the extractor tube and not the capacity of the flask.

SOXHLET Extractor

CAT N°	NOMENCLATURE
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
12849	Spare flask (250 ml) for 12133
12853	Spare flask (500 ml) for 12138
12856	Spare flask (1000 ml) for 12143
12149	Spare flask (2000 ml) for 12148
12130	Spare extractor tube (60 ml)
12135	Spare extractor tube (125 ml)
12140	Spare extractor tube (200 ml)
12145	Spare extractor tube (500 ml)
12150	Spare extractor tube (1000 ml)
30211	Condenser 4 balls RIN 24/29
12142	Condenser 4 balls RIN 29/32
12147	Condenser 6 balls RIN 29/32
12152	Condenser 8 balls RIN 29/32



MAIN PRODUCTS

1

NDI 450

ASTM D 86, ISO 3405, IP 123, DIN 51751 ...

Automated atmospheric Distillation unit

2

NPM 450

ASTM D 93, ISO 2719, IP 34, DIN 51758 ...

Fully automatic Pensky Martens Flash Point tester

3

NTE 450

ASTM D 97 & 2500, ISO 3015 & 3016, IP 15& 219 ...

Automated Cloud and Pour Point instrument CP PP

4

NTL 450

ASTM D 6371, IP 309 ...

Automated Cold Filter Plugging Point instrument CFPP

5

NPN TECH

ASTM D 5, D 217, D 937, D 1321, D 1403, IP 49, ISO 3997, DIN 52010 ...

Automatic Penetrometer

6

NABLEND

ASTM D 613 & 2699 & 2700, ISO 5163 & 5164, IP 41 & 236 & 237, , DIN 51756 ...

Automatic Blending Unit for octan and cetan reference fuel (Blending)

Designation	ASTM	AFNOR	ISO	EN	IP	DIN
Penetration of bitumous material	D5		3997	1426	49	52010
Loss on heating of oil and asphaltic compounds	D6	T66-011			45	
Softening point of bitumen (ring and ball)	D36		4625	1427	58	52011
Flash point by tag closed tester	D56				304	
Density of semi-solid bitumous materials (Pycnometer method)	D70				189 /190	
Distillation of petroleum products	D86		3405		123	51751
Saybolt viscosity	D88					
Precipitation number of lubricating oil	D91					
Flash and fire points by Cleveland open cup	D92		2592		36 / 403	
Flash point by Pensky-Martens closed cup	D93		2719	22719	34 / 404	51758
Water in petroleum products and bitumous materials by ditillation	D95	T60-113	3733		74	
Water and sediment in crude oil by centrifuge method	D96					
Pour point of petroleum products	D97	T60-105	3016		15	
Ductibility of bituminous materials	D113	T66-006				52013
Sulfur in petroleum products (general bomb method)	D129				61	
Detection of copper corrosion from petroleum products	D130		2160		154	51811
Saybolt color of petroleum products	D156	M07-003				51411
Conradson carbon residue of petroleum products	D189		6615		13	51551
Cone penetration of lubricating grease	D217	T60-132	2137		50	51580
Heat of combustion of liquid hydrocarbon fuels by calorimeter	D240					
Standard test methods and practices for emulsified asphalts	D244					
API gravity of crude petroleum and petroleum products (hydrometer method)	D287		3675			
Vapor pressure of petroleum products (Reid method)	D323		3007	12	69 / 402	
Existent gum in fuels by jet evaporation	D381		6246		131	51784
Kinematic viscisity of transparent and opaque liquids	D445		3104		71	51366
Sediment incrude ooils and fuels by the extraction method	D473		3735		53	51789
Ash from petroleum products	D482				4	
Ramsbottom carbon residue of petroleum products	D524	T60-117	4262		14	
Oxidation stability of gasoline (induction period method)	D525		7536		40	51780*
Dropping point of lubricating greases	D566	T60-102	2176		132	
Aniline point and mixed aniline point of petroleum products and hydrocarbon solvents	D611	M07-021	2977		2	
Reference and check fuel blending for octane and cetane measurement	D613				41	
Acide number of petroleum products by potentiometric titration	D664		6619		177	
Rust-preventing characterstics of inhibited mineral oil in presence of water	D665	T60-151	7120		135	
Oil content of petroleum waxes	D721	T60-120	2908		158	51571
Oxidation stability of aviation fuels (potential residue méthod)	D873	M07-013			138	
Sulfated ash from libricting oils and additives	D874		3987		163	51575
Dielectric breakdown voltage of insulating fluids	D877			60156	295	
Foaming caracteristics of lubrocating oils	D892		6247		146	
Insolubles in used lubricating oils	D893	T60-157				
Cone penetration of petrolatum	D937	T60119			179	51579
Density and relative density of liquids by lipkin bicapillary pycnometer	D941		3675		160	
Oxidation stability of lubricating greases (oxygen vessel method)	D942				142	51808
Oxidation characteritics of inhibited mineral oils	D943		4263		157	51587
Evaporation loss of lubricating greases and oils	D972					
Distillation of volatile organic liquids	D1078				195	
Water vapor content of gaseous fuels by mesurement of dew-point temperature	D1142					
Distillation of petroleum products at reduced pressure	D1160		6616			51567
Freezing point antifreeze products	D1177	T78-102				
Determining the water washout characteritics of lubricating greases	D1264				215	51807,part2
Sampling liquefied petroleum (LP) gases (manual method)	D1265		4257			
Gauge vapor pressure of liquefied petroleum gases (LP-Gas method)	D1267		4256	24256	161 / 410	
API gravity of crude petroleum and liquid petroleum products by hydrometer	D1298		3675		160	51757
Hydrocarbon types in liquid petroleum products by fluorescent indicator adsorption	D1319	M07-024	3837		156	51791*
Needle penetration of petroleum waxes	D1321	T60-123	3992			51579
Smoke point of kerosine and aviation turbine fuel	D1322	M07-028	3014		57	
Water separability of petroleum oils and synthetics fluids	D1401		6614			
Cone penetration of lubricating grease using 1/4 and 1/2 scale cone equipment	D1403	T60-140	6298		310	

Designation	ASTM	AFNOR	ISO	EN	IP	DIN
Density and relative density of viscous materials by bingham pycnometer	D1480					
ASTM color of petroleum products (ASTM color scale)	D1500		2049		196	51578
Sulfur in petroleum products (high-temperature method)	D1552	M07-025				
Density or relative density of light hydrocarbons by pressure thermohydrometer	D1657		3993		235	
ENGLER specific viscosity of tar products	D1665				212	
Determination of water in liquid petroleum products by Karl Fischer reagent	D1744		6296			
Effects of heat and air on asphatic materials (Thin-film oven test)	D1754					
Water and sediment in fuel oils by the centrifuge méthod (laboratory procedure)	D1796		3734			51793
Roll stability of lubricating grease	D1831					
Volatility of liquefied petroleum (LP) Gases	D1837	M41-012	6620			
Copper strip corrosion by liquefied petroleum (LP) Gases	D1838		6251	26251	411	
Filter bloquing tendency of distillate fuel oils	D2068				387	
Residues in liquefied petroleum (LP) Gases	D2158				317	
Dropping point of lubricating grease over wide temperature range	D2265		6299			
Oxidation stability of steam turbine oils by rotating bomb	D2272				229	
Trace sediment in lubricating oils	D2273					
Oxidation stability of distillate fuel oil (accelerated methode)	D2274		12205		388	
Freezing point of aviation fuels	D2386		3013		16	
Hydrogen sulfide in liquefied petroleum (LP) gases (lead acetate method)	D2420		8819		401	
Oxidation stability of mineral insulating oil	D2440					
Cloud point of petroleum products	D2500	T60-105	3015		219	
Apparent viscosity of engine oils using the cold-cranking simulator	D2602					51377
Hydrolytic stability of hydraolic fluids (beverage bottle method)	D2619					
Electrical conductivity of aviation and distillate fuels	D2624		6297		274	
Knock characteristics of motor by the research method	D2699		5163	25164	237	51756
Knock characteristics of motor and aviation fuels by the motor method	D2700		5164	25163	236	
Demulsibility characteristics of lubricating oils	D2711					
Sulfur in liquefied petroleum gases (oxy-hyrogen burner or lamp method)	D2784	M41-009	4260		243	51408
Effect of heat and air on a moving film of asphalt (RTFOT)	D2872					
Oxidation characteristics of extreme pressure lubricating oils	D2893					
Low-temperature viscosity of autumotive fluid lubricants (Brookfield viscisimeter)	D2983	T60-152	9262		267	51398
Salts in crude oil (electrometric method)	D3230				265	
Solvent extractables in petroleum waxes	D3235					
Flash point of liquids by Setaflash-closed-cup apparatus	D3278					
Air release properties of petroleum oils	D3427		9120		313	51381
Flash point by small scale closed tester	D3828		3679		303	
Water separation characteristics of aviation turbine fuels by portable separometer	D3948					
Water and sediment in crude oil by the centrifuge method (laboratory procedure)	D4007					
Manual sampling of pétroleum and petroleum products	D4057		3170	58		51750
High-shear viscosity using the ICI cone / plate viscosimeter	D4287					
Sulfur in oil analyzer	D4294		8754			
Water in crude oils by potentimetric Karl Fischer	D4377				356	
Determination of carbon residue (MCRAT)	D4530		10370		398	51551
Low sulfur & nitrogen analyzer for light hydrocarbon products	D4629		20846			
Free water and particulate contamination in mid-distillate fuels (Clear and bright rating)	D4860					
Vapor pressure of petroleum products (mini method)	D5191					
Distillation du pétrole brut						
Apparent viscosity of engine oils using the cold-cranking simulator	D5293					
Low sulfur & nitrogen analyzer for light hydrocarbon products	D5453		20546			51551
Cloud and Pour Point	D5773					
Evaporation loss of lubricating oils by the Noack method	D5800	T60-161				51581
Portable gasoline analysis with mid-ftir	D5845					
Cloud and Pour Point	D5949					
Freeze Point	D5972					
High temperature foaming characteritics of lubricating oils	D6082					
Portable gasoline analysis with mid-ftir	D6277					
Vapore pressure of gasoline	D6377					
Vapor pressure of gasoline	D6378					

NORMALAB
www.normalab.com

CONTACT : sales@normalab.com

Normalab FRANCE SAS
ZA Caux Multipôles 1
76190 Valliquerville - France
Tel. : +33 232.700.100
Fax : +33 232.704.732