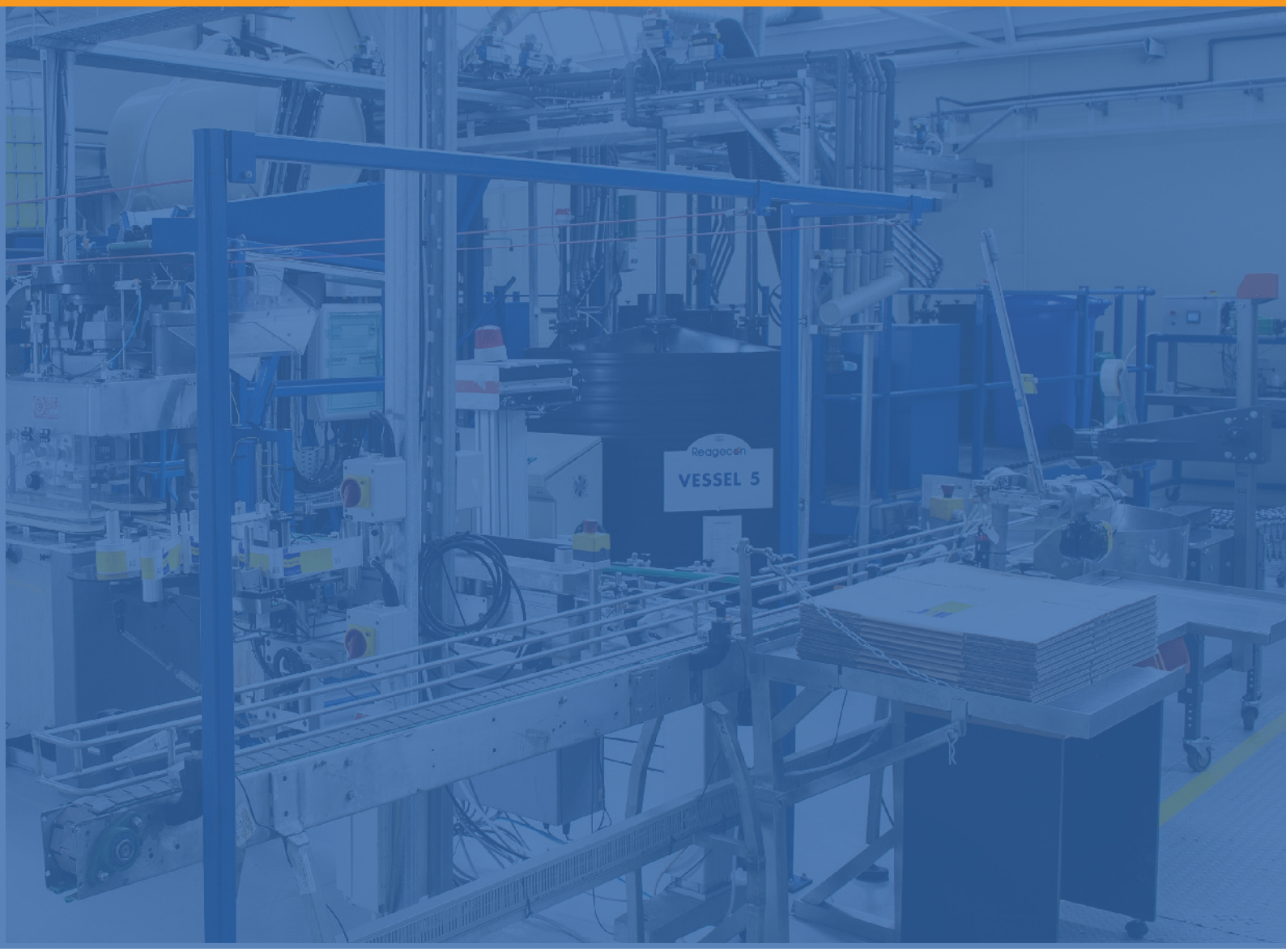
Reagecon

Petrochemistry Standards




Reagecon
VESSEL 5

Contents

Colour Standards	4
Viscosity Standards	8
Total Acid Number/Total Base Number Standards & Reagents	11
PIANO, PONA & PNA Standards	15
Density Standards – Premium Range	22
Density Standards – Quality Range	29
Melting Point Standards	34
Refractive Index Standards	35
Polycyclic Aromatic Hydrocarbon Standards (PAHs)	37
Hopane Standards	63
Tetraline Standards	67
Thiophene Standards	70
Gas Calibration Standards	74
Benzene Calibration Standards	75
Cetane Improver Calibration Sets	75
Fatty Acid Methyl Ester Standards (FAME)	76
Volatile Organic Compound Standards	82

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Colour Standards



Summary of Features & Benefits:

Commercial Benefits

- For use as calibration and/or quality control standards
- Presented in high quality tamper evident bottles
- Customised standards available
- Various pack sizes available
- Ready to Use

Technical Benefits

- Produced in accordance with ASTM (D1500,
- D6045, D1209) APHA, ACS, EP & USP methods
- Consistency of product - Independent, Traceable, Certified
- Certificates of Analysis and Safety Data Sheets available online

Reagecon manufactures the full range of ASTM, Saybolt, Platinum-Cobalt, Gardner, European Pharmacopeia and United States Pharmacopeia Colour Standards for use with ASTM, APHA, ACS, European and United States Pharmacopeia standard methods. The ASTM standard methods include D1500, D6045 and D1209. The products can be used to calibrate, control, qualify and validate colour measurement instruments.



The products range from:

- ASTM Colour Standard Sample A05- A7
- Saybolt Colour Standards S+30 to S-15
- Platinum-Cobalt Scale No. 0 - No. 1000
- Gardner Colour Standards GARD02-GARD18
- European Pharmacopeia Standards (Opalescence, Primary and Standard Solutions)

These products are prepared gravimetrically on a weight/weight basis. Both solute and solvent are weighed on a balance calibrated by Reagecon engineers using OIML traceable weights. Reagecon holds ISO 17025 accreditation for calibration of laboratory balances (INAB Ref:265C). The resulting Balance Certificate of Calibration is issued in accordance with the requirements of ISO/IEC 17025. The concentration of each standard is verified using a high performance top of the range calibrated spectrophotometer. The calibration of the spectrophotometer is controlled using high purity ISO Guide 34 accredited spectrophotometric standards.

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ASTM Colour Standards

Description	Product No. 100ml	Product No. 500ml
ASTM Colour Standard less than 0.5	ASTMA051	ASTMA055
ASTM Colour Standard A1	ASTMA101	ASTMA105
ASTM Colour Standard A3	ASTMA301	ASTMA305
ASTM Colour Standard A5	ASTMA501	ASTMA505
ASTM Colour Standard A7	ASTMA701	ASTMA705

Saybolt Colour Standards

Description	Product No. 100ml	Product No. 500ml
Colour Standard Saybolt +30	SAYP301	SAYP305
Colour Standard Saybolt +25	SAYP251	SAYP255
Colour Standard Saybolt +19	SAYP191	SAYP195
Colour Standard Saybolt +15	SAYP151	SAYP155
Colour Standard Saybolt +12	SAYP121	SAYP125
Colour Standard Saybolt +0	SAYP01	SAYP05
Colour Standard Saybolt -10	SAYN101	SAYN105
Colour Standard Saybolt -15	SAYN151	SAYN155





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Platinum-Cobalt Colour Standards* (Hazen)

Product No.	Description	Pack Size
HAZ0	Colour Standard Platinum Cobalt 0 (0 Hazen units)	1L
HAZ5	Colour Standard Platinum Cobalt 5 (5 Hazen units)	1L
HAZ10	Colour Standard Platinum Cobalt 10 (10 Hazen units)	1L
HAZ15	Colour Standard Platinum Cobalt 15 (15 Hazen units)	1L
HAZ20	Colour Standard Platinum Cobalt 20 (20 Hazen units)	1L
HAZ25	Colour Standard Platinum Cobalt 25 (25 Hazen units)	1L
HAZ30	Colour Standard Platinum Cobalt 30 (30 Hazen units)	1L
HAZ40	Colour Standard Platinum 40 (40 Hazen units)	1L
HAZ50	Colour Standard Platinum Cobalt 50 (50 Hazen units)	1L
HAZ505	Colour Standard Platinum Cobalt 50 (50 Hazen units)	5L
HAZ80	Colour Standard Platinum Cobalt 80 (80 Hazen units)	1L
HAZ100	Colour Standard Platinum Cobalt 100 (100 Hazen units)	1L
HAZ1005	Colour Standard Platinum Cobalt 100 (100 Hazen units)	5L
HAZ150	Colour Standard Platinum Cobalt 150 (150 Hazen units)	1L
HAZ1505	Colour Standard Platinum Cobalt 150 (150 Hazen units)	5L
HAZ200	Colour Standard Platinum Cobalt 200 (200 Hazen units)	1L
HAZ2005	Colour Standard Platinum Cobalt 200 (200 Hazen units)	5L
HAZ250	Colour Standard Platinum Cobalt 250 (250 Hazen units)	1L
HAZ400	Colour Standard Platinum Cobalt 400 (400 Hazen units)	1L
HAZ500-500ml	Colour Standard Platinum Cobalt 500 (500 Hazen units)	500ml
HAZ500	Colour Standard Platinum Cobalt 500 (500 Hazen units)	1L
HAZ5005	Colour Standard Platinum Cobalt 500 (500 Hazen units)	5L
HAZ1000	Colour Standard Platinum Cobalt 1000 (1000 Hazen units)	1L

* Standards with intermediate Platinum-Cobalt values are available on request



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Gardner Colour Standards**

Product No.	Description	Pack Size
GARD011	Colour Standard Gardner 1	100ml
GARD021	Colour Standard Gardner 2	100ml
GARD02	Colour Standard Gardner 2	500ml
GARD031	Colour Standard Gardner 3	100ml
GARD041	Colour Standard Gardner 4	100ml
GARD04	Colour Standard Gardner 4	500ml
GARD051	Colour Standard Gardner 5	100ml
GARD061	Colour Standard Gardner 6	100ml
GARD06	Colour Standard Gardner 6	500ml
GARD071	Colour Standard Gardner 7	100ml
GARD081	Colour Standard Gardner 8	100ml
GARD08	Colour Standard Gardner 8	500ml
GARD091	Colour Standard Gardner 9	100ml
GARD101	Colour Standard Gardner 10	100ml
GARD10	Colour Standard Gardner 10	500ml
GARD111	Colour Standard Gardner 11	100ml
GARD121	Colour Standard Gardner 12	100ml
GARD12	Colour Standard Gardner 12	500ml
GARD131	Colour Standard Gardner 13	100ml
GARD141	Colour Standard Gardner 14	100ml
GARD14	Colour Standard Gardner 14	500ml
GARD151	Colour Standard Gardner 15	100ml
GARD161	Colour Standard Gardner 16	100ml
GARD16	Colour Standard Gardner 16	500ml
GARD171	Colour Standard Gardner 17	100ml
GARD181	Colour Standard Gardner 18	100ml

** Standards with intermediate Gardner values are available on request

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Viscosity Standards



Reagecon now offers an exciting range of certified, accurate and traceable Viscosity Standards. These products can be used for calibration, control, verification, qualification or method validation of kinematic and dynamic viscosity measurement instruments (both manual and automatic). All of the products are traceable to the ITS-90 Temperature scale and the universally accepted Primary Standard value of the viscosity of water at 20°C, defined as 1.0034mm^2/s (cSt) by ISO3666.

The products offer the following additional benefits;

- Manufactured and certified according to ASTM D2162 using Ubbelohde Master Viscometers.
- This is the internationally recognised primary method for Viscosity Standard certification.
- Each standard is certified for Kinematic Viscosity (mm^2/s,cSt), Dynamic Viscosity (cP) and Density (g/ml) at a range of temperatures.
- The testing of this product is performed by a third party on behalf of Reagecon and is not covered by Reagecon's scope of accreditation to ISO 17025 (INAB Ref. 264T).
- Extended shelf life.
- Attractive secure packaging.
- Certificates of Analysis and safety data sheets available on-line for every batch manufactured.
- Manufactured from high quality, stable base oils and additives.
- All standards observe Newtonian Fluid behaviour.

Reagecon has an extensive Research and Development facility based in Shannon, Ireland. Several speciality and additional ranges of viscosity standards are currently under development. These include Silicone Standards for the calibration of Rotational Viscometers.



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Reagecon Viscosity Standards: Nominal Kinematic Viscosity, Dynamic Viscosity & Density

Individual batches' certified viscosity values will vary from the data given below an absolute maximum of 10%, but typically less than 5%. Individual batches' certified values will be shown to 4 significant figures for all parameters on their Certificate of Analysis.

	KINEMATIC VISCOSITY mm2/s (cSt)					DYNAMIC VISCOSITY mPa.s (cP)					DENSITY (g/ml)				
Prod Code	**20°C**	**25°C**	**37.78°C**	**40°C**	**50°C**	**20°C**	**25°C**	**37.78°C**	**40°C**	**50°C**	**20°C**	**25°C**	**37.78°C**	**40°C**	**50°C**
REVIS-N.4	0.47	0.45	0.41	0.40	-	0.31	0.29	0.26	0.25	-	0.66	0.66	0.64	0.64	-
REVIS-N.8	0.74	0.70	0.61	0.60	-	0.50	0.47	0.41	0.40	-	0.69	0.69	0.68	0.68	-
REVIS-N1.0	1.3	1.2	1.0	0.97	0.87	0.91	0.84	0.71	0.69	0.61	0.73	0.72	0.71	0.71	0.70
REVIS-N2	2.9	2.6	2.1	2.0	1.7	2.1	1.9	1.5	1.4	1.2	0.72	0.72	0.71	0.71	0.70
REVIS-S3	4.4	3.9	3.0	2.9	2.4	3.6	3.2	2.4	2.3	1.9	0.82	0.82	0.81	0.81	0.80
REVIS-N4	6.7	5.8	4.2	4.0	3.2	5.5	4.8	3.4	3.2	2.6	0.84	0.83	0.83	0.82	0.82
REVIS-S6	10	8.7	6.0	5.7	4.4	8.7	7.4	5.0	4.7	3.7	0.84	0.84	0.83	0.83	0.82
REVIS-N7.5	14	12	8.0	7.5	5.8	12	10	6.7	6.3	4.8	0.85	0.85	0.84	0.84	0.83
REVIS-N10	20	16	11	10	7.5	18	15	9.3	8.7	6.4	0.84	0.83	0.82	0.82	0.82
REVIS-N14	30	24	15	14	10	25	20	12	11	8.2	0.84	0.83	0.83	0.82	0.82
REVIS-S20	43	34	20	18	13	36	29	17	15	11	0.85	0.85	0.84	0.84	0.83
REVIS-N26	59	47	27	25	18	46	37	22	20	14	0.84	0.84	0.83	0.83	0.82
REVIS-N35	88	66	35	32	21	76	58	30	28	18	0.87	0.87	0.86	0.86	0.85
REVIS-N44	110	87	48	44	30	85	66	37	35	23	0.84	0.84	0.83	0.83	0.82
REVIS-S60	160	120	60	54	35	140	110	54	49	31	0.88	0.87	0.87	0.86	0.86
REVIS-N75	210	160	83	75	50	170	130	69	63	42	0.84	0.84	0.83	0.83	0.82
REVIS-N100	320	220	110	95	59	270	190	91	81	50	0.88	0.88	0.87	0.87	0.86
REVIS-N140	400	300	160	140	90	360	270	140	120	78	0.84	0.83	0.83	0.83	0.82
REVIS-S200	550	400	200	180	110	460	340	170	150	95	0.84	0.84	0.83	0.83	0.82
REVIS-N250	790	580	280	250	160	690	500	250	220	140	0.84	0.84	0.83	0.83	0.82
REVIS-N350	980	710	340	310	190	834	609	294	262	161	0.84	0.84	0.83	0.83	0.82
REVIS-N415	1400	1000	470	410	250	1200	840	390	350	210	0.85	0.84	0.84	0.83	0.83
REVIS-S600	1800	1300	590	520	310	1700	1200	540	480	280	0.85	0.85	0.84	0.84	0.83
REVIS-N750	2700	1800	850	760	440	2300	1600	710	640	370	0.85	0.85	0.84	0.84	0.83
REVIS-N1000	3300	2300	1100	940	560	2800	2000	940	790	460	0.86	0.85	0.85	0.84	0.83
REVIS-N1400	4900	3500	1600	1400	830	4100	3000	1300	1200	690	0.84	0.84	0.83	0.83	0.82
REVIS-S2000	8400	5300	1900	1600	810	7300	4700	1700	1400	710	0.88	0.87	0.87	0.87	0.86
REVIS-N2500	8300	5900	2700	2400	1400	7000	5000	2200	2000	1200	0.84	0.84	0.83	0.83	0.82
REVIS-N4000	19000	12000	4100	3400	1700	16000	10000	3600	3000	1500	0.88	0.88	0.88	0.87	0.87
REVIS-N5100	28000	17000	6000	5100	2500	24000	15000	5200	4400	2100	0.89	0.89	0.88	0.88	0.87
REVIS-S8000	41000	25000	8000	6700	3200	32000	20000	7000	5900	2800	0.90	0.89	0.89	0.89	0.88
REVIS-N10200	58000	36000	12000	10000	4900	51000	32000	11000	8100	4400	0.89	0.89	0.88	0.88	0.88
REVIS-N15000	77000	47000	16000	13000	6100	64000	41000	14000	12000	5000	0.89	0.89	0.88	0.88	0.88
REVIS-N18000	100000	64000	21000	18000	8500	89000	56000	19000	16000	7500	0.90	0.89	0.89	0.89	0.88
REVIS-S30000	-	79000	28000	23000	11000	-	69000	23000	20000	9000	-	0.89	0.89	0.89	0.88

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Reagecon Viscosity Standards: Nominal Kinematic Viscosity, Dynamic Viscosity to 100°C

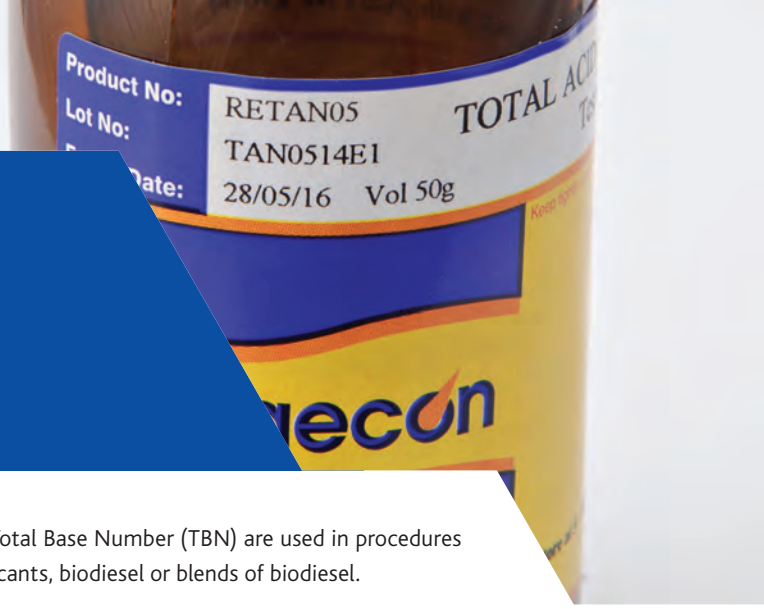
Individual batches' certifed viscosity values will vary from the data given below by less than of 10%, but typically less than 5%. Individual batches' certifed values will be shown to 4 signifcant fgures for all parameters on their Certifcate of Analysis. All of these products have been tested to and are certified at various increments up to 100C.

KINEMATIC VISCOSITY mm2/s (cSt)								DYNAMIC VISCOSITY mPa.s (cP)						
Product Code	**20°C**	**25°C**	**40°C**	**50°C**	**60°C**	**80°C**	**100°C**	**20°C**	**25°C**	**40°C**	**50°C**	**60°C**	**80°C**	**100°C**
REVISC-N2	2.9	2.6	2.0	1.7	1.5	1.1	0.92	2.3	2.0	1.5	1.3	1.1	0.85	0.67
REVISC-S3	4.5	4.0	2.9	2.4	2.0	1.5	1.2	3.7	3.2	2.3	1.9	1.6	1.2	0.89
REVISC-N4	6.7	5.8	4.0	3.2	2.6	1.9	1.5	5.7	4.9	3.3	2.6	2.2	1.5	1.2
REVISC-S6	10	8.7	5.7	4.4	3.6	2.5	1.8	8.7	7.4	4.7	3.7	2.9	2.0	1.5
REVISC-N7.5	14	12	7.5	5.7	4.5	3.0	2.2	12	10	6.2	4.7	3.7	2.4	1.7
REVISC-N10	22	18	11	7.9	6.1	3.9	2.8	18	15	8.7	6.4	4.9	3.1	2.2
REVISC-N14	30	24	14	10	7.8	4.9	3.4	26	21	12	8.6	6.5	4.0	2.7
REVISC-S20	43	34	18	13	9.6	5.8	3.9	36	29	15	11	7.8	4.6	3.0
REVISC-N26	59	47	25	18	13	7.8	5.2	49	39	21	15	11	6.3	4.1
REVISC-N35	88	66	32	22	15	8.5	5.4	76	57	28	18	13	7.1	4.4
REVISC-N44	110	86	44	30	21	12	7.7	94	72	36	25	17	9.8	6.1
REVISC-S60	160	120	54	35	24	13	7.9	140	100	46	30	20	11	6.4
REVISC-N75	210	160	75	50	34	19	11	170	130	62	40	28	15	8.9
REVISC-N100	320	230	97	60	39	20	11	280	200	83	51	33	16	9.3
REVISC-N140	410	310	140	89	60	31	18	350	260	120	73	49	25	14
REVISC-S200	540	400	180	110	75	38	22	460	340	150	93	61	30	17
REVISC-N250	790	580	250	160	100	50	28	660	480	210	130	82	39	21
REVISC-N350	980	710	310	190	120	59	32	830	600	250	160	100	47	26
REVISC-N415	1,400	1,000	420	250	160	75	40	1,200	840	350	210	130	61	32
REVISC-S600	1,800	1,300	520	310	200	91	49	1,500	1,100	440	260	160	74	39
REVISC-N750	2,600	1,900	750	440	280	120	64	2,200	1,600	630	370	230	100	51
REVISC-N1000	3,400	2,400	940	550	340	150	76	2,900	2,000	790	460	280	120	61
REVISC-N1400	5,100	3,600	1,400	810	500	210	110	4,400	3,100	1,200	670	410	170	85
REVISC-S2000	8,200	5,300	1,600	840	470	170	79	7,200	4,600	1,400	730	400	150	66
REVISC-N2500	8,300	5,900	2,400	1,400	880	380	190	7,000	5,000	2,000	1,200	720	310	150
REVISC-N4000	19,000	12,000	3,500	1,700	940	330	140	17,000	10,000	3,100	1,500	810	280	120
REVISC-N5100	28,000	17,000	5,100	2,500	1,300	460	190	25,000	15,000	4,400	2,200	1,100	390	160
REVISC-S8000	36,000	23,000	6,700	3,300	1,700	600	250	32,000	20,000	5,900	2,900	1,500	510	210
REVISC-N10200	57,000	35,000	10,000	4,900	2,600	850	350	51,000	32,000	8,900	4,300	2,200	730	290
REVISC-N15000	72,000	45,000	13,000	6,200	3,200	1,100	430	64,000	1,100,000	12,000	5,600	2,900	960	390
REVISC-N18000	100,000	63,000	18,000	8,500	4,400	1,400	570	90,000	56,000	16,000	7,500	3,900	1,200	490
REVISC-S30000	---	78,000	22,000	11,000	5,400	1,800	690	---	70,000	19,000	9,300	4,800	1,500	590



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Total Acid Number/ Total Base Number Standards & Reagents



The products listed in this section for Total Acid Number (TAN) and Total Base Number (TBN) are used in procedures to test and control the acidic or basic constituents in petroleum, lubricants, biodiesel or blends of biodiesel.

Total Acid Number (TAN)

The procedures for the measurement of this parameter (laid down in various ASTM methods) vary depending on sample solubility in materials such as Toluene or Propan-2-ol, the dissociation constants of the acids in water, or the nature of the test sample. Therefore, the methodology used for lubricants maybe be different from the methodology used for biodiesel. In new and used oils the constituents that maybe considered to have acidic characteristics include organic acids, inorganic acids, esters, phenolic compounds, lactones, resins, salts of heavy metals, acid salts of polybasic acids, and additives such as inhibitors and detergents.

The test method is used to indicate relative changes that occur in oil during use under oxidising conditions regardless of the colour or other properties of the oil. The method is also used as a guide in the quality control of lubricating oil formulations or as a measure of lubricant degradation. It is not intended to measure an absolute acidic property that can be used to predict performance of oil under working conditions. There is no known relationship between corrosion of bearings and acid number. The methodology of performing the test involves dissolving the sample in a titration solvent and titrating potentiometrically as an acid/base titration with alcoholic potassium hydroxide.

Total Base Number (TBN)

The constituents of oils and lubricants that may be considered to have basic characteristics include organic bases, inorganic bases, amino compounds, salts of weak acids (soaps), basic salts of polyacidic bases and salts of heavy metals. The test methodology involves dissolving the sample in an anhydrous mixture of chlorobenzene/glacial acetic acid and titrating potentiometrically with a solution of perchloric acid in glacial acetic acid. Both new and used petroleum products can contain basic constituents that are present as additives. The test is sometimes used as a measure of lubricant degradation but any condemning limits based on the test must be established on an individual basis.

The following list of products are a selection of Solvents, Titrants, Standards, Buffers and Electrolytes specifically formulated for the testing of TAN and TBN using ASTM methods D664 and D2896 respectively.

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Reagents, Titrants & Standards for ASTM D664: Acid Number of Petroleum Products by Potentiometric Titration

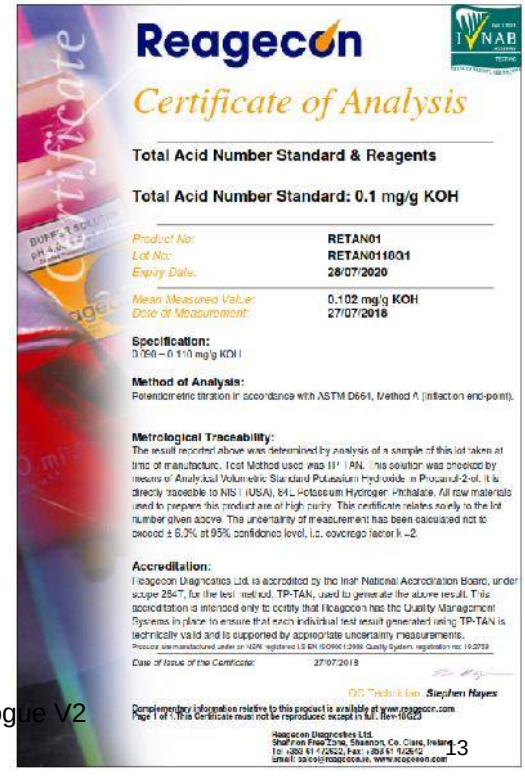
Product No.	Description	Pack Size
EFSLIET	Electrolyte: 1M Lithium Chloride in Ethanol	100ml
104025	Buffer pH 4.00 - 25˚C	1L
107025	Buffer pH 7.00 - 25˚C	1L
111025	Buffer pH 11.00 - 25˚C	1L
PH20101	0.1M Hydrochloric Acid in propan-2-ol	1L
PH201005	0.1M Hydrochloric Acid in propan-2-ol	500ml
KOH01F	0.1M Potassium Hydroxide in propan-2-ol	1L
KOH01H	0.1M Potassium Hydroxide in propan-2-ol	500ml
KOH001F	0.01M Potassium Hydroxide in propan-2-ol	1L
KOH001H	0.01M Potassium Hydroxide in propan-2-ol	500ml
TANSOLVF	TAN Titration Solvent. Per litre: 500mls toluene, 495mls propan-2-ol, 5mls water	1L
TANSOLVW	TAN Titration Solvent. Per litre: 500mls toluene, 495mls propan-2-ol, 5mls water	2.5L
TANSOLVF10	TAN Titration Solvent. Per litre: 500mls toluene, 495mls propan-2-ol, 5mls water	10L
TANSOLVF20	TAN Titration Solvent. Per litre: 500mls toluene, 495mls propan-2-ol, 5mls water	20L

Reagents, Titrants & Standards for ASTM D2896: Base Number of Petroleum Products by Potentiometric Titration

Product No.	Description	Pack Size
P2010F	0.1M Perchloric Acid in glacial acetic acid	1L
P2010H	0.1M Perchloric Acid in glacial acetic acid	500ml
EFSNACLO4	Electrolyte: saturated sodium perchlorate in glacial acetic acid	100ml
TBNSOLV1F	TBN Titration solvent - 2:1 chlorobenzene and glacial acetic acid	1L
TBNSOLV1W	TBN Titration solvent - 2:1 chlorobenzene and glacial acetic acid	2.5L
TBNSOLV1F10	TBN Titration solvent - 2:1 chlorobenzene and glacial acetic acid	10L
TBNSOLV1F20	TBN Titration solvent - 2:1 chlorobenzene and glacial acetic acid	20L
NAAC010F	0.1N Sodium Acetate in glacial acetic acid	1L
104025	Buffer pH 4.00 - 25˚C	1L
107025	Buffer pH 7.00 - 25˚C	1L
111025	Buffer pH 11.00 - 25˚C	1L
TBNSOLV2F	TBN Titration solvent - 0.4M tetraethylammonium bromide in ethylene glycol	1L
TBNSOLV2W	TBN Titration solvent - 0.4M tetraethylammonium bromide in ethylene glycol	2.5L

TAN Standards: All in a Synthetic Base Oil Matrix

Product No.	Description	Pack Size
RETAN0.5	TAN standard: 0.5 mg/g KOH	50g
RETAN01	TAN standard: 0.1mg/g KOH	50g
RETAN01R	TAN standard: 0.1mg/g KOH	100g
RETAN01S	TAN standard: 0.1mg/g KOH	3 x 100g
RETAN05	TAN standard: 0.5 mg/g KOH	50g
RETAN05R	TAN standard: 0.5 mg/g KOH	100g
RETAN05S	TAN standard: 0.5 mg/g KOH	3 x 100g
RETAN10	TAN standard: 1.0 mg/g KOH	50g
RETAN10R	TAN standard: 1.0 mg/g KOH	100g
RETAN10S	TAN standard: 1.0 mg/g KOH	3 x 100g
RETAN15	TAN standard, 1.5mg/g KOH	50g
RETAN15R	TAN standard: 1.5 mg/g KOH	100g
RETAN15S	TAN standard: 1.5 mg/g KOH	3 x 100g
RETAN20	TAN standard: 2.0mg/g KOH	50g
RETAN20R	TAN standard: 2.0 mg/g KOH	100g
RETAN20S	TAN standard: 2.0 mg/g KOH	3 x 100g
RETAN25	TAN standard: 2.5mg/g KOH	50g
RETAN25R	TAN standard: 2.5 mg/g KOH	100g
RETAN25S	TAN standard: 2.5 mg/g KOH	3 x 100g
RETAN30	TAN standard: 3.0mg/g KOH	50g
RETAN30R	TAN standard: 3.0 mg/g KOH	100g
RETAN30S	TAN standard: 3.0 mg/g KOH	3 x 100g
RETAN45	TAN standard: 4.5 mg/g KOH	50g
RETAN45R	TAN standard: 4.5 mg/g KOH	100g
RETAN45S	TAN standard: 4.5 mg/g KOH	3 x 100g



Reagecon

Certificate of Analysis

Total Acid Number Standard & Reagents

Total Acid Number Standard: 0.1 mg/g KOH

Product No: RETAN01
Lot No: RETAN0110Q1
Expiry Date: 28/07/2020

Mean Measured Value: 0.102 mg/g KOH
Date of Measurement: 27/07/2018

Specification:
0.098 – 0.110 mg/g KOH

Method of Analysis:
Potentiometric titration in accordance with ASTM D664, Method A (inflection end-point).

Metrological Traceability:
The result reported above was determined by analysis of a sample of this lot taken at time of manufacture. Test Method used was TP-TAN. This solution was checked by means of Analytical Volumetric Standard Potassium Hydroxide in Propanol-2-ol, it is directly traceable to NIST (USA), SRM Potassium Hydrogen Phthalate. All raw materials used to prepare this product are of high purity. This certificate relates solely to the lot number given above. The uncertainty of measurement has been calculated not to exceed ± 6.0% at 95% confidence level, i.e. coverage factor k = 2.

Accreditation:
Reagecon Diagnostics Ltd. is accredited by the Irish National Accreditation Board, under scope 254T, for the test method, TP-TAN, used to generate the above result. This accreditation is intended only to certify that Reagecon has the Quality Management Systems in place to ensure that each individual test result generated using TP-TAN is technically valid and is supported by appropriate uncertainty measurements.

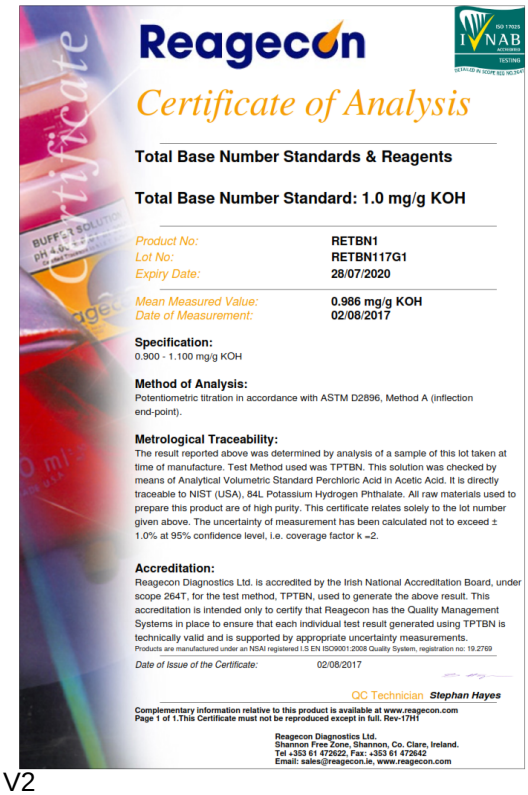
Date of Issue of the Certificate: 27/07/2018

QC Technician: Stephen Hayes

Reagecon Diagnostics Ltd.
Shannon Free Zone, Shannon, Co. Clare, Ireland.

TBN Standards: All in a Synthetic Base Oil Matrix

Product No.	Description	Pack Size
RETBN1	TBN Standard: 1.0 mg/g KOH	50g
RETBN1R	TBN Standard: 1.0 mg/g KOH	100g
RETBN1S	TBN Standard: 1.0 mg/g KOH	3 x 100g
RETBN3	TBN Standard: 3.0 mg/g KOH	50g
RETBN3R	TBN Standard: 3.0 mg/g KOH	100g
RETBN3S	TBN Standard: 3.0 mg/g KOH	3 x 100g
RETBN6	TBN Standard: 6.0 mg/g KOH	50g
RETBN6R	TBN Standard: 6.0 mg/g KOH	100g
RETBN6S	TBN Standard: 6.0 mg/g KOH	3 x 100g
RETBN10	TBN Standard: 10 mg/g KOH	50g
RETBN10R	TBN Standard: 10 mg/g KOH	100g
RETBN10S	TBN Standard: 10 mg/g KOH	3 x 100g
RETBN15	TBN Standard: 15 mg/g KOH	50g
RETBN15R	TBN Standard: 15 mg/g KOH	100g
RETBN15S	TBN Standard: 15 mg/g KOH	3 x 100g
RETBN30	TBN Standard: 30 mg/g KOH	50g
RETBN30R	TBN Standard: 30 mg/g KOH	100g
RETBN30S	TBN Standard: 30 mg/g KOH	3 x 100g
RETBN40	TBN Standard: 40 mg/g KOH	50g
RETBN40R	TBN Standard: 40 mg/g KOH	100g
RETBN40S	TBN Standard: 40 mg/g KOH	3 x 100g
RETBN70	TBN Standard: 70 mg/g KOH	50g
RETBN70R	TBN Standard: 70 mg/g KOH	100g
RETBN70S	TBN Standard: 70 mg/g KOH	3 x 100g



Reagecon

Certificate of Analysis

Total Base Number Standards & Reagents

Total Base Number Standard: 1.0 mg/g KOH

Product No:	**RETBN1**
Lot No:	**RETBN117G1**
Expiry Date:	**28/07/2020**
Mean Measured Value:	**0.986 mg/g KOH**
Date of Measurement:	**02/08/2017**

Specification:
0.900 - 1.100 mg/g KOH

Method of Analysis:
Potentiometric titration in accordance with ASTM D2896, Method A (inflection end-point).

Metrological Traceability:
The result reported above was determined by analysis of a sample of this lot taken at time of manufacture. Test Method used was TPTBN. This solution was checked by means of Analytical Volumetric Standard Perchloric Acid in Acetic Acid. It is directly traceable to NIST (USA), 84L Potassium Hydrogen Phthalate. All raw materials used to prepare this product are of high purity. This certificate relates solely to the lot number given above. The uncertainty of measurement has been calculated not to exceed ± 1.0% at 95% confidence level, i.e. coverage factor k =2.

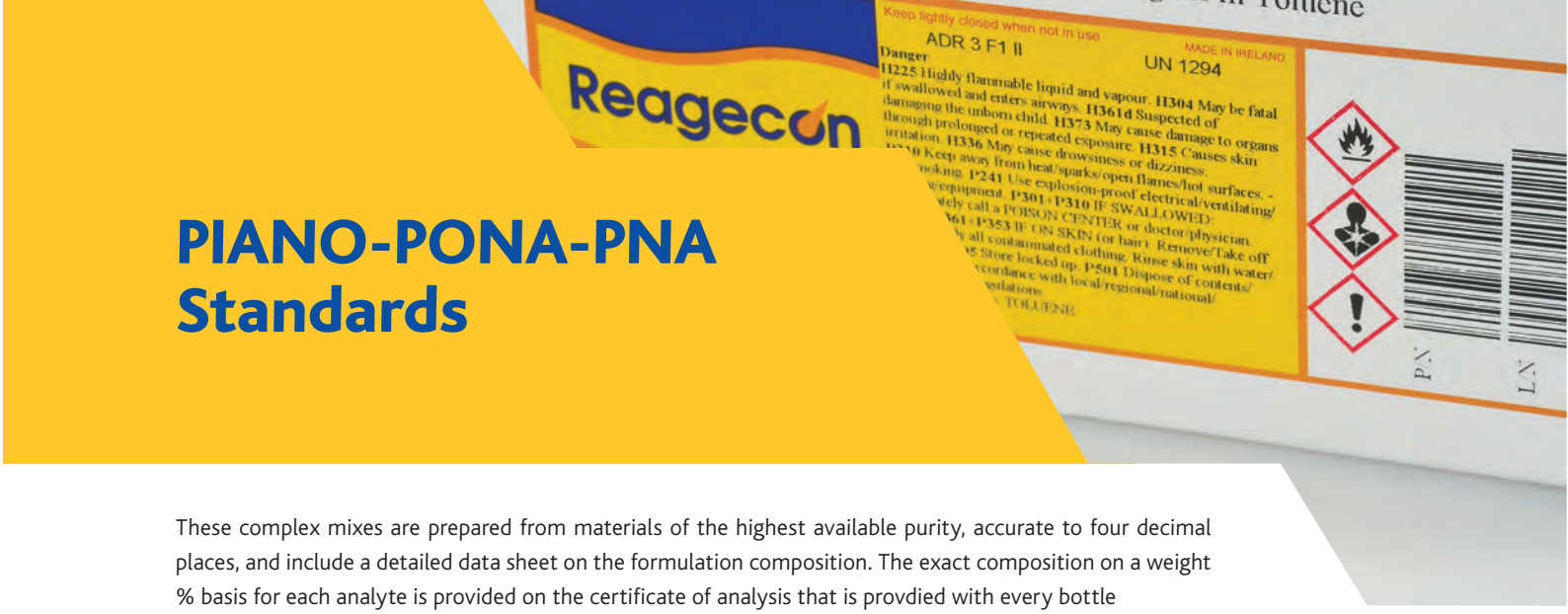
Accreditation:
Reagecon Diagnostics Ltd. is accredited by the Irish National Accreditation Board, under scope 264T, for the test method, TPTBN, used to generate the above result. This accreditation is intended only to certify that Reagecon has the Quality Management Systems in place to ensure that each individual test result generated using TPTBN is technically valid and is supported by appropriate uncertainty measurements.
Products are manufactured under an NSAI registered I.S EN ISO9001:2008 Quality System, registration no: 19.2769

Date of Issue of the Certificate: 02/08/2017

QC Technician *Stephan Hayes*

Complementary information relative to this product is available at www.reagecon.com
Page 1 of 1.This Certificate must not be reproduced except in full. Rev-17H1

Reagecon Diagnostics Ltd.
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Email: sales@reagecon.ie, www.reagecon.com

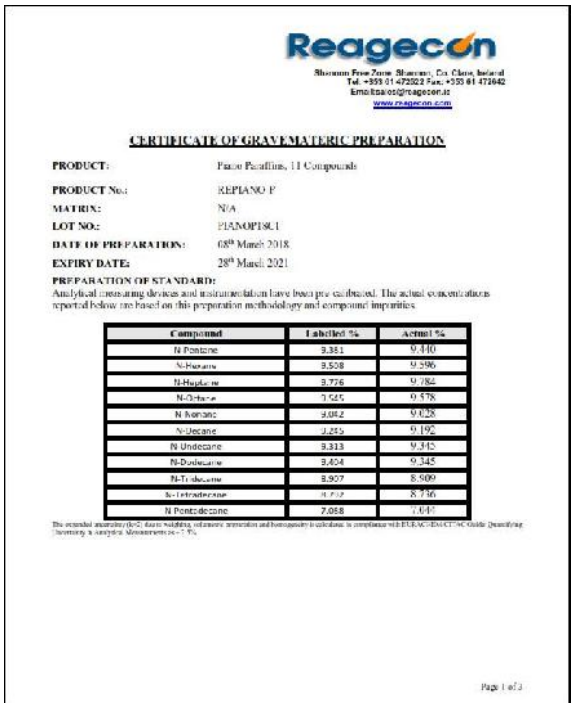


PIANO-PONA-PNA Standards

These complex mixes are prepared from materials of the highest available purity, accurate to four decimal places, and include a detailed data sheet on the formulation composition. The exact composition on a weight % basis for each analyte is provided on the certificate of analysis that is provdied with every bottle

PIANO, PONA & PNA Standards

Product Number Reagecon	Mix Name	Constitutents	Concentration	Matrix	Pack Size	ASTM
REPIANO-P	Piano Paraffins	N-Pentane	Varies per Batch	None	1ml	D6279
		N-Hexane				D6733
		N-Heptane				D5134
		N-Octane				D3710
		N-Nonane				D2789
		N-Decane				
		N-Undecane				
		N-Dodecane				
		N-Tridecane				
		N-Tetradecane				
		N-Pentadecane				



Reagecon

CERTIFICATE OF GRAVEMATERIC PREPARATION

PRODUCT: Piano Paraffins, 11 Compounds

PRODUCT No.: REPIANO-P

MATRIX: N/A

LOT NO.: PIANOP18G1

DATE OF PREPARATION: 08th March 2018

EXPIRY DATE: 28th March 2021

PREPARATION OF STANDARD:

Analytical measuring devices and instrumentation have been pre calibrated. The actual concentrations reported below are based on this preparation methodology and compound impurities

Compound	Labelled %	Actual %
N Pentane	9.381	9.440
N-Hexane	9.508	9.596
N-Heptane	9.776	9.784
N-Octane	9.585	9.578
N Nonane	9.042	9.028
N-Decane	9.255	9.192
N Undecane	9.313	9.345
N-Dodecane	9.454	9.345
N-Tridecane	8.907	8.909
N-Tetradecane	8.792	8.786
N Pentadecane	7.088	7.044

Product Number Reagecon	Mix Name	Constitutents	Concentration	Matrix	Pack Size	ASTM
REPIANO-I	Piano Isoparaffins	Isopentane	Varies per Batch	None	1ml	D6279
		2,3-Dimethylbutane				D6733
		2-Methylpentane				D5134
		3-Methylpentane				D3710
		2,2-Dimethylpentane				D2789
		2,4-Dimethylpentane				
		2,2,3-Trimethylbutane				
		3,3-Dimethylpentane				
		2-Methylhexane				
		2,3-Dimethylpentane				
		3-Methylhexane				
		3-Ethylpentane				
		2,2-Dimethylhexane				
		2,5-Dimethylhexane				
		2,2,3-Trimethylpentane				
		2,4-Dimethylhexane				
		2,3-Dimethylhexane				
		2-Methylheptane				
		4-Methylheptane				
		3-Methylheptane				
		3-Ethylhexane				
		3,3-Dimethylheptane				
		2,5-Dimethylheptane				
		3,5-Dimethylheptane				
		2,3-Dimethylheptane				
		3,4-Dimethylheptane				
		2-Methyloctane				
		3-Methyloctane				
		3,3-Diethylpentane				
		2,2-Dimethyloctane				
		3,3-Dimethyloctane				
		2,3-Dimethyloctane				
		3-Ethyloctane				
		2-Methylnonane				
		3-Methylnonane				

Product Number Reagecon	Mix Name	Constitutents	Concentration	Matrix	Pack Size	ASTM
REPIANO-A	PIANO Aromatics	Benzene	Varies per Batch	None	1ml	D6279
		Toluene				D6733
		EthylBenzene				D5134
		m-Xylene				D3710
		p-Xylene				D2789
		o-Xylene				
		Isopropylbenzene				
		n-Propylbenzene				
		1-Methyl-3-ethylbenzene				
		1-Methyl-4-ethylbenzene				
		1,3,5-Trimethylbenzene				
		1-Methyl-2-ethylbenzene				
		1,2,4-Trimethylbenzene				
		tert-Butylbenzene				
		Isobutylbenzene				
		sec-Butylbenzene				
		1-Methyl-3-isopropylbenzene				
		1-Methyl-4-isopropylbenzene				
		1-Methyl-2-isopropylbenzene				
		1-Methyl-3-n-propylbenzene				
		1-Methyl-4-n-propylbenzene				
		n-Butylbenzene				
		1,2-Diethylbenzene				
		1-Methyl-2-n-propylbenzene				
		1,4-Dimethyl-2-ethylbenzene				
		1,3-Dimethyl-5-ethylbenzene				
		1,2-Dimethyl-4-ethylbenzene				
		1,3-Dimethyl-2-ethylbenzene				
		1,2-Dimethyl-3-ethylbenzene				
		1,2,4,5-Tetramethylbenzene				
		2-Methylbutylbenzene				
		trans-1-Butyl-1-2-methylbenzene				
		n-Pentylbenzene				
		t-1-Butyl-1,3,5-dimethylbenzene				
		t-1-butyl-ethylbenzene				
		1,3,5-Triethylbenzene				
		1,2,4-Triethylbenzene				
		n-Hexylbenzene				

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Product Number Reagecon	Mix Name	Constitutents	Concentration	Matrix	Pack Size	ASTM
REPIANO-N	PIANO Naphthalenes	Cyclopentane	Varies per Batch	None	1ml	D6279
		Methylcyclopentane				D6733
		Cyclohexane				D5134
		1,1-Dimethylcyclopentane				D3710
		cis-1,3-Dimethylcyclopentane				D2789
		trans-1,2-Dimethylcyclopentane				
		trans-1,3-Dimethylcyclopentane				
		Methylcyclohexane				
		Ethylcyclopentane				
		ctc-1,2,3-Trimethylcyclopentane				
		cct-1,2,4-Trimethylcyclopentane				
		ctc-1,2,4-Trimethylcyclopentane				
		trans-1,4-Dimethylcyclohexane				
		1-Ethyl-1-methylcyclopentane				
		trans-1,2-Dimethylcyclohexane				
		ccc-1,2,3-Trimethylcyclopentane				
		Isopropylcyclopentane				
		cis-1,2-Dimethylcyclohexane				
		n-Propylcyclopentane				
		ccc-1,3,5-Trimethylcyclohexane				
		1,1,4-Trimethylcyclohexane				
		ctt-1,2,4-Trimethylcyclohexane				
		ctc-1,2,4-Trimethylcyclohexane				
		1,1,2-Trimethylcyclohexane				
		Isobutylcyclopentane				
		Isopropylcyclohexane				
		n-Butylcyclopentane				
		Isobutylcyclohexane				
		t-1-Methyl-2-propylcyclohexane				
		t-1-Methyl-2-(4MP)cyclopentane				

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Product Number Reagecon	Mix Name	Constitutents	Concentration	Matrix	Pack Size	ASTM
REPIANO-O	PIANO Olefins	3-Methyl-1-butene	Varies per Batch	None	1ml	D6279
		1-Pentene				D6733
		2-Methyl-1-butene				D5134
		2-Methyl-1, 3-butadiene				D3710
		trans-2-Pentene				D2789
		cis-2-Pentene				
		4-Methylpentene-1				
		1-Hexene				
		trans-2-Hexene				
		2-Methylpentene-2				
		cis-2-Hexene				
		1-Heptene				
		trans-3-Heptene				
		cis-3-Heptene				
		trans-2-Heptene				
		cis-2-Heptene				
		1-Octene				
		trans-2-Octene				
		cis-2-Octene				
		1-Nonene				
		trans-3-Nonene				
		cis-3-Nonene				
		trans-2-Nonene				
		cis-2-Nonene				
		1-Decene				



Product Number Reagecon	Mix Name	Constitutents	Concentration	Matrix	Pack Size	ASTM
REPIANO1	PIANO 1 Standard	n-Pentane	Varies per Batch	None	1ml	D6279
		n-Hexane				D6733
		n-Heptane				D5134
		n-Octane				D3710
		n-Nonane				D2789
		n-Decane				
		n-Undecane				
		n-Dodecane				
		Isopentane				
		2-Methyl Pentane				
		3-Methyl Pentane				
		2,2 Dimethylpentane				
		2,3 Dimethylpentane				
		2,4 Dimethylpentane				
		2,2,4 Trimethylpentane				
		Cylcohexane				
		Methylcyclohexane				
		Ethylcyclohexane				
		Propylcyclohexane				
		n-Butylcyclohexane				
		n-Pentylcyclohexane				
		Decalin				
		Benzene				
		Toluene				
		Propylbenzene				
		EthylBenzene				
		p-Xylene				
		Cumene				
		1,3,5-Trimethylbenzene				
		3-Ethyltoluene				
		1,2,4-Trimethylbenzene				
		1,2,4,5 Tetramethylbenzene				
		n-Butylbenzene				
		Iso-Butylbenzene				
		n-Pentelbenzene				
		1-Pentene				
		2,3,3 Trimethyl-1-Butene				
		2-Methyl-1-Heptene				
		1-Hexene				
		2,3-Dimethyl-2-Butene				
		1-Heptene				
		1-Nonene				
		1-Decene				
		1-Undecene				
		1-Dodecene				

Product Number Reagecon	Mix Name	Constitutents	Concentration	Matrix	Pack Size	ASTM
REPONA	PONA Standard	1-Butene	Varies per Batch	None	1ml	D6279
		1-Pentene				D6733
		1-Hexene				D5134
		1-Heptene				D3710
		1-Octene				D2789
		1-Nonene				D6298
		1-Decene				
		1-Undecene				
		1-Dodecene				
		N-Propane				
		N-Butane				
		N-Pentane				
		N-Hexane				
		N-Heptane				
		N-Octane				
		N-Nonane				
		N-Decane				
		N-Undecane				
		N-Dodecane				
		Methanol				
		Ethanol				
		tert- Butyl methyl ether				
		tert -Amyl methyl ether				
		tert –Butanol				
		tert– Butyl ethyl ether				
		Cyclopentane				
		Cyclohexane				
		Methylcyclohexane				
		Ethylcyclohexane				
		Propylcyclohexane				
		n-Butylcyclohexane				
		Benzene				
		Toluene				
		Ethylbenzene				
		Propylbenzene				
		N-Butylbenzene				
		N-Pentylbenzene				

Density Standards - Premium Range



Summary of Features & Benefits:

Commercial Benefits

- Extensive range (0.6407 - 3.1140)
- No toxic heavy metals used in any formulation
- Can be used with any brand or type of density measuring instrument
- Presented in a high quality tamper proof amber glass bottle
- Customised formulations available

Technical Benefits

- High accuracy products
- Tested using a fundamental measurement technique (Bingham Pycnometer)
- All products tested in accordance with ASTM D1480 Guidelines
- Consistency of product - Independent, Traceable, Certified
- Certificates of Analysis and Safety Data Sheets available online

Reagecon manufactures an extensive range of Density Standards in accordance with ASTM D1480-12 for testing of Density or Relative Density (specific and API gravity) by Bingham Pycnometer. These materials can be used as calibration standards for density measurement by pycnometric techniques, vibrational techniques or hydrometer based techniques.



The product range includes:

- 0.6960 - 3.1140g/ml @ 15°C
- 0.6619 - 3.1096g/ml @ 20°C
- 0.6878 - 3.1043g/ml @ 25°C
- 0.6752 - 3.0852g/ml @ 40°C
- 0.6668 - 3.0721g/ml @ 50°C
- 0.6582 - 1.0478g/ml @ 60°C
- 0.6407 - 1.0302g/ml @ 80°C

The products are prepared gravimetrically on a weight/weight basis. Both solute and solvent are weighed on a balance calibrated by Reagecon engineers using OIML traceable weights. Reagecon holds ISO 17025 accreditation for calibration of laboratory balances (INAB Ref:265C). The resulting Balance Certificate of Calibration is issued in accordance with the requirements of ISO/IEC 17025. The density of each standard is established using a high performance set of fully calibrated reference pycnometers.

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Density Standards - Premium Range

Density Standards @ 15°C

Product No.	Description	Pack Size
DEN15010PY	Density Standard 0.6960g/ml @15°C	100ml
DEN15020PY	Density Standard 0.7073g/ml @15°C	100ml
DEN15030 PY	Density Standard 0.7184g/ml @15°C	100ml
DEN15040PY	Density Standard 0.7298g/ml @15°C	100ml
DEN15050PY	Density Standard 0.7411g/ml @15°C	100ml
DEN15060PY	Density Standard 0.7524g/ml @15°C	100ml
DEN15070PY	Density Standard 0.7721g/ml @15°C	100ml
DEN15080PY	Density Standard 0.7933g/ml @15°C	100ml
DEN15090PY	Density Standard 0.8168g/ml @15°C	100ml
DEN15100PY	Density Standard 0.8428g/ml @15°C	100ml
DEN15110PY	Density Standard 0.8715g/ml @15°C	100ml
DEN15120PY	Density Standard 0.9135g/ml @15°C	100ml
DEN15130PY	Density Standard 0.9514g/ml @15°C	100ml
DEN15140PY	Density Standard 1.0040g/ml @15°C	100ml
DEN15150PY	Density Standard 1.0337g/ml @15°C	100ml
DEN15160PY	Density Standard 1.0828g/ml @15°C	100ml
DEN15170PY	Density Standard 1.1661g/ml @15°C	100ml
DEN15180PY	Density Standard 1.2498g/ml @15°C	100ml
DEN15190PY	Density Standard 1.3318g/ml @15°C	100ml
DEN15200PY	Density Standard 1.4152g/ml @15°C	100ml
DEN15210PY	Density Standard 1.5820g/ml @15°C	100ml
DEN15215PY	Density Standard 1.6459g/ml @15°C	100ml
DEN15220PY	Density Standard 1.7495g/ml @15°C	100ml
DEN15225PY	Density Standard 1.8366g/ml @15°C	100ml
DEN15230PY	Density Standard 1.9171g/ml @15°C	100ml
DEN15240PY	Density Standard 2.0846g/ml @15°C	100ml
DEN15250PY	Density Standard 2.2568g/ml @15°C	100ml
DEN15260PY	Density Standard 2.4261g/ml @15°C	100ml
DEN15270PY	Density Standard 2.6055g/ml @15°C	100ml
DEN15280PY	Density Standard 2.7588g/ml @15°C	100ml
DEN15290PY	Density Standard 2.9418g/ml @15°C	100ml
DEN15300PY	Density Standard 3.1140g/ml @15°C	100ml

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Density Standards @ 20°C

Product No.	Description	Pack Size
DEN20010PY	Density Standard 0.6919g/ml @20°C	100ml
DEN20020PY	Density Standard 0.7033g/ml @20°C	100ml
DEN20030PY	Density Standard 0.7148g/ml @20°C	100ml
DEN20040PY	Density Standard 0.7261g/ml @20°C	100ml
DEN20050PY	Density Standard 0.7374g/ml @20°C	100ml
DEN20060PY	Density Standard 0.7488g/ml @20°C	100ml
DEN20070PY	Density Standard 0.7683g/ml @20°C	100ml
DEN20080PY	Density Standard 0.7893g/ml @20°C	100ml
DEN20090PY	Density Standard 0.8126g/ml @20°C	100ml
DEN20100PY	Density Standard 0.8384g/ml @20°C	100ml
DEN20110PY	Density Standard 0.8668g/ml @20°C	100ml
DEN20120PY	Density Standard 0.9098g/ml @20°C	100ml
DEN20130PY	Density Standard 0.9476g/ml @20°C	100ml
DEN20140PY	Density Standard 1.0005g/ml @20°C	100ml
DEN20150PY	Density Standard 1.0301g/ml @20°C	100ml
DEN20160PY	Density Standard 1.0792g/ml @20°C	100ml
DEN20170PY	Density Standard 1.1651g/ml @20°C	100ml
DEN20180PY	Density Standard 1.2486g/ml @20°C	100ml
DEN20190PY	Density Standard 1.3304g/ml @20°C	100ml
DEN20200PY	Density Standard 1.4136g/ml @20°C	100ml
DEN20210PY	Density Standard 1.5799g/ml @20°C	100ml
DEN20220PY	Density Standard 1.7470g/ml @20°C	100ml
DEN20230PY	Density Standard 1.9141g/ml @20°C	100ml
DEN20240PY	Density Standard 2.0812g/ml @20°C	100ml
DEN20250PY	Density Standard 2.2531g/ml @20°C	100ml
DEN20260PY	Density Standard 2.4219g/ml @20°C	100ml
DEN20270PY	Density Standard 2.6011g/ml @20°C	100ml
DEN20280PY	Density Standard 2.7542g/ml @20°C	100ml
DEN20290PY	Density Standard 2.9370g/ml @20°C	100ml
DEN20300PY	Density Standard 3.1096g/ml @20°C	100ml

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Density Standards @ 25°C

Product No.	Description	Pack Size
DEN25010PY	Density Standard 0.6878g/ml @25°C	100ml
DEN25020PY	Density Standard 0.6993g/ml @25°C	100ml
DEN25030PY	Density Standard 0.7111g/ml @25°C	100ml
DEN25040PY	Density Standard 0.7223g/ml @25°C	100ml
DEN25050PY	Density Standard 0.7337g/ml @25°C	100ml
DEN25060PY	Density Standard 0.7452g/ml @25°C	100ml
DEN25070PY	Density Standard 0.7645g/ml @25°C	100ml
DEN25080PY	Density Standard 0.7853g/ml @25°C	100ml
DEN25090PY	Density Standard 0.8084g/ml @25°C	100ml
DEN25100PY	Density Standard 0.8340g/ml @25°C	100ml
DEN25110PY	Density Standard 0.8622g/ml @25°C	100ml
DEN25120PY	Density Standard 0.9060g/ml @25°C	100ml
DEN25130PY	Density Standard 0.9438g/ml @25°C	100ml
DEN25140PY	Density Standard 0.9969g/ml @25°C	100ml
DEN25150PY	Density Standard 1.0265g/ml @25°C	100ml
DEN25160PY	Density Standard 1.0755g/ml @25°C	100ml
DEN25170PY	Density Standard 1.1639g/ml @25°C	100ml
DEN2512PY	Density Standard 1.2000g/ml @25°C	100ml
DEN25180PY	Density Standard 1.2471g/ml @25°C	100ml
DEN25190PY	Density Standard 1.3287g/ml @25°C	100ml
DEN25200PY	Density Standard 1.4117g/ml @25°C	100ml
DEN2515PY	Density Standard 1.5000g/ml @25°C	100ml
DEN25210PY	Density Standard 1.5775g/ml @25°C	100ml
DEN2516PY	Density Standard 1.6000g/ml @25°C	100ml
DEN25220PY	Density Standard 1.7441g/ml @25°C	100ml
DEN25230PY	Density Standard 1.9108g/ml @25°C	100ml
DEN25240PY	Density Standard 2.0775g/ml @25°C	100ml
DEN25250PY	Density Standard 2.2490g/ml @25°C	100ml
DEN25260PY	Density Standard 2.4175g/ml @25°C	100ml
DEN25270PY	Density Standard 2.5964g/ml @25°C	100ml
DEN25280PY	Density Standard 2.7493g/ml @25°C	100ml
DEN25290PY	Density Standard 2.9319g/ml @25°C	100ml
DEN25300PY	Density Standard 3.1043g/ml @25°C	100ml

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Density Standards @ 40°C

Product No.	Description	Pack Size
DEN40010PY	Density Standard 0.6752g/ml @40°C	100ml
DEN40020PY	Density Standard 0.6872g/ml @40°C	100ml
DEN40030PY	Density Standard 0.6997g/ml @40°C	100ml
DEN40040PY	Density Standard 0.7109g/ml @40°C	100ml
DEN40050PY	Density Standard 0.7226g/ml @40°C	100ml
DEN40060PY	Density Standard 0.7343g/ml @40°C	100ml
DEN40070PY	Density Standard 0.7531g/ml @40°C	100ml
DEN40080PY	Density Standard 0.7733g/ml @40°C	100ml
DEN40090PY	Density Standard 0.7958g/ml @40°C	100ml
DEN40100PY	Density Standard 0.8207g/ml @40°C	100ml
DEN40110PY	Density Standard 0.8482g/ml @40°C	100ml
DEN40120PY	Density Standard 0.8945g/ml @40°C	100ml
DEN40130PY	Density Standard 0.9323g/ml @40°C	100ml
DEN40140PY	Density Standard 0.9857g/ml @40°C	100ml
DEN40150PY	Density Standard 1.0152g/ml @40°C	100ml
DEN40160PY	Density Standard 1.0642g/ml @40°C	100ml
DEN40170PY	Density Standard 1.1581g/ml @40°C	100ml
DEN40180PY	Density Standard 1.2408g/ml @40°C	100ml
DEN40190PY	Density Standard 1.3217g/ml @40°C	100ml
DEN40200PY	Density Standard 1.4039g/ml @40°C	100ml
DEN40210PY	Density Standard 1.5685g/ml @40°C	100ml
DEN40220PY	Density Standard 1.7339g/ml @40°C	100ml
DEN40230PY	Density Standard 1.8994g/ml @40°C	100ml
DEN40240PY	Density Standard 2.0649g/ml @40°C	100ml
DEN40250PY	Density Standard 2.2352g/ml @40°C	100ml
DEN40260PY	Density Standard 2.4028g/ml @40°C	100ml
DEN40270PY	Density Standard 2.5807g/ml @40°C	100ml
DEN40280PY	Density Standard 2.7329g/ml @40°C	100ml
DEN40290PY	Density Standard 2.9132g/ml @40°C	100ml
DEN40300PY	Density Standard 3.0852g/ml @40°C	100ml

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Density Standards @ 50°C

Product No.	Description	Pack Size
DEN50010PY	Density Standard 0.6668g/ml @50°C	100ml
DEN50020PY	Density Standard 0.6791g/ml @50°C	100ml
DEN50030PY	Density Standard 0.6917g/ml @50°C	100ml
DEN50040PY	Density Standard 0.7033g/ml @50°C	100ml
DEN50050PY	Density Standard 0.7151g/ml @50°C	100ml
DEN50060PY	Density Standard 0.7269g/ml @50°C	100ml
DEN50070PY	Density Standard 0.7454g/ml @50°C	100ml
DEN50080PY	Density Standard 0.7653g/ml @50°C	100ml
DEN50090PY	Density Standard 0.7873g/ml @50°C	100ml
DEN50100PY	Density Standard 0.8118g/ml @50°C	100ml
DEN50110PY	Density Standard 0.8387g/ml @50°C	100ml
DEN50120PY	Density Standard 0.8868g/ml @50°C	100ml
DEN50130PY	Density Standard 0.9245g/ml @50°C	100ml
DEN50140PY	Density Standard 0.9777g/ml @50°C	100ml
DEN50150PY	Density Standard 1.0073g/ml @50°C	100ml
DEN50160PY	Density Standard 1.0562g/ml @50°C	100ml
DEN50170PY	Density Standard 1.1512g/ml @50°C	100ml
DEN50180PY	Density Standard 1.2346g/ml @50°C	100ml
DEN50190PY	Density Standard 1.3138g/ml @50°C	100ml
DEN50200PY	Density Standard 1.3973g/ml @50°C	100ml
DEN50210PY	Density Standard 1.5609g/ml @50°C	100ml
DEN50220PY	Density Standard 1.7257g/ml @50°C	100ml
DEN50230PY	Density Standard 1.8904g/ml @50°C	100ml
DEN50240PY	Density Standard 2.0551g/ml @50°C	100ml
DEN50250PY	Density Standard 2.2247g/ml @50°C	100ml
DEN50260PY	Density Standard 2.3916g/ml @50°C	100ml
DEN50270PY	Density Standard 2.5689g/ml @50°C	100ml
DEN50280PY	Density Standard 2.7207g/ml @50°C	100ml
DEN50290PY	Density Standard 2.9005g/ml @50°C	100ml
DEN50300PY	Density Standard 3.0721g/ml @50°C	100ml

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Density Standards @ 60°C

Product No.	Description	Pack Size
DEN60010PY	Density Standard 0.6582g/ml @60°C	100ml
DEN60020PY	Density Standard 0.6708g/ml @60°C	100ml
DEN60030PY	Density Standard 0.6835g/ml @60°C	100ml
DEN60040PY	Density Standard 0.6955g/ml @60°C	100ml
DEN60050PY	Density Standard 0.7076g/ml @60°C	100ml
DEN60060PY	Density Standard 0.7196g/ml @60°C	100ml
DEN60070PY	Density Standard 0.7376g/ml @60°C	100ml
DEN60080PY	Density Standard 0.7572g/ml @60°C	100ml
DEN60090PY	Density Standard 0.7788g/ml @60°C	100ml
DEN60100PY	Density Standard 0.8027g/ml @60°C	100ml
DEN60110PY	Density Standard 0.8292g/ml @60°C	100ml
DEN60120PY	Density Standard 0.8790g/ml @60°C	100ml
DEN60130PY	Density Standard 0.9166g/ml @60°C	100ml
DEN60140PY	Density Standard 0.9695g/ml @60°C	100ml
DEN60150PY	Density Standard 0.9990g/ml @60°C	100ml
DEN60160PY	Density Standard 1.0478g/ml @60°C	100ml

Density Standards @ 80°C

Product No.	Description	Pack Size
DEN80010PY	Density Standard 0.6407g/ml @80°C	100ml
DEN80020PY	Density Standard 0.6538g/ml @80°C	100ml
DEN80030PY	Density Standard 0.6661g/ml @80°C	100ml
DEN80040PY	Density Standard 0.6798g/ml @80°C	100ml
DEN80050PY	Density Standard 0.6923g/ml @80°C	100ml
DEN80060PY	Density Standard 0.7047g/ml @80°C	100ml
DEN80070PY	Density Standard 0.7220g/ml @80°C	100ml
DEN80080PY	Density Standard 0.7407g/ml @80°C	100ml
DEN80090PY	Density Standard 0.7614g/ml @80°C	100ml
DEN80100PY	Density Standard 0.7844g/ml @80°C	100ml
DEN80110PY	Density Standard 0.8098g/ml @80°C	100ml
DEN80120PY	Density Standard 0.8629g/ml @80°C	100ml
DEN80130PY	Density Standard 0.9006g/ml @80°C	100ml
DEN80140PY	Density Standard 0.9520g/ml @80°C	100ml
DEN80150PY	Density Standard 0.9815g/ml @80°C	100ml
DEN80160PY	Density Standard 1.0302g/ml @80°C	100ml

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Density Standards - Quality Range



Summary of Features & Benefits:

Commercial Benefits

- Extensive range (0.6538 - 1.0337 g/ml)
- No toxic heavy metals used in any formulation
- Can be used with any brand or type of vibrational density measuring instrument
- Presented in a high quality tamper proof amber glass bottle
- Customised formulations available

Technical Benefits

- Test method accredited to ISO 17025. Uncertainty of measurement (assay procedure) ± 0.16%
- Produced in accordance with ASTM D4052 Guidelines
- Consistency of product - Independent, Traceable, Certified
- Certificates of Analysis and Safety Data Sheets available online
- ISO/IEC 17025 (INAB Ref:264T) Density Range 0.65-1.034g/ml

Reagecon manufactures an extensive range of Density Standards in accordance with ASTM D4052 for testing of Density, Relative Density and API Gravity of Liquids by Digital Density Meter. These materials can be used as calibration standards for density measurement by vibrational techniques or hydrometer based techniques.

The product range includes:

- 0.6960 - 1.0337g/ml @ 15°C
- 0.6619 - 1.0301g/ml @ 20°C
- 0.6878 - 1.0265g/ml @ 25°C
- 0.6752 - 1.0152g/ml @ 40°C
- 0.6668 - 1.0073g/ml @ 50°C
- 0.6582 - 0.9990g/ml @ 60°C
- 0.6538 - 1.0302g/ml @ 80°C



These products are prepared gravimetrically on a weight/weight basis. Both solute and solvent are weighed on a balance calibrated by Reagecon engineers using OIML traceable weights. Reagecon holds ISO 17025 accreditation for calibration of laboratory balances (INAB Ref:265C). The resulting Balance Certificate of Calibration is issued in accordance with the requirements of ISO/IEC 17025. The density of each standard is verified using a high performance calibrated density meter. The control of the density meter (identification no. - RRD015) is completed using high purity ISO Guide 34 accredited density standards similar in density value to these products.

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Density Standards - Quality Range

Density Standards @ 15°C

Product No.	Description	Pack Size
DEN15010	Density Standard 0.6960g/ml @15°C	100ml
DEN15020	Density Standard 0.7073g/ml @15°C	100ml
DEN15030	Density Standard 0.7184g/ml @15°C	100ml
DEN15040	Density Standard 0.7298g/ml @15°C	100ml
DEN15050	Density Standard 0.7411g/ml @15°C	100ml
DEN15060	Density Standard 0.7524g/ml @15°C	100ml
DEN15070	Density Standard 0.7721g/ml @15°C	100ml
DEN15080	Density Standard 0.7933g/ml @15°C	100ml
DEN15090	Density Standard 0.8168g/ml @15°C	100ml
DEN15100	Density Standard 0.8428g/ml @15°C	100ml
DEN15110	Density Standard 0.8715g/ml @15°C	100ml
DEN15120	Density Standard 0.9135g/ml @15°C	100ml
DEN15130	Density Standard 0.9514g/ml @15°C	100ml
DEN15140	Density Standard 1.0040g/ml @15°C	100ml
DEN15150	Density Standard 1.0337g/ml @15°C	100ml

Density Standards @ 20°C

Product No.	Description	Pack Size
DEN20010	Density Standard 0.6919g/ml @20°C	100ml
DEN20020	Density Standard 0.7033g/ml @20°C	100ml
DEN20030	Density Standard 0.7148g/ml @20°C	100ml
DEN20040	Density Standard 0.7261g/ml @20°C	100ml
DEN20050	Density Standard 0.7374g/ml @20°C	100ml
DEN20060	Density Standard 0.7488g/ml @20°C	100ml
DEN20070	Density Standard 0.7683g/ml @20°C	100ml
DEN20080	Density Standard 0.7893g/ml @20°C	100ml
DEN20090	Density Standard 0.8126g/ml @20°C	100ml
DEN20100	Density Standard 0.8384g/ml @20°C	100ml
DEN20110	Density Standard 0.8668g/ml @20°C	100ml
DEN20120	Density Standard 0.9098g/ml @20°C	100ml
DEN20130	Density Standard 0.9476g/ml @20°C	100ml
DEN20140	Density Standard 1.0005g/ml @20°C	100ml
DEN20150	Density Standard 1.0301g/ml @20°C	100ml

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Density Standards @ 25°C

Product No.	Description	Pack Size
DEN25010	Density Standard 0.6878g/ml @25°C	100ml
DEN25020	Density Standard 0.6993g/ml @25°C	100ml
DEN25030	Density Standard 0.7111g/ml @25°C	100ml
DEN25040	Density Standard 0.7223g/ml @25°C	100ml
DEN25050	Density Standard 0.7337g/ml @25°C	100ml
DEN25060	Density Standard 0.7452g/ml @25°C	100ml
DEN25070	Density Standard 0.7645g/ml @25°C	100ml
DEN25080	Density Standard 0.7853g/ml @25°C	100ml
DEN25090	Density Standard 0.8084g/ml @25°C	100ml
DEN25100	Density Standard 0.8340g/ml @25°C	100ml
DEN25110	Density Standard 0.8622g/ml @25°C	100ml
DEN25120	Density Standard 0.9060g/ml @25°C	100ml
DEN25130	Density Standard 0.9438g/ml @25°C	100ml
DEN25140	Density Standard 0.9969g/ml @25°C	100ml
DEN25150	Density Standard 1.0265g/ml @25°C	100ml

Density Standards @ 40°C

Product No.	Description	Pack Size
DEN40010	Density Standard 0.6752g/ml @40°C	100ml
DEN40020	Density Standard 0.6872g/ml @40°C	100ml
DEN40030	Density Standard 0.6997g/ml @40°C	100ml
DEN40040	Density Standard 0.7109g/ml @40°C	100ml
DEN40050	Density Standard 0.7226g/ml @40°C	100ml
DEN40060	Density Standard 0.7343g/ml @40°C	100ml
DEN40070	Density Standard 0.7531g/ml @40°C	100ml
DEN40080	Density Standard 0.7733g/ml @40°C	100ml
DEN40090	Density Standard 0.7958g/ml @40°C	100ml
DEN40100	Density Standard 0.8207g/ml @40°C	100ml
DEN40110	Density Standard 0.8482g/ml @40°C	100ml
DEN40120	Density Standard 0.8945g/ml @40°C	100ml
DEN40130	Density Standard 0.9323g/ml @40°C	100ml
DEN40140	Density Standard 0.9857g/ml @40°C	100ml
DEN40150	Density Standard 1.0152g/ml @40°C	100ml

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Density Standards @ 50°C

Product No.	Description	Pack Size
DEN50010	Density Standard 0.6668g/ml @50°C	100ml
DEN50020	Density Standard 0.6791g/ml @50°C	100ml
DEN50030	Density Standard 0.6917g/ml @50°C	100ml
DEN50040	Density Standard 0.7033g/ml @50°C	100ml
DEN50050	Density Standard 0.7151g/ml @50°C	100ml
DEN50060	Density Standard 0.7269g/ml @50°C	100ml
DEN50070	Density Standard 0.7454g/ml @50°C	100ml
DEN50080	Density Standard 0.7653g/ml @50°C	100ml
DEN50090	Density Standard 0.7873g/ml @50°C	100ml
DEN50100	Density Standard 0.8118g/ml @50°C	100ml
DEN50110	Density Standard 0.8387g/ml @50°C	100ml
DEN50120	Density Standard 0.8868g/ml @50°C	100ml
DEN50130	Density Standard 0.9245g/ml @50°C	100ml
DEN50140	Density Standard 0.9777g/ml @50°C	100ml
DEN50150	Density Standard 1.0073g/ml @50°C	100ml

Density Standards @ 60°C

Product No.	Description	Pack Size
DEN60010	Density Standard 0.6582g/ml @60°C	100ml
DEN60020	Density Standard 0.6708g/ml @60°C	100ml
DEN60030	Density Standard 0.6835g/ml @60°C	100ml
DEN60040	Density Standard 0.6955g/ml @60°C	100ml
DEN60050	Density Standard 0.7076g/ml @60°C	100ml
DEN60060	Density Standard 0.7196g/ml @60°C	100ml
DEN60070	Density Standard 0.7376g/ml @60°C	100ml
DEN60080	Density Standard 0.7572g/ml @60°C	100ml
DEN60090	Density Standard 0.7788g/ml @60°C	100ml
DEN60100	Density Standard 0.8027g/ml @60°C	100ml
DEN60110	Density Standard 0.8292g/ml @60°C	100ml
DEN60120	Density Standard 0.8790g/ml @60°C	100ml
DEN60130	Density Standard 0.9166g/ml @60°C	100ml
DEN60140	Density Standard 0.9695g/ml @60°C	100ml
DEN60150	Density Standard 0.9990g/ml @60°C	100ml

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Density Standards @ 80°C

Product No.	Description	Pack Size
DEN80020	Density Standard 0.6538g/ml @80°C	100ml
DEN80030	Density Standard 0.6661g/ml @80°C	100ml
DEN80040	Density Standard 0.6798g/ml @80°C	100ml
DEN80050	Density Standard 0.6923g/ml @80°C	100ml
DEN80060	Density Standard 0.7047g/ml @80°C	100ml
DEN80070	Density Standard 0.7220g/ml @80°C	100ml
DEN80080	Density Standard 0.7407g/ml @80°C	100ml
DEN80090	Density Standard 0.7614g/ml @80°C	100ml
DEN80100	Density Standard 0.7844g/ml @80°C	100ml
DEN80110	Density Standard 0.8098g/ml @80°C	100ml
DEN80120	Density Standard 0.8629g/ml @80°C	100ml
DEN80130	Density Standard 0.9006g/ml @80°C	100ml
DEN80140	Density Standard 0.9520g/ml @80°C	100ml
DEN80150	Density Standard 0.9815g/ml @80°C	100ml
DEN80160	Density Standard 1.0302g/ml @80°C	100ml



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Melting Point Standards



Summary of Features & Benefits:

Commercial Benefits

- Extensive range
- Can be used with any melting point apparatus
- Presented in high quality glass bottles
- Customised Melting Point Standards also available
- Ready to Use

Technical Benefits

- Uncertainty of measurement up to ± 0.3°C
- Consistency of product - Independent, Traceable, Certified
- Certificates of Analysis and Safety Data Sheets available online

The product range includes Benzophenone, Melting Point +47 to +49°C To Anthraquinone, Melting Point +283 to +286°C. These products are prepared using the highest purity raw materials. Melting points are determined using a high accuracy Differential Scanning Calorimeter (DSC) system that is calibrated to the ITS - 90 International Temperature Scale. Verification measurements are completed using a high specification melting point apparatus.

Melting Point Standards

Product No.	Description	Certified Value	Packed in
RMPSET1	**Melting Point Standard Set**		3 x 1g
	Sulphanilamide	+164 to +166˚C	
	Caffeine	+235 to +237˚C	
	Vanillin	+81 to +83˚C	
RMP236	Caffeine	+235 to +237˚C	1 x 1g
RMP165	Sulphanilamide	+164 to +166˚C	1 x 1g
MPV82	Vanillin	+81 to +83˚C	1 x 0.3g
RMP082	Vanillin	+81 to +83˚C	1 x 1g
RMPSET3	**Melting Point Standard Set**		3 x 1g
	Phenacetin	+133 to +135˚C	
	Caffeine	+235 to +237˚C	
	Vanillin	+81 to +83˚C	
RMP132	Phenacetin	+133 to +135˚C	1 x 1g
RMPSET2	**Melting Point Standard Set**		3 x 1g
	Benzophenone	+47 to +49˚C	
	Benzoic Acid	+121 to +123˚C	
	Anthraquinone	+283 to +286˚C	
RMP048	Benzophenone	+47 to +49˚C	1 x 1g
RMP122	Benzoic Acid	+121 to +123˚C	1 x 1g
RMP284	Anthraquinone	+283 to +286˚C	1 x 1g
RMP053	p-Nitrotoluene	+52 to +54˚C	1 x 1g
RMP246	Carbazole	+244 to +248˚C	1 x 1g
RMP159	Salicylic Acid	+158 to +160˚C	1 x 1g

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Refractive Index Standards



Summary of Features & Benefits:

Commercial Benefits

- Both sucrose and solvent based standards available
- Most extensive range in the marketplace
- Customised pack options available
- Shelf life of 1 - 2 years
- Can be used with any brand of refractometer
- Extensive range (1.33299-1.65808 $_{\eta}$D)
- Presented in a convenient high quality dropper bottle
- Available as single bottles or a handy set of 6 bottles
- Ready to Use

Technical Benefits

- Test results accredited to ISO/IEC 17025 for values in the range of 1.33310 to 1.65812 (INAB Ref:264T)
- Uncertainty of measurement up to 0.00014 $_{\eta}$D units
- Consistency of product-Independent, Traceable, Certified
- Certificates of Analysis and Safety Data Sheets available online

Product No.'s RIBS07S to RIBS60S have identical components and shelf life (1 Year) to the stabilised Brix Standards already described in the previous section. However, the certified values are expressed in Refractive Index (R.I) units $_{\eta}$D. All these products are prepared gravimetrically on a weight/weight basis. Both solute (sucrose) and solvent (water) are weighed on a balance calibrated by Reagecon engineers using OIML traceable weights. Reagecon holds ISO 17025 accreditation for calibration of laboratory balances (INAB Ref:265C). The resulting Balance Certificate of Calibration is issued in accordance with the requirements of ISO/IEC 17025. The R.I. of the standard is verified using a high performance calibrated, temperature controlled refractometer. The control of this instrument is completed using high purity ISO Guide 34 accredited Brix standards similar in Brix value to the products listed.


Reagecon

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CERTIFICATE OF ANALYSIS

PRODUCT:	Refractive Index Stabilised Standard @ 20°C - 1.35036D
PRODUCT NO:	RIBS1358
LOT NO:	RIBS1358D1
DATE OF TEST:	04th April 2016
EXPIRY DATE:	28th April 2017
SPECIFICATION:	1.34984 - 1.35046nD @ 20°C
MEAN:	1.35046nD @ 20°C

TEST METHOD:

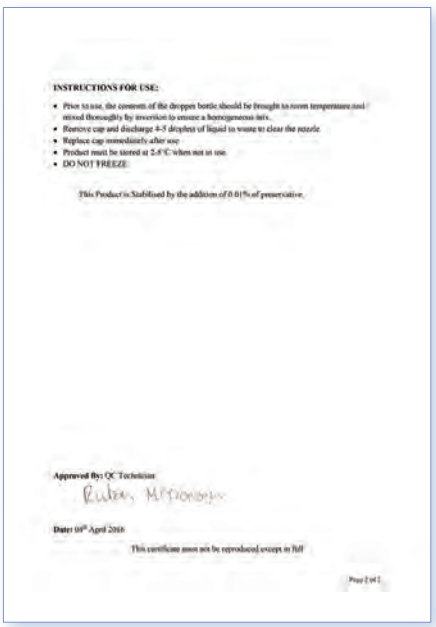
The result reported above was determined by analysis of a sample of this lot taken at time of manufacture. The Refractive Index value of the standard was determined using a high performance calibrated, temperature controlled refractometer according to TPRIA 01

This test method provides traceability to high purity ISO Guide 34 Certified Reference Materials

This certificate relates solely to the lot number given above. The uncertainty of measurement has been calculated not to exceed ±0.00014nD (0.01%) @ 20°C at 95% confidence level, k=2 coverage factor k=2.

ACCREDITATION:

Reagecon Diagnostics Ltd. is accredited by the Irish National Accreditation Board, under scope 264T, for the test method, TPRIA 01, used to generate the above result. This accreditation is intended only to certify that Reagecon has the Quality Management Systems in place to ensure that each individual test result generated using TPRIA 01 is technically valid and is supported by appropriate uncertainty measurements.


INSTRUCTIONS FOR USE:

- Prior to use, the contents of the dropper bottle should be brought to room temperature and mixed thoroughly by inversion to ensure a homogeneous mix.
- Remove cap and discharge 4-5 droplets of liquid to waste to clear the nozzle
- Replace cap immediately after use
- Product must be stored at 2-8°C when not in use.
- DO NOT FREEZE

This Product is Stabilised by the addition of 0.01% of preservative.

Approved By: QC Technician

Date: 04th April 2016

This certificate must not be reproduced except in full

Refractive Index Standards - Stabilised Sucrose - 1 Year Shelf Life

Description (20˚C)	Nominal Refractive Index @ 20˚C*	Product No. 15ml	Product No. 6x15ml
Refractive Index @ 20˚C	1.33299	RIBS00S	RIBS00S6
Refractive Index @ 20˚C	1.34026	RIBS05S	RIBS05S6
Refractive Index @ 20˚C	1.34325	RIBS07S	RIBS07S6
Refractive Index @ 20˚C	1.34782	RIBS10S	RIBS10S6
Refractive Index @ 20˚C	1.34968	RIBS112S	RIBS112S6
Refractive Index @ 20˚C	1.35015	RIBS115S	RIBS115S6
Refractive Index @ 20˚C	1.35093	RIBS12S	RIBS12S6
Refractive Index @ 20˚C	1.35171	RIBS125S	RIBS125S6
Refractive Index @ 20˚C	1.35568	RIBS15S	RIBS15S6
Refractive Index @ 20˚C	1.36384	RIBS20S	RIBS20S6
Refractive Index @ 20˚C	1.37233	RIBS25S	RIBS25S6
Refractive Index @ 20˚C	1.38115	RIBS30S	RIBS30S6
Refractive Index @ 20˚C	1.39032	RIBS35S	RIBS35S6
Refractive Index @ 20˚C	1.39986	RIBS40S	RIBS40S6
Refractive Index @ 20˚C	1.40978	RIBS45S	RIBS45S6
Refractive Index @ 20˚C	1.42009	RIBS50S	RIBS50S6
Refractive Index @ 20˚C	1.4308	RIBS55S	RIBS55S6
Refractive Index @ 20˚C	1.44193	RIBS60S	RIBS60S6
Refractive Index @ 20˚C	1.46546	RIBS70S	RIBS70S6

* The nominal Refractive Index value is taken from the ICUMSA published tables

Solvent Based Refractive Index Standards - 2 Year Shelf Life

Description (20˚C)	Nominal Refractive Index @ 20˚C*	Product No. 15ml	Product No. 6x15ml
Refractive Index @ 20˚C	1.38779	RI0138	RI01386
Refractive Index @ 20˚C	1.40485	RI0140	RI01406
Refractive Index @ 20˚C	1.42345	RI0142	RI01426
Refractive Index @ 20˚C	1.44468	RI0144	RI01446
Refractive Index @ 20˚C	1.46768	RI0146	RI01466
Refractive Index @ 20˚C	1.49672	RI0149	RI01496
Refractive Index @ 20˚C	1.50044	RI0150	RI01506
Refractive Index @ 20˚C	1.51726	RI0151	RI01516
Refractive Index @ 20˚C	1.5366	RI0154	RI01546
Refractive Index @ 20˚C	1.65808	RI0165	RI01656

* The nominal Refractive Index value is taken from the ICUMSA published tables

Polycyclic Aromatic Hydrocarbon Standards (PAHs)



Summary of Features & Benefits:

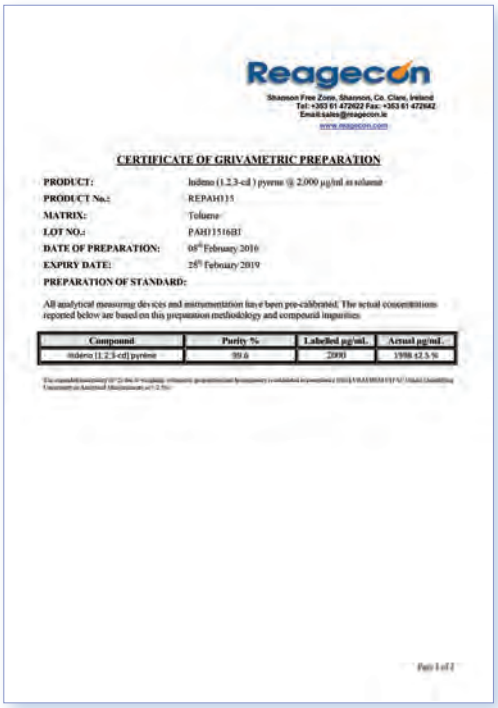
Commercial Benefits

- Ready to use (dilute for use as calibration and/or quality control standards)
- Extensive range of organic compound mixes and single compound standards available
- Can be used with a variety of instruments including GC, GC-MS, HPLC and LC-MS
- Designed specifically for use in EPA or EU analytical methods
- Presented in high quality amber ampoules
- Customised formulations available

Technical Benefits

- Produced in accordance with EPA methods
- Consistency of product - Independent, Traceable, Certified
- Ideal for use in EPA 500, 600 and 8000 series methods
- Certificates of Analysis and Safety Data Sheets available online

These products are prepared gravimetrically on a weight/volume basis. Both solute and solvent are prepared using equipment calibrated by Reagecon engineers. Reagecon holds IEC/ISO 17025 accreditation for calibration of laboratory balances and pipettes (INAB Ref:265C). The resulting equipment Calibration Certificates are issued in accordance with the requirements of ISO/IEC 17025. The results are then reported and certified in µg/ml on the basis of weight and the density measurement of the standard. Reagecon is IEC/ISO 17025 (INAB Ref:264T) Accredited for density measurement using an Oscillating U-Tube Method in accordance with the ASTM D4052 method. The concentration of each standard is verified using a high performance calibrated Gas Chromatograph - Mass Spectrometer (GC-MS Instrument). The calibration of the GC-MS instrument is completed using high purity ISO Guide 34 accredited PAH standards similar in PAH concentration value to these products. The mass spectrum of each of the analytes is confirmed by comparison with the National Institute of Standards and Technology (NIST) mass spectral library.


Reagecon

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CERTIFICATE OF GRIVAMETRIC PREPARATION

PRODUCT: Indeno (1,2,3-cd) pyrene @ 2,000 µg/ml in solvent
PRODUCT No.: REPAH015
MATRIX: Toluene
LOT NO.: PAH11516BI
DATE OF PREPARATION: 08th February 2016
EXPIRY DATE: 28th February 2019
PREPARATION OF STANDARD:

All analytical measuring devices and instrumentation have been pre-calibrated. The actual concentrations reported below are based on this preparation methodology and compound impurities.

Compound	Purity %	Labelled µg/mL	Actual µg/mL
Indeno [1,2,3-cd] pyrene	99.6	2000	1998 ±2.5 %

Polycyclic Aromatic Hydrocarbons (PAHs) Single Component Standards

Product No.	Description	Concentration µg/ml	Matrix	Pack size
REPAH101	Acenaphthene	2000	Toluene	1ml
REPAH102	Anthracene	2000	Toluene	1ml
REPAH103	Benzo(a)anthracene	2000	Toluene	1ml
REPAH104	Chrysene	2000	Toluene	1ml
REPAH105	Fluoroanthene	2000	Toluene	1ml
REPAH106	Fluorene	2000	Toluene	1ml
REPAH107	Naphthalene	2000	Toluene	1ml
REPAH108	Phenanthrene	2000	Toluene	1ml
REPAH109	Pyrene	2000	Toluene	1ml
REPAH110	Benzo(a)pyrene	2000	Toluene	1ml
REPAH112	Benzo(g,h,i)perylene	2000	Toluene	1ml
REPAH113	Dibenzo(a,h)anthracene	2000	Toluene	1ml
REPAH114	Benzo(a)pyrene	100	Acetonitrile	1ml
REPAH115	Indeno(1,2,3-cd)pyrene	2000	Toluene	1ml
REPAH116	Acenaphthylene	2000	Toluene	1ml
REPAH118	Benzo(a)anthracene	10	Acetonitrile	1ml
REPAH119	Benzo(a)pyrene	100	Toluene	1ml
REPAH150	2-Acetylaminofluorene	1000	Purge & Trap Methanol	1ml
REPAH151	2-Acetylaminofluorene	2000	Purge & Trap Methanol	1ml
REPAH152	7,12-Dimethylbenz(a)-anthracene	1000	Methylene Chloride:Benzene (50:50)	1ml
REPAH153	7,12-Dimethylbenz(a)-anthracene	2000	Methylene Chloride:Benzene (50:50)	1ml
REPAH154	Dibenz(a,j)acridine	1000	Methylene Chloride	1ml
REPAH155	Dibenz(a,j)acridine	2000	Methylene Chloride	1ml
REPAH156	Dibenzo(a,e)pyrene	1000	Methylene Chloride:Benzene (50:50)	1ml
REPAH157	Dibenzo(a,e)pyrene	2000	Methylene Chloride:Benzene (50:50)	1ml
REPAH158	Fluoranthene	1000	Methylene Chloride	1ml
REPAH159	Fluoranthene	2000	Methylene Chloride	1ml
REPAH9001-I	2-Fluoro-6-methylnaphthalene	100	Isooctane	1ml
REPAH9002-I	5-Fluoroacenaphthylene	100	Toluene	1ml
REPAH9003-I	4-Fluorodiphenylmethane	100	Toluene	1ml
REPAH9004-I	2-Fluorofluorene	100	Toluene	1ml
REPAH9005-I	2-Fluorodiphenylmethane	100	Toluene	1ml
REPAH9006-I	4,4'-Difluorodiphenylmethane	100	Toluene	1ml
REPAH9007-I	2-Fluorophenanthrene	100	Toluene	1ml
REPAH9008-I	3-Fluorophenanthrene	100	Toluene	1ml
REPAH9009-I	4-Fluorophenanthrene	100	Toluene	1ml
REPAH9010-I	3-Fluoro-6-methylphenanthrene	50	Isooctane	1ml

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Product No.	Description	Concentration µg/ml	Matrix	Pack size
REPAH9011-I	3-Fluorofluoranthene	100	Toluene	1ml
REPAH9012-I	1-Fluoropyrene	100	Toluene	1ml
REPAH9013-I	1-Fluorochrysene	100	Toluene	1ml
REPAH9014-I	3-Fluorochrysene	100	Toluene	1ml
REPAH9015-I	9-Fluoro-5-methylchrysene	50	Isooctane	1ml
REPAH9016-I	9-Fluorobenzo[k]fluoranthene	100	Toluene	1ml
REPAH7001	5-Fluoro-3-methylbenzo[b] thiophene	100	Isooctane	1ml
REPAH7002	5-Fluoro-2,3-dimethylbenzothiophene	100	Isooctane	1ml
REPAH7003	2-Fluorodibenzothiophene	100	Toluene	1ml
REPAH7101	1-Methylnaphthalene-d10	1000	Isooctane	1ml
REPAH7102	2-Methylnaphthalene-d10	1000	Isooctane	1ml
REPAH7103	1,8-Dimethylnaphthalene-d12	1000	Isooctane	1ml
REPAH7104	2,6-Dimethylnaphthalene-d12	1000	Isooctane	1ml
REPAH7105	9-Methylanthracene-d12	1000	Isooctane	1ml
REPAH7106	1-Methylpyrene-d9	100	Toluene	1ml
REPAH1102	Triphenylene-d12	1000	Toluene	1ml
REPAH1103	Benzo[e]pyrene-d12	100	Toluene	1ml
REPAH1104	Benzo[b]fluoranthene-d12	100	Toluene	1ml
REPAH1105	Benzo[k]fluoranthene-d12	100	Toluene	1ml
REPAH1106	Benzo[ghi]perylene-d12	100	Toluene	1ml
REPAH1107	Benzo[ghi]perylene-d12	200	Toluene	1ml
REPAH1108	Indeno[1,2,3-cd]pyrene-d12	100	Toluene	1ml
REPAH1109	Dibenz[a,h]anthracene-d14	100	Isooctane	1ml
REPAH1110	Dibenz[a,h]anthracene-d14	100	Toluene	1ml
REPAH1111	Coronene-d12	100	Toluene	1ml
REPAH1112	Dibenzo[a,i]pyrene-d14	100	Toluene	1ml
REPAH1113	Biphenyl-d10	1000	Toluene	1ml
REPAH1114	o-Terphenyl-d14	100	Toluene	1ml
REPAH1115	m-Terphenyl-d14	100	Toluene	1ml
REPAH1116	p-Terphenyl-d14	100	Toluene	1ml
REPAH1117	p-Terphenyl-d14	1000	Toluene	1ml
REPAH1118	2,2'-Binaphthyl-d14	100	Toluene	1ml
REPAH1201	Carbazole-d8	1000	Toluene	1ml
REPAH1202	Acridine-d9	1000	Toluene	1ml
REPAH1301	1-Nitronaphthalene-d7	1000	Toluene	1ml
REPAH1302	2-Methyl-1-nitronaphthalene-d9	100	Isooctane	1ml
REPAH1303	2-Nitrofluorene-d9	100	Toluene	1ml
REPAH1304	2-Nitrofluorene-d9	1000	Toluene	1ml

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Polycyclic Aromatic Hydrocarbons (PAHs) Single Component Standards

Product No.	Description	Concentration µg/ml	Matrix	Pack size
REPAH1305	9-Nitrophenanthrene-d9	10	Toluene	1ml
REPAH1306	9-Nitroanthracene-d9	100	Toluene	1ml
REPAH1307	1-Nitropyrene-d9	100	Toluene	1ml
REPAH1308	3-Nitrofluoranthene-d9	100	Toluene	1ml
REPAH1309	1-Nitrotriphenylene-d11	100	Isooctane	1ml
REPAH1310	6-Nitrochrysene-d11	100	Toluene	1ml
REPAH1311	6-Nitrobenzo[a]pyrene-d11	100	Toluene	1ml
REPAH1401	1-Aminonaphthalene-d7	1000	Toluene	1ml
REPAH1402	2-Aminonaphthalene-d7	1000	Isooctane	1ml
REPAH1001	1-Nitronaphthalene	100	Toluene	1ml
REPAH1002	2-Nitronaphthalene	100	Toluene	1ml
REPAH1003	1-Methyl-4-nitronaphthalene	100	Methanol	1ml
REPAH1004	1-Methyl-5-nitronaphthalene	100	Methanol	1ml
REPAH1005	1-Methyl-6-nitronaphthalene	100	Methanol	1ml
REPAH1006	2-Methyl-1-nitronaphthalene	100	Methanol	1ml
REPAH1007	2-Methyl-4-nitronaphthalene	100	Methanol	1ml
REPAH1008	1,5-Dinitronaphthalene	100	Toluene	1ml
REPAH5001	1-Methylfluorene	1000	Toluene	1ml
REPAH5002	2-Methylfluorene	1000	Toluene	1ml
REPAH5003	4-Methylfluorene	1000	Isooctane	1ml
REPAH5004	9-Methylfluorene	1000	Isooctane	1ml
REPAH5005	1,7-Dimethylfluorene	500	Isooctane	1ml
REPAH5006	9-Ethylfluorene	1000	Isooctane	1ml
REPAH5007	9-n-Propylfluorene	1000	Isooctane	1ml
REPAH5008	9-n-Butylfluorene	1000	Isooctane	1ml
REPAH5009	9,9-Di-n-octylfluorene	1000	Isooctane	1ml
REPAH5010	9,9'-Bifluorenylidene	1000	Toluene	1ml
REPAH4101	11H-Benzo[a]fluorene	1000	Toluene	1ml
REPAH4103	11H-Benzo[b]fluorene	200	Toluene	1ml
REPAH4104	7H-Benzo[c]fluorene	200	Toluene	1ml
REPAH4105	9-Phenylfluorene	1000	Isooctane	1ml
REPAH4201	2-Nitrofluorene	100	Toluene	1ml
REPAH4202	2,7-Dinitrofluorene	100	Toluene	1ml
REPAH4203	2-Nitro-9-fluorenone	100	Toluene	1ml
REPAH4401	Phenanthrene	1000	Isooctane	1ml
REPAH5101	1-Methylphenanthrene	1000	Isooctane	1ml
REPAH5102	2-Methylphenanthrene	1000	Isooctane	1ml
REPAH5103	3-Methylphenanthrene	1000	Isooctane	1ml
REPAH5104	4-Methylphenanthrene	500	Isooctane	1ml
REPAH5105	9-Methylphenanthrene	1000	Isooctane	1ml

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Product No.	Description	Concentration µg/ml	Matrix	Pack size
REPAH5201	1,2-Dimethylphenanthrene	500	Isooctane	1ml
REPAH5202	1,3-Dimethylphenanthrene	500	Isooctane	1ml
REPAH5203	1,4-Dimethylphenanthrene	500	Isooctane	1ml
REPAH5204	1,5-Dimethylphenanthrene	50	Isooctane	1ml
REPAH5205	1,6-Dimethylphenanthrene	500	Isooctane	1ml
REPAH5206	1,7-Dimethylphenanthrene	500	Isooctane	1ml
REPAH5207	1,8-Dimethylphenanthrene	500	Isooctane	1ml
REPAH5208	1,9-Dimethylphenanthrene	500	Isooctane	1ml
REPAH5209	2,3-Dimethylphenanthrene	50	Isooctane	1ml
REPAH5210	2,4-Dimethylphenanthrene	500	Isooctane	1ml
REPAH5211	2,5-Dimethylphenanthrene	50	Isooctane	1ml
REPAH5212	2,6-Dimethylphenanthrene	50	Isooctane	1ml
REPAH5213	2,7-Dimethylphenanthrene	500	Isooctane	1ml
REPAH5214	2,9-Dimethylphenanthrene	50	Isooctane	1ml
REPAH5215	2,10-Dimethylphenanthrene	50	Isooctane	1ml
REPAH5216	3,4-Dimethylphenanthrene	50	Isooctane	1ml
REPAH5217	3,5-Dimethylphenanthrene	50	Isooctane	1ml
REPAH5218	3,6-Dimethylphenanthrene	500	Isooctane	1ml
REPAH5219	3,9-Dimethylphenanthrene	500	Isooctane	1ml
REPAH5220	3,10-Dimethylphenanthrene	500	Isooctane	1ml
REPAH5221	4,9-Dimethylphenanthrene	50	Isooctane	1ml
REPAH5222	4,10-Dimethylphenanthrene	50	Isooctane	1ml
REPAH5223	9,10-Dimethylphenanthrene	500	Isooctane	1ml
REPAH5224	3-Ethylphenanthrene	500	Isooctane	1ml
REPAH5225	9-Ethylphenanthrene	1000	Isooctane	1ml
REPAH5301	1,2,4-Trimethylphenanthrene	200	Isooctane	1ml
REPAH5302	1,2,5-Trimethylphenanthrene	50	Isooctane	1ml
REPAH5303	1,2,7-Trimethylphenanthrene	50	Isooctane	1ml
REPAH5304	1,2,6-Trimethylphenanthrene	500	Isooctane	1ml
REPAH5305	1,2,8-Trimethylphenanthrene	500	Isooctane	1ml
REPAH5306	1,2,9-Trimethylphenanthrene	500	Isooctane	1ml
REPAH5307	1,3,4-Trimethylphenanthrene	200	Isooctane	1ml
REPAH5308	2,6,9-Trimethylphenanthrene	200	Isooctane	1ml
REPAH5309	2,6,9-Trimethylphenanthrene	1000	Isooctane	1ml
REPAH5310	9-n-Propylphenanthrene	1000	Isooctane	1ml
REPAH5401	1,2,6,9-Tetramethylphenanthrene	500	Isooctane	1ml
REPAH5402	9-n-Butylphenanthrene	500	Isooctane	1ml
REPAH5403	Retene	500	Isooctane	1ml
REPAH5404	1,9-Dimethyl-5-ethylphenanthrene	50	Isooctane	1ml

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Polycyclic Aromatic Hydrocarbons (PAHs) Single Component Standards

Product No.	Description	Concentration µg/ml	Matrix	Pack size
REPAH5405	1,9-Dimethyl-7-ethylphenanthrene	50	Isooctane	1ml
REPAH1501	4H-Cyclopenta[def]phenanthrene	500	Isooctane	1ml
REPAH1502	1H-Cyclopenta[l]phenanthrene	500	Isooctane	1ml
REPAH1503	Benzo[c]phenanthrene	200	Toluene	1ml
REPAH1504	2-Methylcyclopenta[l] phenanthrene	500	Isooctane	1ml
REPAH1505	Triphenylene	200	Toluene	1ml
REPAH1506	3-Methylphenanthro[3,4-c] phenanthrene	100	Toluene	1ml
REPAH1701	1-Methoxyphenanthrene	1000	Isooctane	1ml
REPAH1702	2-Methoxyphenanthrene	1000	Isooctane	1ml
REPAH1703	3-Methoxyphenanthrene	1000	Isooctane	1ml
REPAH1704	4-Methoxyphenanthrene	1000	Isooctane	1ml
REPAH1705	9-Methoxyphenanthrene	1000	Isooctane	1ml
REPAH1801	2-Nitrophenanthrene	1000	Isooctane	1ml
REPAH1802	3-Nitrophenanthrene	300	Isooctane	1ml
REPAH1803	9-Nitrophenanthrene	1000	Isooctane	1ml
REPAH1804	5-Nitrobenzo[c]phenanthrene	100	Toluene	1ml
REPAH1805	1-Nitrotriphenylene	50	Isooctane	1ml
REPAH1901	Anthracene	1000	Isooctane	1ml
REPAH5501	1-Methylanthracene	1000	Isooctane	1ml
REPAH5502	2-Methylanthracene	1000	Isooctane	1ml
REPAH5504	9-Methylanthracene	1000	Isooctane	1ml
REPAH5601	1,2-Dimethylanthracene	200	Toluene	1ml
REPAH5602	1,3-Dimethylanthracene	200	Toluene	1ml
REPAH5603	1,4-Dimethylanthracene	200	Toluene	1ml
REPAH5604	1,5-Dimethylanthracene	200	Toluene	1ml
REPAH5605	2,3-Dimethylanthracene	200	Toluene	1ml
REPAH5606	2,7-Dimethylanthracene	200	Toluene	1ml
REPAH5607	9,10-Dimethylanthracene	200	Toluene	1ml
REPAH5608	2-Ethylanthracene	1000	Isooctane	1ml
REPAH5701	1,2,4-Trimethylanthracene	200	Toluene	1ml
REPAH5702	1,2,3,4-Tetramethylanthracene	200	Toluene	1ml
REPAH5703	2,3,6,7-Tetramethylanthracene	200	Toluene	1ml
REPAH5704	2,3,9,10-Tetramethylantracene	200	Toluene	1ml
REPAH5705	2-tert-Butylanthracene	1000	Isooctane	1ml
REPAH5801	1-Methylbenz[a]anthracene	50	Toluene	1ml
REPAH5802	5-Methylbenz[a]anthracene	200	Toluene	1ml
REPAH5803	6-Methylbenz[a]anthracene	200	Toluene	1ml

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Product No.	Description	Concentration µg/ml	Matrix	Pack size
REPAH5804	7-Methylbenz[a]anthracene	50	Toluene	1ml
REPAH5805	10-Methylbenz[a]anthracene	200	Toluene	1ml
REPAH5806	3,9-Dimethylbenz[a]anthracene	200	Toluene	1ml
REPAH5807	7,12-Dimethylbenz[a]anthracene	200	Toluene	1ml
REPAH2001	Dibenz[a,c]anthracene	100	Toluene	1ml
REPAH2002	Tetrabenz[a,c,h,j]anthracene	200	Toluene	1ml
REPAH2101	2-Nitroanthracene	200	Toluene	1ml
REPAH2102	9-Nitroanthracene	100	Toluene	1ml
REPAH2103	9-Methyl-10-nitroanthracene	100	Toluene	1ml
REPAH2104	9,10-Dinitroanthracene	100	Toluene	1ml
REPAH2201	7-Nitrobenz[a]anthracene	100	Toluene	1ml
REPAH2202	7-Nitrodibenz[a,h]anthracene	100	Toluene	1ml
REPAH2301	1,2,3,10b-Tetrahydrofluoranthene	200	Toluene	1ml
REPAH5901	1-Methylfluoranthene	200	Toluene	1ml
REPAH5902	2-Methylfluoranthene	200	Toluene	1ml
REPAH5903	3-Methylfluoranthene	200	Toluene	1ml
REPAH5904	3-Ethylfluoranthene	200	Toluene	1ml
REPAH2401	Benzo[a]fluoranthene	200	Toluene	1ml
REPAH2402	Benzo[ghi]fluoranthene	200	Toluene	1ml
REPAH2403	2-Phenylfluoranthene	200	Toluene	1ml
REPAH2502	Dibenzo[a,e]fluoranthene	200	Toluene	1ml
REPAH2506	Indeno[1,2,3-cd]fluoranthene	200	Toluene	1ml
REPAH2601	Naphtho[1,2-b]fluoranthene	200	Toluene	1ml
REPAH2602	Naphtho[1,2-k]fluoranthene	200	Toluene	1ml
REPAH2603	Naphtho[2,3-b]fluoranthene	200	Toluene	1ml
REPAH2604	Naphtho[2,3-j]fluoranthene	200	Toluene	1ml
REPAH2605	Naphtho[2,3-k]fluoranthene	200	Toluene	1ml
REPAH2701	1-Nitrofluoranthene	100	Toluene	1ml
REPAH2702	2-Nitrofluoranthene	100	Toluene	1ml
REPAH2703	3-Nitrofluoranthene	100	Toluene	1ml
REPAH6001	1-Methylpyrene	200	Toluene	1ml
REPAH6002	4-Methylpyrene	200	Toluene	1ml
REPAH6003	4,5-Dimethylpyrene	200	Toluene	1ml
REPAH6004	2,7-Dimethylpyrene	200	Toluene	1ml
REPAH6005	1-Ethylpyrene	200	Toluene	1ml
REPAH6006	1-n-Propylpyrene	1000	Toluene	1ml
REPAH6007	1-n-Butylpyrene	200	Toluene	1ml
REPAH6101	6-Methylbenzo[a]pyrene	200	Toluene	1ml
REPAH6102	7-Methylbenzo[a]pyrene	200	Toluene	1ml
REPAH6103	7,10-Dimethylbenzo[a]pyrene	50	Toluene	1ml
REPAH2801	Dibenzo[a,e]pyrene	200	Toluene	1ml
REPAH2802	Dibenzo[a,h]pyrene	200	Toluene	1ml
REPAH2803	Dibenzo[a,i]pyrene	200	Toluene	1ml

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Polycyclic Aromatic Hydrocarbons (PAHs) Single Component Standards

Product No.	Description	Concentration µg/ml	Matrix	Pack size
REPAH2804	Dibenzo[a,l]pyrene	200	Toluene	1ml
REPAH2805	Dibenzo[e,l]pyrene	200	Toluene	1ml
REPAH2901	Cyclopenta[cd]pyrene	50	Toluene	1ml
REPAH2902	Naphtho[2,3-a]pyrene	200	Toluene	1ml
REPAH2903	Naphtho[2,3-e]pyrene	200	Toluene	1ml
REPAH2904	2.3-Peri-naphthylene-pyrene	200	Toluene	1ml
REPAH2905	2.3,7.8-Di-(peri-naphthylene)-pyrene	200	Toluene	1ml
REPAH3001	1-Hydroxypyrene	200	Toluene	1ml
REPAH3003	3-Hydroxybenzo[a]pyrene	50	Toluene	1ml
REPAH3101	1-Nitropyrene	100	Toluene	1ml
REPAH3102	2-Nitropyrene	100	Toluene	1ml
REPAH3103	4-Nitropyrene	100	Toluene	1ml
REPAH3104	1,3-Dinitropyrene	100	Toluene	1ml
REPAH3105	1,6-Dinitropyrene	100	Toluene	1ml
REPAH3106	1,8-Dinitropyrene	100	Toluene	1ml
REPAH6201	1-Methylchrysene	200	Toluene	1ml
REPAH6202	2-Methylchrysene	200	Toluene	1ml
REPAH6203	3-Methylchrysene	200	Toluene	1ml
REPAH6204	4-Methylchrysene	200	Toluene	1ml
REPAH6205	5-Methylchrysene	200	Toluene	1ml
REPAH6206	6-Methylchrysene	200	Toluene	1ml
REPAH6301	6-Ethylchrysene	1000	Toluene	1ml
REPAH6302	1,3,6-Trimethylchrysene	1000	Isooctane	1ml
REPAH6303	6-n-Propylchrysene	1000	Toluene	1ml
REPAH6304	6-n-Butylchrysene	1000	Toluene	1ml
REPAH3201	Benzo[a]chrysene	100	Toluene	1ml
REPAH3202	Benzo[b]chrysene	200	Toluene	1ml
REPAH3203	Benzo[c]chrysene	200	Toluene	1ml
REPAH3204	Benzo[g]chrysene	200	Toluene	1ml
REPAH3205	Dibenzo[g,p]chrysene	200	Toluene	1ml
REPAH3301	Anthanthrene	200	Toluene	1ml
REPAH6401	6-Methylanthanthrene	200	Toluene	1ml
REPAH3302	6-Nitroanthanthrene	100	Toluene	1ml
REPAH6501	1-n-Hexylperylene	200	Toluene	1ml
REPAH3401	Benzo[b]perylene	200	Toluene	1ml
REPAH3402	Dibenzo[b,ghi]perylene	200	Toluene	1ml
REPAH3403	Dibenzo[e,ghi]perylene	200	Toluene	1ml
REPAH3404	Naphtho[8,1,2-bcd]perylene	200	Toluene	1ml
REPAH3405	Naphtho[1,2,3,4-ghi]perylene	200	Toluene	1ml
REPAH3501	1-Nitroperylene	100	Toluene	1ml
REPAH3502	3-Nitroperylene	100	Toluene	1ml
REPAH6601	2,9-Dimethylpicene	100	Toluene	1ml

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Product No.	Description	Concentration/µg ml	Matrix	Pack size
REPAH3601	Coronene	100	Toluene	1ml
REPAH6701	1-Methylcoronene	200	Toluene	1ml
REPAH3603	Dibenzo[a,j]coronene	200	Toluene	1ml
REPAH3605	Naphtho[2,3-a]coronene	30	1,2,4- Trichlorobenzene	1ml
REPAH3701	1-Nitrocoronene	100	Toluene	1ml
REPAH3901	9-Chloro-9H-fluorene	50	Isooctane	1ml
REPAH3902	2-Chloroanthracene	50	Isooctane	1ml
REPAH3903	9-Chlorophenanthrene	50	Isooctane	1ml
REPAH3904	6-Chlorobenzo[a]pyrene	50	Isooctane	1ml
REPAH3905	1-Chloropyrene	50	Isooctane	1ml
REPAH3906	3-Chlorofluoranthene	50	Isooctane	1ml
REPAH3801	Benzanthrone	1000	Isooctane	1ml
REPAH3804	Isoviolanthrone	200	Toluene	1ml
REPAH3805	Violanthrone	200	Toluene	1ml

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Polycyclic Aromatic Hydrocarbons (PAHs) Multi Compound Standards

Product No.	Description	Concentration µg ml	Matrix	Pack size
REPAH001	Acenaphthene	2000	Benzene: Dichloromethane	1ml
(16 compound mix)	Anthracene		(Methylene Chloride)	
	Benzo(a)anthracene			
	Chrysene			
	Fluoroanthene			
	Fluorene			
	Naphthalene			
	Phenanthrene			
	Pyrene			
	Benzo(a)pyrene			
	Benzo(b)fluoroanthene			
	Benzo(g,h,i)perylene			
	Dibenzo(a,h)anthracene			
	Benzo(k)fluoroanthene			
	Indeno(1,2,3-cd)pyrene			
	Acenaphthylene			
Product No.	**Description**	**Concentration µg ml**	**Matrix**	**Pack size**
REPAH002	Acenaphthene	1000	Benzene: Dichloromethane	1ml
(16 compound mix)	Anthracene		(Methylene Chloride)	
	Benzo(a)anthracene			
	Chrysene			
	Fluoroanthene			
	Fluorene			
	Naphthalene			
	Phenanthrene			
	Pyrene			
	Benzo(a)pyrene			
	Benzo(b)fluoroanthene			
	Benzo(g,h,i)perylene			
	Dibenzo(a,h)anthracene			
	Benzo(k)fluoroanthene			
	Indeno(1,2,3-cd)pyrene			
	Acenaphthylene			

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Polycyclic Aromatic Hydrocarbons (PAHs) Multi Compound Standards

Product No.	Description	Concentration µg ml	Matrix	Pack size
REPAH017	Acenaphthene	100	Acetonitrile	1ml
(16 compound mix)	Anthracene	100		
	Acenaphthylene	50		
	Benzo(a)anthracene	1		
	Benzo(a)pyrene	5		
	Benzo(b)fluoroanthene	1		
	Benzo(g,h,i)perylene	5		
	Dibenzo(a,h)anthracene	1		
	Benzo(k)fluoroanthene	50		
	Chrysene	10		
	Fluoroanthene	3		
	Fluorene	10		
	Indeno(1,2,3-cd)pyrene	10		
	Naphthalene	1000		
	Phenanthrene	50		
	Pyrene	50		
Product No.	**Description**	**Concentration µg ml**	**Matrix**	**Pack size**
REPAH004	Acenaphthene	1000	Toluene	1ml
(16 compound mix)	Anthracene			
	Benzo(a)anthracene			
	Chrysene			
	Fluoroanthene			
	Fluorene			
	Naphthalene			
	Phenanthrene			
	Pyrene			
	Benzo(a)pyrene			
	Benzo(b)fluoroanthene			
	Benzo(g,h,i)perylene			
	Dibenzo(a,h)anthracene			
	Benzo(k)fluoroanthene			
	Indeno(1,2,3-cd)pyrene			
	Acenaphthylene			

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Product No.	Description	Concentration µg ml	Matrix	Pack size
REPAH005	Acenaphthene	100	Acetone	1ml
(16 compound mix)	Anthracene			
	Benzo(a)anthracene			
	Chrysene			
	Fluoroanthene			
	Fluorene			
	Naphthalene			
	Phenanthrene			
	Pyrene			
	Benzo(a)pyrene			
	Benzo(b)fluoroanthene			
	Benzo(g,h,i)perylene			
	Dibenzo(a,h)anthracene			
	Benzo(k)fluoroanthene			
	Indeno(1,2,3-cd)pyrene			
	Acenaphthylene			
Product No.	**Description**	**Concentration µg ml**	**Matrix**	**Pack size**
REPAH006	Acenaphthene	2000	Toluene	1ml
(16 compound mix)	Anthracene			
	Benzo(a)anthracene			
	Chrysene			
	Fluoroanthene			
	Fluorene			
	Naphthalene			
	Phenanthrene			
	Pyrene			
	Benzo(a)pyrene			
	Benzo(b)fluoroanthene			
	Benzo(g,h,i)perylene			
	Dibenzo(a,h)anthracene			
	Benzo(k)fluoroanthene			
	Indeno(1,2,3-cd)pyrene			
	Acenaphthylene			

Polycyclic Aromatic Hydrocarbons (PAHs) Multi Compound Standards

Product No.	Description	Concentration µg ml	Matrix	Pack size
REPAH007	Acenaphthene	500	Toluene	1ml
(16 compound mix)	Anthracene			
	Benzo(a)anthracene			
	Chrysene			
	Fluoroanthene			
	Fluorene			
	Naphthalene			
	Phenanthrene			
	Pyrene			
	Benzo(a)pyrene			
	Benzo(b)fluoroanthene			
	Benzo(g,h,i)perylene			
	Dibenzo(a,h)anthracene			
	Benzo(k)fluoroanthene			
	Indeno(1,2,3-cd)pyrene			
	Acenaphthylene			

Product No.	Description	Concentration µg ml	Matrix	Pack size
REPAH010	Acenaphthene	100	Acetonitrile	1ml
(16 compound mix)	Anthracene	10		
	Acenaphthylene	100		
	Benzo(a)anthracene	10		
	Benzo(a)pyrene	10		
	Benzo(b)fluoroanthene	10		
	Benzo(g,h,i)perylene	10		
	Dibenzo(a,h)anthracene	10		
	Benzo(k)fluoroanthene	10		
	Chrysene	10		
	Fluoroanthene	10		
	Fluorene	10		
	Indeno(1,2,3-cd)pyrene	10		
	Naphthalene	100		
	Phenanthrene	10		
	Pyrene	10		

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Product No.	Description	Concentration µg ml	Matrix	Pack size
REPAH011	Acenaphthene	100	Acetonitrile	1ml
(16 compound mix)	Anthracene	10		
	Acenaphthylene	200		
	Benzo(a)anthracene	10		
	Benzo(a)pyrene	10		
	Benzo(b)fluoroanthene	20		
	Benzo(g,h,i)perylene	20		
	Dibenzo(a,h)anthracene	20		
	Benzo(k)fluoroanthene	10		
	Chrysene	10		
	Fluoroanthene	20		
	Fluorene	20		
	Indeno(1,2,3-cd)pyrene	10		
	Naphthalene	100		
	Phenanthrene	10		
	Pyrene	10		
Product No.	**Description**	**Concentration µg ml**	**Matrix**	**Pack size**
REPAH012	Acenaphthene	100	Acetonitrile	1ml
(16 compound mix)	Anthracene	400		
	Acenaphthylene	40		
	Benzo(a)anthracene	1000		
	Benzo(a)pyrene	400		
	Benzo(b)fluoroanthene	2000		
	Benzo(g,h,i)perylene	20		
	Dibenzo(a,h)anthracene	20		
	Benzo(k)fluoroanthene	400		
	Chrysene	1000		
	Fluoroanthene	10		
	Fluorene	20		
	Indeno(1,2,3-cd)pyrene	20		
	Naphthalene	40		
	Phenanthrene	10		
	Pyrene	10		

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Polycyclic Aromatic Hydrocarbons (PAHs) Multi Compound Standards

Product No.	Description	Concentration µg ml	Matrix	Pack size
REPAH014	Acenaphthene	1000	Acetonitrile	1ml
(16 compound mix)	Anthracene	63		
	Acenaphthylene	1000		
	Benzo(a)anthracene	1		
	Benzo(a)pyrene	5		
	Benzo(b)fluoroanthene	1		
	Benzo(g,h,i)perylene	5		
	Dibenzo(a,h)anthracene	13		
	Benzo(k)fluoroanthene	1		
	Chrysene	63		
	Fluoroanthene	3		
	Fluorene	100		
	Indeno(1,2,3-cd)pyrene	13		
	Naphthalene	1000		
	Phenanthrene	50		
	Pyrene	63		
Product No.	**Description**	**Concentration µg ml**	**Matrix**	**Pack size**
REPAH015	Acenaphthene	100	Acetonitrile	1ml
(16 compound mix)	Anthracene	100		
	Acenaphthylene	100		
	Benzo(a)anthracene	10		
	Benzo(a)pyrene	10		
	Benzo(b)fluoroanthene	10		
	Benzo(g,h,i)perylene	10		
	Dibenzo(a,h)anthracene	10		
	Benzo(k)fluoroanthene	5		
	Chrysene	10		
	Fluoroanthene	10		
	Fluorene	100		
	Indeno(1,2,3-cd)pyrene	10		
	Naphthalene	100		
	Phenanthrene	100		
	Pyrene	10		

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Product No.	Description	Concentration µg ml	Matrix	Pack size
REPAH016	Acenaphthene	20	Acetonitrile	1ml
(16 compound mix)	Anthracene	1		
	Acenaphthylene	15		
	Benzo(a)anthracene	4		
	Benzo(a)pyrene	5		
	Benzo(b)fluoroanthene	4		
	Benzo(g,h,i)perylene	4		
	Dibenzo(a,h)anthracene	4		
	Benzo(k)fluoroanthene	5		
	Chrysene	4		
	Fluoroanthene	8		
	Fluorene	5		
	Indeno(1,2,3-cd)pyrene	5		
	Naphthalene	20		
	Phenanthrene	4		
	Pyrene	9		
Product No.	**Description**	**Concentration µg ml**	**Matrix**	**Pack size**
REPAH020	Acenaphthene	100	Methylene Chloride	1ml
(16 compound mix)	Anthracene	100		
	Acenaphthylene	200		
	Benzo(a)anthracene	100		
	Benzo(a)pyrene	100		
	Benzo(b)fluoroanthene	200		
	Benzo(g,h,i)perylene	200		
	Dibenzo(a,h)anthracene	200		
	Benzo(k)fluoroanthene	100		
	Chrysene	100		
	Fluoroanthene	200		
	Fluorene	200		
	Indeno(1,2,3-cd)pyrene	100		
	Naphthalene	1000		
	Phenanthrene	100		
	Pyrene	100		

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Polycyclic Aromatic Hydrocarbons (PAHs) Multi Component Standards

Product No.	Description	Concentration µg/ml	Matrix	Pack size
REPAH021	Acenaphthene	1000	Methylene Chloride	1ml
(16 compound mix)	Anthracene	1000		
	Acenaphthylene	1000		
	Benzo(a)anthracene	100		
	Benzo(a)pyrene	100		
	Benzo(b)fluoroanthene	100		
	Benzo(g,h,i)perylene	100		
	Dibenzo(a,h)anthracene	100		
	Benzo(k)fluoroanthene	50		
	Chrysene	100		
	Fluoroanthene	100		
	Fluorene	1000		
	Indeno(1,2,3-cd)pyrene	100		
	Naphthalene	1000		
	Phenanthrene	1000		
	Pyrene	100		
Product No.	**Description**	**Concentration µg/ml**	**Matrix**	**Pack size**
REPAH027	Anthracene	50	Acetonitrile	1ml
(13 compound mix)	Benzo(a)anthracene	50		
	Benzo(a)pyrene	50		
	Benzo(b)fluoroanthene	100		
	Benzo(g,h,i)perylene	100		
	Dibenzo(a,h)anthracene	100		
	Benzo(k)fluoroanthene	50		
	Chrysene	50		
	Fluoroanthene	100		
	Fluorene	100		
	Indeno(1,2,3-cd)pyrene	50		
	Phenanthrene	50		
	Pyrene	50		
Product No.	**Description**	**Concentration µg/ml**	**Matrix**	**Pack size**
REPAH032	Acenaphthylene	400	Acetonitrile	1ml
(9 compound mix)	Benzo(g,h,i)perylene	200		
	Dibenzo(a,h)anthracene	200		
	Fluoroanthene	100		
	Fluorene	200		
	Indeno(1,2,3-cd)pyrene	100		
	Naphthalene	400		
	Phenanthrene	100		
	Pyrene	100		

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Product No.	Description	Concentration µg/ml	Matrix	Pack size
REPAH033	Anthracene	100	Acetonitrile	1ml
(8 compound mix)	Benzo(a)anthracene	10		
	Benzo(a)pyrene	10		
	Benzo(b)fluoroanthene	10		
	Benzo(g,h,i)perylene	10		
	Chrysene	10		
	Fluoroanthene	10		
	Phenanthrene	100		
Product No.	**Description**	**Concentration µg/ml**	**Matrix**	**Pack size**
REPAH034	Anthracene	100	Acetonitrile	1ml
(7 compound mix)	Acenaphthylene	100		
	Dibenzo(a,h)anthracene	5		
	Benzo(k)fluoroanthene	10		
	Indeno(1,2,3-cd)pyrene	10		
	Naphthalene	100		
	Pyrene	10		
Product No.	**Description**	**Concentration µg/ml**	**Matrix**	**Pack size**
REPAH035	Benzo(a)pyrene	100	Acetonitrile	1ml
(6 compound mix)	Benzo(b)fluoroanthene	100		
	Benzo(g,h,i)perylene	100		
	Benzo(k)fluoroanthene	100		
	Fluoroanthene	100		
	Indeno(1,2,3-cd)pyrene	100		
Product No.	**Description**	**Concentration µg/ml**	**Matrix**	**Pack size**
REPAH036	Benzo(a)pyrene	10	Acetonitrile	1ml
(6 compound mix)	Benzo(b)fluoroanthene	10		
	Benzo(g,h,i)perylene	10		
	Benzo(k)fluoroanthene	10		
	Fluoroanthene	10		
	Indeno(1,2,3-cd)pyrene	10		
Product No.	**Description**	**Concentration µg/ml**	**Matrix**	**Pack size**
REPAH037	Benzo(a)pyrene	2	Acetonitrile	1ml
(6 compound mix)	Benzo(b)fluoroanthene	2		
	Benzo(g,h,i)perylene	2		
	Dibenzo(a,h)anthracene	2		
	Fluoroanthene	2		
	Indeno(1,2,3-cd)pyrene	2		

Polycyclic Aromatic Hydrocarbons (PAHs) Multi Component Standards

Product No.	Description	Concentration µg/ml	Matrix	Pack size
REPAH038	Anthracene	200	Acetonitrile	1ml
(5 compound mix)	Benzo(a)pyrene	200		
	Chrysene	200		
	Phenanthrene	200		
	Pyrene	200		
Product No.	**Description**	**Concentration µg/ml**	**Matrix**	**Pack size**
REPAH039	Benzo(a)pyrene	100	Methylene Chloride	1ml
(5 compound mix)	Benzo(b)fluoroanthene	100		
	Benzo(g,h,i)perylene	100		
	Benzo(k)fluoroanthene	100		
	Indeno(1,2,3-cd)pyrene	100		
Product No.	**Description**	**Concentration µg/ml**	**Matrix**	**Pack size**
REPAH040	Benzo(a)anthracene	2000	Methylene Chloride	1ml
(5 compound mix)	Benzo(a)pyrene	2000		
	Fluorene	2000		
	Naphthalene	2000		
	Phenanthrene	2000		
Product No.	**Description**	**Concentration µg/ml**	**Matrix**	**Pack size**
REPAH041	Acenaphthene	100	Acetonitrile	1ml
(5 compound mix)	Anthracene	100		
	Benzo(a)pyrene	100		
	Chrysene	100		
	Pyrene	100		
Product No.	**Description**	**Concentration µg/ml**	**Matrix**	**Pack size**
REPAH013	Acenaphthene	10	Acetonitrile	1ml
(16 compound mix)	Anthracene	10		
	Acenaphthylene	10		
	Benzo(a)anthracene	10		
	Benzo(a)pyrene	10		
	Benzo(b)fluoroanthene	10		
	Benzo(g,h,i)perylene	10		
	Dibenzo(a,h)anthracene	10		
	Benzo(k)fluoroanthene	10		
	Chrysene	10		
	Fluoroanthene	10		
	Fluorene	10		
	Indeno(1,2,3-cd)pyrene	10		
	Naphthalene	10		
	Phenanthrene	10		
	Pyrene	10		

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Product No.	Description	Concentration µg/ml	Matrix	Pack size
REPAH018	Acenaphthene	20	Methylene Chloride	1ml
(16 compound mix)	Anthracene	20		
	Acenaphthylene	20		
	Benzo(a)anthracene	20		
	Benzo(a)pyrene	20		
	Benzo(b)fluoroanthene	20		
	Benzo(g,h,i)perylene	20		
	Dibenzo(a,h)anthracene	20		
	Benzo(k)fluoroanthene	20		
	Chrysene	20		
	Fluoroanthene	20		
	Fluorene	20		
	Indeno(1,2,3-cd)pyrene	20		
	Naphthalene	20		
	Phenanthrene	20		
	Pyrene	20		
Product No.	**Description**	**Concentration µg/ml**	**Matrix**	**Pack size**
REPAH019	Acenaphthene	100	Methylene Chloride	1ml
(16 compound mix)	Anthracene	100		
	Acenaphthylene	100		
	Benzo(a)anthracene	100		
	Benzo(a)pyrene	100		
	Benzo(b)fluoroanthene	100		
	Benzo(g,h,i)perylene	100		
	Dibenzo(a,h)anthracene	100		
	Benzo(k)fluoroanthene	100		
	Chrysene	100		
	Fluoroanthene	100		
	Fluorene	100		
	Indeno(1,2,3-cd)pyrene	100		
	Naphthalene	100		
	Phenanthrene	100		
	Pyrene	100		

Polycyclic Aromatic Hydrocarbons (PAHs) Multi Component Standards

Product No.	Description	Concentration µg/ml	Matrix	Pack size
REPAH022	Acenaphthene	10	Acetonitrile	1ml
(15 compound mix)	Acenaphthylene	10		
	Benzo(a)anthracene	10		
	Benzo(a)pyrene	10		
	Benzo(b)fluoroanthene	10		
	Benzo(g,h,i)perylene	10		
	Dibenzo(a,h)anthracene	10		
	Benzo(k)fluoroanthene	10		
	Chrysene	10		
	Fluoroanthene	10		
	Fluorene	10		
	Indeno(1,2,3-cd)pyrene	10		
	Naphthalene	10		
	Phenanthrene	10		
	Pyrene	10		
Product No.	**Description**	**Concentration µg/ml**	**Matrix**	**Pack size**
REPAH023	Anthracene	10	Acetonitrile	1ml
(15 compound mix)	Acenaphthylene	10		
	Benzo(a)anthracene	10		
	Benzo(a)pyrene	10		
	Benzo(b)fluoroanthene	10		
	Benzo(g,h,i)perylene	10		
	Dibenzo(a,h)anthracene	10		
	Benzo(k)fluoroanthene	10		
	Chrysene	10		
	Fluoroanthene	10		
	Fluorene	10		
	Indeno(1,2,3-cd)pyrene	10		
	Naphthalene	10		
	Phenanthrene	10		
	Pyrene	10		

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Product No.	Description	Concentration µg/ml	Matrix	Pack size
REPAH028	Acenaphthene	50	Acetonitrile	1ml
(13 compound mix)	Anthracene	50		
	Acenaphthylene	50		
	Benzo(a)anthracene	50		
	Benzo(a)pyrene	50		
	Benzo(g,h,i)perylene	50		
	Dibenzo(a,h)anthracene	50		
	Benzo(k)fluoroanthene	50		
	Chrysene	50		
	Fluoroanthene	50		
	Fluorene	50		
	Indeno(1,2,3-cd)pyrene	50		
	Naphthalene	50		
Product No.	**Description**	**Concentration µg/ml**	**Matrix**	**Pack size**
REPAH029	Benzo(a)anthracene	100	Acetonitrile	1ml
(10 compound mix)	Benzo(a)pyrene	100		
	Benzo(b)fluoroanthene	100		
	Benzo(g,h,i)perylene	100		
	Dibenzo(a,h)anthracene	100		
	Benzo(k)fluoroanthene	100		
	Chrysene	100		
	Fluoroanthene	100		
	Indeno(1,2,3-cd)pyrene	100		
	Pyrene	100		
Product No.	**Description**	**Concentration µg/ml**	**Matrix**	**Pack size**
REPAH030	Benzo(a)anthracene	2000	Methylene Chloride	1ml
(10 compound mix)	Benzo(a)pyrene	2000		
	Benzo(b)fluoroanthene	2000		
	Dibenzo(a,h)anthracene	2000		
	Benzo(k)fluoroanthene	2000		
	Fluoroanthene	2000		
	Indeno(1,2,3-cd)pyrene	2000		
	Naphthalene	2000		
	Phenanthrene	2000		
	Pyrene	2000		

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Polycyclic Aromatic Hydrocarbons (PAHs) Multi Component Standards

Product No.	Description	Concentration µg/ml	Matrix	Pack size
REPAH031	Benzo(a)anthracene	2000	Methylene Chloride	1ml
(10 compound mix)	Benzo(a)pyrene	2000		
	Benzo(b)fluoroanthene	2000		
	Dibenzo(a,h)anthracene	2000		
	Chrysene	2000		
	Fluoroanthene	2000		
	Indeno(1,2,3-cd)pyrene	2000		
	Naphthalene	2000		
	Phenanthrene	2000		
	Pyrene	2000		
Product No.	**Description**	**Concentration µg/ml**	**Matrix**	**Pack size**
REPAH003	Acenaphthene	1000	Methanol:Acetone 1:1	1ml
(16compound mix)	Anthracene	100		
	Benzo(a)anthracene	100		
	Chrysene	100		
	Fluoroanthene	200		
	Fluorene	200		
	Naphthalene	1000		
	Phenanthrene	100		
	Pyrene	100		
	Benzo(a)pyrene	100		
	Benzo(b)fluoroanthene	200		
	Benzo(g,h,i)perylene	200		
	Dibenzo(a,h)anthracene	200		
	Benzo(k)fluoroanthene	100		
	Indeno(1,2,3-cd)pyrene	100		
	Acenaphthylene	2000		

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Product No.	Description	Concentration µg/ml	Matrix	Pack size
REPAH008	Acenaphthene	1000	Acetonitrile	1ml
(16 compound mix)	Anthracene	50		
	Benzo(a)anthracene	1		
	Chrysene	50		
	Fluoroanthene	50		
	Fluorene	100		
	Naphthalene	1000		
	Phenanthrene	50		
	Pyrene	50		
	Benzo(a)pyrene	5		
	Benzo(b)fluoroanthene	1		
	Benzo(g,h,i)perylene	5		
	Dibenzo(a,h)anthracene	10		
	Benzo(k)fluoroanthene	1		
	Indeno(1,2,3-cd)pyrene	10		
	Acenaphthylene	1000		

Product No.	Description	Concentration µg/ml	Matrix	Pack size
REPAH024	Anthracene	100	Acetone	1ml
(13 compound mix)	Acenaphthylene	100		
	Benzo(a)anthracene	100		
	Benzo(a)pyrene	100		
	Benzo(b)fluoroanthene	100		
	Benzo(g,h,i)perylene	100		
	Dibenzo(a,h)anthracene	100		
	Benzo(k)fluoroanthene	100		
	Chrysene	100		
	Fluorene	100		
	Indeno(1,2,3-cd)pyrene	100		
	Phenanthrene	100		
	Pyrene	100		

Polycyclic Aromatic Hydrocarbons (PAHs)
Internal Standards & Surrogates

Product No.	Description	Concentration µg/ml	Matrix	Pack size
REPAH025	Anthracene	1000	Acetone	1ml
(13 compound mix)	Acenaphthylene	1000		
	Benzo(a)anthracene	1000		
	Benzo(a)pyrene	1000		
	Benzo(b)fluoroanthene	1000		
	Benzo(g,h,i)perylene	1000		
	Dibenzo(a,h)anthracene	1000		
	Benzo(k)fluoroanthene	1000		
	Chrysene	1000		
	Fluorene	1000		
	Indeno(1,2,3-cd)pyrene	1000		
	Phenanthrene	1000		
	Pyrene	1000		
Product No.	**Description**	**Concentration µg/ml**	**Matrix**	**Pack size**
REPAH026	Anthracene	500	Acetone	1ml
(13 compound mix)	Acenaphthylene	500		
	Benzo(a)anthracene	500		
	Benzo(a)pyrene	500		
	Benzo(b)fluoroanthene	500		
	Benzo(g,h,i)perylene	500		
	Dibenzo(a,h)anthracene	500		
	Benzo(k)fluoroanthene	500		
	Chrysene	500		
	Fluorene	500		
	Indeno(1,2,3-cd)pyrene	500		
	Phenanthrene	500		
	Pyrene	500		
Product No.	**Description**	**Concentration µg/ml**	**Matrix**	**Pack size**
REPAH042	Benzo(a)anthracene	25	Acetonitrile	1ml
(10 compound mix)	Benzo(b)fluoroanthene	25		
	Benzo(j)fluoroanthene	20		
	Benzo(k)fluoroanthene	10		
	Benzo(g,h,i)perylene	50		
	Benzo(a)pyrene	25		
	Dibenzo(a,h)anthracene	50		
	Fluoroanthene	50		
	Indeno(1,2,3-cd)pyrene	100		
	Naphthalene	100		

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Product No.	Description	Concentration µg/ml	Matrix	Pack size
REPAH001-I	Acenaphthylene D10	4000	Dichloromethane:Benzene	1ml
	Chrysene D12	4000		
	1,4-Dichlorobenzene D4	4000		
	Naphthalene D8	4000		
	Perylene D12	4000		
REPAH002-I	Acenaphthylene D10	4000	Dichloromethane	1ml
	Chrysene D12	4000		
	1,4-Dichlorobenzene D4	4000		
	Naphthalene D8	4000		
	Perylene D12	4000		
REPAH001-S	2-Fluorobiphenyl	2000	Dichloromethane	1ml
	1-Fluoronnaphthalene	2000		
REPAH009	Acenaphthene	1000	Toluene	1ml
	Anthracene	1000		
	Benzo(a)anthracene	1000		
	Chrysene	1000		
	Fluoroanthene	1000		
	Fluorene	1000		
	Naphthalene	1000		
	Phenanthrene	1000		
	Pyrene	1000		
	Benzo(a)pyrene	1000		
	Benzo(b)fluoroanthene	1000		
	Benzo(g,h,i)perylene	1000		
	Dibenzo(a,h)anthracene	1000		
	Benzo(k)fluoroanthene	1000		
	Indeno(1,2,3-cd)pyrene	1000		
	Acenaphthylene	1000		
	Benzo(j)fluoroanthene	1000		
	Benzo(e)pyrene	1000		
REPAH045	Benzo(a)pyrene	100	Acetonitrile	10ml
	Benzo(b)fluoroanthene	100		
	Benzo(k)fluoroanthene	100		
	Benzo(g,h,i)perylene	100		
	Indeno(1,2,3-cd)pyrene	100		

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Hopane Standards



Hopanes Single Element Standards

Hopanes Internal Standards

Product No.	Description	Pack Size
Hopanes Internal Standards	17α(H),21α(H)-Hopane 50µg/mL in isooctane	1ml

C27 Hopanes (trisnorhopanes) Standards

Product No.	Description	Pack Size
REHOP1001	17α(H)-22,29,30-Trisnorhopane 100µg/mL in isooctane	1ml
REHOP1002	17ß(H)-22,29,30-Trisnorhopane Neat	5µg

C29 Hopanes (norhopanes)

Product No.	Description	Pack Size
REHOP1101	17α(H),21α(H)-30-Norhopane 50µg/mL in isooctane	1ml
REHOP1102	17α(H),21ß(H)-30-Norhopane 50µg/mL in isooctane	1ml
REHOP1103	17ß(H),21α(H)-30-Norhopane 100µg/mL in isooctane	1ml

C30 Hopanes

Product No.	Description	Pack Size
REHOP1201	17α(H),21α(H)-Hopane 50µg/mL in isooctane	1ml
REHOP1202	17α(H),21ß(H)-Hopane 100µg/mL in isooctane	1ml
REHOP1203	17ß(H),21α(H)-Hopane 100µg/mL in isooctane	1ml
REHOP1204	17ß(H),21ß(H)-Hopane 100µg/mL in isooctane	1ml
REHOP1205	17α(H),21α(H)-30-Nor-29-methylhopane 50µg/mL in isooctane	1ml
REHOP1206	17α(H),21ß(H)-30-Nor-29-methylhopane 50µg/mL in isooctane	1ml

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C31 Hopanes (homohopanes)

Product No.	Description	Pack Size
REHOP1301	17α(H),21ß(H)-(22R)-Homohopane 50µg/mL in isooctane	1ml
REHOP1302	17α(H),21ß(H)-(22S)-Homohopane 50µg/mL in isooctane	1ml
REHOP1303	17α(H),21ß(H)-(22RS)-Homohopane 50µg/mL in isooctane	1ml

C32 Hopanes (bishomohopanes)

Product No.	Description	Pack Size
REHOP1401	17α(H),21ß(H)-(22RS)-Bishomohopane 50µg/mL in isooctane	1ml
REHOP1402	Bishomohopane, Isomer mix 100µg/mL in isooctane	1ml

C33 Hopanes (trishomohopanes)

Product No.	Description	Pack Size
REHOP1501	17α(H),21ß(H)-(22RS)-Trishomohopane 50µg/mL in isooctane	1ml

C34 Hopanes (tetrakishomohopanes)

Product No.	Description	Pack Size
REHOP1601	17α(H),21ß(H)-(22R)-Tetrakishomohopane neat	10µg
REHOP1602	17α(H),21ß(H)-(22S)-Tetrakishomohopane neat	10µg

C35 Hopanes (pentakishopanes)

Product No.	Description	Pack Size
REHOP1701	17α(H),21ß(H)-(22RS)-Pentakishomohopane Neat	10µg
REHOP1702	17ß(H),21α(H)-(22RS)-Pentakishomohopane Neat	10µg
REHOP1703	17ß(H),21α(H)-(22RS)-Pentakishomohopane 50µg/mL in isooctane	1ml

2-Methylhopanes

Product No.	Description	Pack Size
REHOP1801	2β,17α(H),21ß(H)-2-Methylhopane neat	10µg
REHOP1802	2α+2β,17α(H),21ß(H)-2-Methylhopane (ca 1:3) neat	10µg

3-Methylhopanes

Product No.	Description	Pack Size
REHOP1901	3β,17α(H),21α(H)-3-Methylhopane neat	10µg
REHOP1902	3β,17α(H),21ß(H)-3-Methylhopane neat	10µg
REHOP1903	3β,17β(H),21α(H)-3-Methylhopane neat	10µg
REHOP1904	3β,17β(H),21ß(H)-3-Methylhopane neat	10µg

Lupanes

Product No.	Description	Pack Size
REHOP2001	Lupane 100µg/mL in isooctane	1ml
REHOP2002	17ß(H)-28-Norlupane 100µg/mL in isooctane	1ml
REHOP2003	28-Norlupane (17ß(H)/17α(H)) 100µg/mL in isooctane	1ml

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Hopanes Multi-Element Standards

Product No.	Description	Concentration	Solvent	Pack Size
REHOP01001	17α(H), 21β(H)-Hopane	0.1mg/ml	Isooctane	1ml
	Farnesane	1.0mg/ml		
	Phytane	1.0mg/ml		
	Norpristane	1.0mg/ml		
	n-Heptadecane	1.0mg/ml		

Product No.	Description	Concentration	Solvent	Pack Size
REHOP01004	Carbazole	each at 100µg/ml	Isooctane	1ml
	17α(H)-22,29,30-Trisnorhopane			
	ααα (20R)-Cholestane			
	αßß (20R,24S)-24-Methylcholestane			
	ααα (20R,24R)-24-Ethylcholestane			

Product No.	Description	Concentration	Solvent	Pack Size
REHOP09001-I	n-Dodecane-d26	1000µg/ml	Isooctane	1ml
	n-Hexadecane-d34	1000µg/ml		
	d2 C27 Cholestane	50µg/ml		
	Naphthalene-d8	100µg/ml		
	Phenanthrene-d10	100µg/ml		
	Dibenzothiophene-d8	100µg/ml		
	d2 C28 Triaromatic Sterane	25µg/ml		



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Hopanes Multi-Element Standards

Product No.	Description	Concentration	Solvent	Pack Size
REHOP09002-I	n-Dodecane-d26	2000µg/ml	Isooctane	1ml
	n-Hexadecane-d34	2000µg/ml		
	5β(H)-Cholane	150µg/ml		
	Naphthalene-d8	250µg/ml		
	Biphenyl-d10	250µg/ml		
	Phenanthrene-d10	250µg/ml		
	Chrysene-d12	250µg/ml		

Product No.	Description	Concentration	Solvent	Pack Size
REHOP09003-I	n-Dodecane-d26	2000µg/ml	Isooctane	1ml
	n-Hexadecane-d34	2000µg/ml		
	5ß(H)-Cholane	12µg/ml		
	Naphthalene-d8	24µg/ml		
	Biphenyl-d10	24µg/ml		
	Phenanthrene-d10	24µg/ml		
	Chrysene-d12	24µg/ml		

Product No.	Description	Concentration	Solvent	Pack Size
REHOP09004-I	n-Dodecane-d26	2000µg/ml	Isooctane	1ml
	n-Hexadecane-d3	2000µg/ml		
	5β(H)-Cholane	12µg/ml		
	1-Fluoronaphthalene, F-PAH	24µg/ml		
	4-Fluorobiphenyl, F-PAH	24µg/ml		
	3-Fluorophenanthrene, F-PAH	24µg/ml		
	2-Fluorochrysene,	24µg/ml		
	2-Fluorodibenzothiophene, F-PASH	24µg/ml		
	d2 C28 Triaromatic Sterane	12µg/ml		

Product No.	Description	Concentration	Solvent	Pack Size
REHOP09005-I	Phenanthrene-d10	each at 100µg/ml	Toluene	1.1ml
	Naphthalene-d8			
	Chrysene-d12			
	Biphenyl-d10			
	Benzo[a]pyrene-d10			

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Tetraline Standards



Tetralines (tetrahydronaphthalenes)

Product No.	Description	Pack Size
RETET1001	Tetraline 1000µg/mL in isooctane	1ml
RETET1002	1-Methyltetraline 1000µg/mL in isooctane	1ml
RETET1003	5-Methyltetraline 1000µg/mL in isooctane	1ml
RETET1004	6-Methyltetraline 1000µg/mL in isooctane	1ml
RETET1005	1,4-Dimethyltetraline 1000µg/mL in isooctane	1ml
RETET1006	1,8-Dimethyltetraline 1000µg/mL in isooctane	1ml
RETET1007	2,6-Dimethyltetraline 1000µg/mL in isooctane	1ml
RETET1008	2,7-Dimethyltetraline 1000µg/mL in isooctane	1ml
RETET1009	5,7-Dimethyltetraline 1000µg/mL in isooctane	1ml
RETET1010	2-Ethyltetraline 1000µg/mL in isooctane	1ml
RETET1011	5-Ethyltetraline 1000µg/mL in isooctane	1ml
RETET1012	6-Ethyltetraline 1000µg/mL in isooctane	1ml
RETET1013	1,1,6-Trimethyltetraline 1000µg/mL in isooctane	1ml
RETET1014	1,5,8-Trimethyltetraline 1000µg/mL in isooctane	1ml
RETET1015	2,5,8-Trimethyltetraline 1000µg/mL in isooctane	1ml
RETET1016	2,2,5,7-Tetramethyltetraline 1000µg/mL in isooctane	1ml
RETET1017	6,7-Diethyl-1,1,4,4-tetramethyltetraline 1000µg/mL in isooctane	1ml
RETET1019	1,8-Dimethyl-5-isopentyltetraline, isomer mix w/ 1,5-Dimethyl-8-isopentyltetraline Neat	10mg

Tetralines Multi-Element Standards

Product No.	Description	Concentration	Solvent	Pack Size
RETET01004	sopropanol	22mg/ml	Methanol	1ml
	Ethanol	150mg/ml		
	2-Butanol	50mg/ml		
	n-Propanol	40mg/ml		
	3-Hexanon	0.2mg/ml		
	i-Butanon	10mg/ml		
	3-Pentanol	10mg/ml		
	2-Pentanol	15mg/ml		
	1-Butanol	10mg/ml		
	2-Metyl-3-pentanol	0.5mg/ml		
	3-Hexanol	5mg/ml		
	2-Metyl-1-butanol	8mg/ml		
	2-Hexanol	3mg/ml		
	1-Pentanol	4.206mg/ml		
	2-Methyl-1-pentanol	1mg/ml		
	1-Hexanol	1mg/ml		
	1-Heptanol	0.4mg/ml		
	1-Oktanol	0.2mg/ml		

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Tetralines Multi-Element Standards

Product No.	Description	Concentration	Solvent	Pack Size
RETET01001	n-Alkanes (even + pristane/phytane)	each at 1000µg/ml	Isooctane	1ml
	12 Analytes			
	This standard includes all the even n-paraffins + pristane and phytane.			

Product No.	Description	Concentration	Solvent	Pack Size
RETET01002	Isopentane	0.25%	neat	1ml
	Pentene-1	0.50%		
	n-Pentene-I	1.25%		
	2,2-Dimethylbutane	1.00%		
	Cyclopentane	0.25%		
	2,3-Dimethylbutane	1.75%		
	2-Methylpentane	8.50%		
	3-Methylpentane	7.00%		
	1 -Hexene	0.50%		
	n-Hexane	7.50%		
	Methylcyclopentane	2.00%		
	2.2-Dimethylpentane	1.00%		
	Benzene	64.50%		
	2,4-Dimethylpentane	1.00%		
	2,2,3-trimethylbutane	2.00%		

Product No.	Description	Concentration	Solvent	Pack Size
RETET01003	Isopentane	0.25%	neat	1ml
	n-pentane	3.25%		
	2,2-Dimethylbutane	1.00%		
	Cyclopentane	0.25%		
	2,3-Dimethylbutane	1.50%		
	2-Methylpentane	7.00%		
	3-Methylpentane	50%		
	n-Hexane	7.00%		
	Methylcyclopentane	1.50%		
	2.2-DimetHylpentane	1.00%		
	Benzene	0.25%		
	Cyclohexane	69.00%		
	2,4-Dimethylpedane	1.00%		
	2,2,3-trimethylbutane	1.50%		

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Deuterated adamantanes and diamantanes

Product No.	Description	Pack Size
RETET5001	Adamantane-d16 1000µg/mL in isooctane	1ml
RETET5002	Adamantane-d16 1000µg/mL in isooctane	5x 1ml
RETET5003	1-Methyldiamantane-d3 1000µg/mL in isooctane	1ml

Adamantanes

Product No.	Description	Pack Size
RETET1401	Adamantane 1000µg/mL in isooctane	1ml
RETET1402	1-Methyladamantane 1000µg/mL in isooctane	1ml
RETET1403	2-Methyladamantane 1000µg/mL in isooctane	1ml
RETET1404	1,3-Dimethyladamantane 1000µg/mL in isooctane	1ml
RETET1405	1-Ethyladamantane 1000µg/mL in isooctane	1ml
RETET1406	2-Ethyladamantane 1000µg/mL in isooctane	1ml
RETET1407	1,2-/1,4-Dimethyladamantane 1000µg/mL in isooctane	1ml
RETET1408	1,3,5-Trimethyladamantane 1000µg/mL in isooctane	1ml
RETET1409	1-Ethyl-3-methyladamantane 1000µg/mL in isooctane	1ml

Diamantanes

Product No.	Description	Pack Size
RETET1201	Norbornane 1000µg/mL in methanol	1ml
RETET1202	Bicyclo[3.3.0]octane 1000µg/mL in cyclohexane	1ml
RETET1203	2-Ethylbicyclo[2.2.1]heptane 1000µg/mL in cyclohexane	1ml
RETET1204	cis-Bicyclo[4.3.0]nonane 1000µg/mL in cyclohexane	1ml
RETET1205	trans-Bicyclo[4.3.0]nonane 1000µg/mL in cyclohexane	1ml
RETET1206	5,6-Dihydrodicyclopentadiene 1000µg/mL in isooctane	1ml

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Thiophene Standards

Thiophenes and alkylthiophenes

Product No.	Description	Pack Size
RETHI1001	Thiophene Neat	100mg
RETHI1002	2-Methylthiophene Neat	100mg
RETHI1003	3-Methylthiophene Neat	100mg
RETHI1004	2,3-Dimethylthiophene 1000µg/mL in isooctane	1ml
RETHI1005	2,4-Dimethylthiophene 1000µg/mL in isooctane	1ml
RETHI1006	2,5-Dimethylthiophene Neat	100mg
RETHI1007	3,4-Dimethylthiophene 1000µg/mL in isooctane	1ml
RETHI1008	2-Ethylthiophene Neat	100mg
RETHI1009	3-Ethylthiophene Neat	100mg
RETHI1010	2,3,5-Trimethylthiophene Neat	10mg
RETHI1011	2-Ethyl-5-methylthiophene Neat	100mg
RETHI1012	2-n-Propylthiophene Neat	100mg
RETHI1013	3-n-Propylthiophene Neat	100mg
RETHI1014	2,3,4,5-Tetramethylthiophene Neat	100mg
RETHI1015	2-n-Butylthiophene Neat	100mg
RETHI1016	2-n-Amylthiophene Neat	100mg
RETHI1017	2-Phenylthiophene 1000µg/mL in isooctane	1ml
RETHI1018	3-Phenylthiophene 1000µg/mL in isooctane	1ml
RETHI1019	2-n-Butyl-5-ethylthiophene 1000µg/mL in isooctane	1ml
RETHI1020	2-n-Hexylthiophene 1000µg/mL in isooctane	1ml
RETHI1021	3-n-Heptylthiophene 1000µg/mL in isooctane	1ml
RETHI1022	2-n-Octylthiophene 1000µg/mL in isooctane	1ml
RETHI1023	3-n-Octylthiophene 1000µg/mL in isooctane	1ml
RETHI1024	3-n-Nonylthiophene 1000µg/mL in isooctane	1ml
RETHI1025	3-n-Decylthiophene 1000µg/mL in isooctane	1ml
RETHI1026	3-n-Undecylthiophene 1000µg/mL in isooctane	1ml
RETHI1027	3-n-Dodecylthiophene 1000µg/mL in isooctane	1ml
RETHI1028	3-n-Tetradecylthiophene 1000µg/mL in isooctane	1ml
RETHI1029	3-n-Hexadecylthiophene 1000µg/mL in isooctane	1ml
RETHI1030	3-n-Octadecylthiophene 1000µg/mL in isooctane	1ml

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Benzothiophenes / C0-C1 Benzothiophenes (benz[b]thiophenes, thionaphthenes)

Product No.	Description	Pack Size
RETHI1101	Benzothiophene 1000µg/mL in isooctane	1ml
RETHI1102	2-Methylbenzothiophene 1000µg/mL in isooctane	1ml
RETHI1103	3-Methylbenzothiophene 1000µg/mL in isooctane	1ml
RETHI1104	4-Methylbenzothiophene 1000µg/mL in isooctane	1ml
RETHI1105	5-Methylbenzothiophene 1000µg/mL in isooctane	1ml
RETHI1106	6-Methylbenzothiophene 1000µg/mL in isooctane	1ml
RETHI1107	7-Methylbenzothiophene 1000µg/mL in isooctane	1ml

C2 Benzothiophenes

Product No.	Description	Pack Size
RETHI1201	2,3-Dimethylbenzothiophene 1000µg/mL in isooctane	1ml
RETHI1202	2,6-Dimethylbenzothiophene 50µg/mL in isooctane	1ml
RETHI1203	2,5-Dimethylbenzothiophene 1000µg/mL in isooctane	1ml
RETHI1204	3,5-Dimethylbenzothiophene 1000µg/mL in isooctane	1ml
RETHI1205	2,3,4-Trimethylbenzothiophene 150µg/mL in isooctane	1ml
RETHI1206	2,3,6-Trimethylbenzothiophene 150µg/mL in isooctane	1ml
RETHI1207	2,5,7-Trimethylbenzothiophene 1000µg/mL in isooctane	1ml

Dibenzothiophenes

Product No.	Description	Pack Size
RETHI1301	Dibenzothiophene 500µg/mL in isooctane	1ml
RETHI1302	1-Methyldibenzothiophene 10µg/mL in toluene	1ml
RETHI1303	2-Methyldibenzothiophene 500µg/mL in isooctane	1ml
RETHI1304	3-Methyldibenzothiophene 50µg/mL in isooctane	1ml
RETHI1305	4-Methyldibenzothiophene 500µg/mL in isooctane	1ml

C2 Dibenzothiophenes

Product No.	Description	Pack Size
RETHI1401	1,2-Dimethyldibenzothiophene 500µg/mL in isooctane	1ml
RETHI1402	1,3-Dimethyldibenzothiophene 500µg/mL in isooctane	1ml
RETHI1403	1,4-Dimethyldibenzothiophene 500µg/mL in isooctane	1ml
RETHI1404	2,3-Dimethyldibenzothiophene 500µg/mL in isooctane	1ml
RETHI1405	2,4-Dimethyldibenzothiophene 500µg/mL in isooctane	1ml
RETHI1406	2,6-Dimethyldibenzothiophene 500µg/mL in isooctane	1ml
RETHI1407	2,8-Dimethyldibenzothiophene 500µg/mL in isooctane	1ml
RETHI1408	3,6-Dimethyldibenzothiophene/2,6-Dimethyldibenzothiophene (6:1) 100µg/mL in isooctane	1ml
RETHI1409	4,6-Dimethyldibenzothiophene 500µg/mL in isooctane	1ml
RETHI1410	2-Ethyldibenzothiophene 500µg/mL in isooctane	1ml
RETHI1411	4-Ethyldibenzothiophene 500µg/mL in isooctane	1ml

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C3 Dibenzothiophenes

Product No.	Description	Pack Size
RETHI1501	2,3,7-/2,3,8-Trimethyldibenzothiophene 500µg/mL in isooctane	1ml
RETHI1502	2,4,6-Trimethyldibenzothiophene 100µg/mL in isooctane	1ml
RETHI1503	2,4,7-Trimethyldibenzothiophene 500µg/mL in isooctane	1ml
RETHI1504	2,4,8-Trimethyldibenzothiophene 100µg/mL in isooctane	1ml
RETHI1505	4-Ethyl-6-methyldibenzothiophene 500µg/mL in isooctane	1ml
RETHI1506	2-n-Propyldibenzothiophene 500µg/mL in isooctane	1ml
RETHI1507	4-n-Propyldibenzothiophene 500µg/mL in isooctane	1ml

C4+ Dibenzothiophenes

Product No.	Description	Pack Size
RETHI1601	4,6-Diethyldibenzothiophene 500µg/mL in isooctane	1ml
RETHI1602	2-n-Butyldibenzothiophene 500µg/mL in isooctane	1ml
RETHI1603	4-n-Butyldibenzothiophene 500µg/mL in isooctane	1ml
RETHI1604	2-n-Pentyldibenzothiophene 500µg/mL in isooctane	1ml
RETHI1605	4-n-Pentyldibenzothiophene 500µg/mL in isooctane	1ml

Phenyldibenzothiophenes

Product No.	Description	Pack Size
RETHI1701	1-Phenyldibenzothiophene 500µg/mL in isooctane	1ml
RETHI1702	2-Phenyldibenzothiophene 500µg/mL in isooctane	1ml
RETHI1703	3-Phenyldibenzothiophene 500µg/mL in isooctane	1ml
RETHI1704	4-Phenyldibenzothiophene 500µg/mL in isooctane	1ml

Benzo-, naphtho-, and acenaphthylenothiophenes

Product No.	Description	Pack Size
RETHI1801	Benzo[b]naphtho[1,2-d]thiophene 200µg/mL in toluene	1ml
RETHI1802	Benzo[b]naphtho[2,3-d]thiophene 200µg/mL in toluene	1ml
RETHI1803	Benzo[b]naphtho[2,1-d]thiophene 200µg/mL in toluene	1ml
RETHI1804	7,8,9,10-Tetrahydrobenzo[b]naphtho[2,3-d]thiophene 200µg/mL in toluene	1ml
RETHI1805	7-Methylbenzo[b]naphtho[2,3-d]thiophene 200µg/mL in toluene	1ml
RETHI1806	8-Methylbenzo[b]naphtho[2,3-d]thiophene 200µg/mL in toluene	1ml
RETHI1807	Dinaphtho[2,1-b;1',2'-d]thiophene 200µg/mL in toluene	1ml
RETHI1808	Diacenaphthyleno[1,2-b;1',2'-d]thiophene 200µg/mL in toluene	1ml
RETHI1809	Dibenzo[2,3;10,11]peryleno[1,12-bcd]thiophene 20µg/mL in chlorobenzene	1ml
RETHI1810	Diphenanthro[9,10-b;9',10'-d]thiophene 200µg/mL in toluene	1ml
RETHI1811	Diphenanthro[9,10-b;9',10'-d]thiophene Neat	1mg
RETHI1812	1,2,3,4-Tetrahydrobenzo[b]naphtho[1,2-d]thiophene 100µg/mL in toluene	1ml

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Bromodibenzothiophenes

Product No.	Description	Pack Size
RETHI1901	2-Bromodibenzothiophene 1000µg/mL in isooctane	1ml
RETHI1902	4-Bromodibenzothiophene 1000µg/mL in isooctane	1ml
RETHI1903	2,8-Dibromodibenzothiophene 1000µg/mL in isooctane	1ml

Other dibenzothiophenes

Product No.	Description	Pack Size
RETHI2001	Dibenzothiophene sulfone Neat	100mg
RETHI2002	gamma-Oxo-α-methyl-2-dibenzothiophenebutyric acid 100µg/mL in acetonitrile	1ml

Isoprenoids, tail to tail

Product No.	Description	Pack Size
RETER1001	2,6,11-Trimethyldodecane 1000µg/mL in isooctane	1ml
RETER1002	2,6,11,15-Tetramethylhexadecane 1000µg/mL in isooctane	1ml
RETER1003	Squalene 1000µg/mL in isooctane	1ml
RETER1004	Squalane 1000µg/mL in isooctane	1ml
RETER1005	Squalane-d62 100µg/mL in acetonitrile	1ml
RETER1006	ßß-Carotane 500µg/mL in isooctane	1ml
RETER1007	Lycopane 500µg/mL in isooctane	1ml

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Petrochemical Standards

Gas calibration Standards for use in the Petrochemical Industry

Product No.	Description	% Concentration	Solvent	Pack Size
REGASCAL-1-250	Naphtalin	3	Petrolether	250ml
	o-xylene	6.2		
	p-xylene	6		
	MTBE	10.6		
REGASCAL-2-250	Ethanol	12	Petrolether	250ml
	2-ET-Toluene	7.6		
	Mesitylen	6		
	Pseudocumen	6		
REGASCAL-3-250	TAME	14.6	Petrolether	250ml
	ET-Benzene	6.5		
	4-ET-Toluene	4		
REGASCAL-4-250	Pr-Benzene	9.8	Petrolether	250ml
	M-xylene	5.5		
	Toluene	5.3		
REGASCAL-5-250	Methanol	6	Petrolether	250ml
	3-ET-Toluene	5.2		
	Toluene	7		



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Benzene Calibration Standards

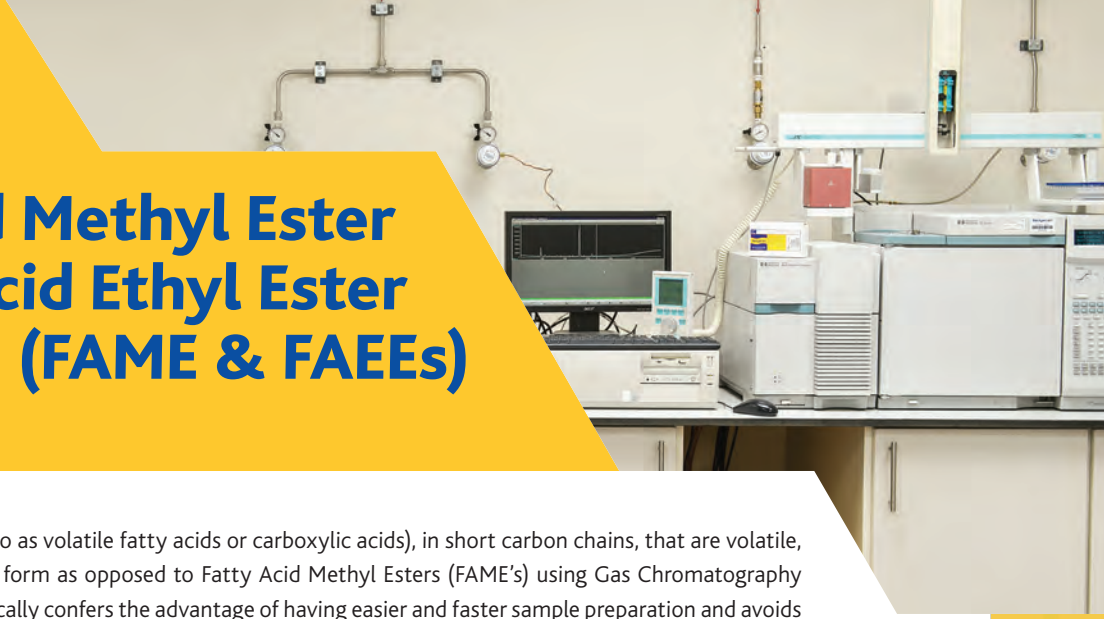
Product No.	Description	% Concentration	Solvent	Pack Size
REBENCAL-B05-250	Benzene	0.5	Petrolether	250ml
	Toluene	15		
REBENCAL-B10-250	Benzene	1	Petrolether	250ml
	Mesitylen	7		
	Pr-Benzene	7		
REBENCAL-B25-250	Benzene	2.5	Petrolether	250ml
	Toluene	5.5		
	Mesitylen	3		
	Pr-Benzene	4.5		
REBENCAL-B35-250	Benzene	3.5	Petrolether	250ml
	Mesitylen	11.5		
REBENCAL-B50-250	Benzene	5	Petrolether	250ml
	Pr-Benzene	10		

Cetane Improver Calibration Sets

Product No.	Description	% Concentration	Solvent	Pack Size
RECETIMP-CAL1-250	2-Ethylhexyl Nitrate	0.03	Chevron Phillips High Cetone	250ml
RECETIMP-CAL2-250	2-Ethylhexyl Nitrate	0.1	Chevron Phillips High Cetone	250ml
RECETIMP-CAL3-250	2-Ethylhexyl Nitrate	0.2	Chevron Phillips High Cetone	250ml
RECETIMP-CAL4-250	2-Ethylhexyl Nitrate	0.5	Chevron Phillips High Cetone	250ml

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Fatty Acid Methyl Ester & Fatty Acid Ethyl Ester Standards (FAME & FAEEs)



Free fatty acids (also referred to as volatile fatty acids or carboxylic acids), in short carbon chains, that are volatile, are typically measured in free form as opposed to Fatty Acid Methyl Esters (FAME's) using Gas Chromatography (GC). Analysis in free form typically confers the advantage of having easier and faster sample preparation and avoids the formation of derivatisation artefacts. However, free fatty acids may be difficult to analyse because these highly polar compounds tend to form hydrogen bonds causing column adsorption problems or in the case of unsaturated fatty acids the slight difference between different compounds may be difficult to distinguish without the neutralisation step involved in esterification.

The esterification of fatty acids is an important tool for both characterising fats and oils and for determining the total fat content in foods and foodstuffs. It is also an important technique for assessing the quality and purity of biofuels. Fats are extracted using a non-polar solvent, saponised to acids and analysed by gas chromatography (GC). GC is an important technique for fats and oils analysis because accurate results can be obtained for complex as well as simple sample matrices. Several compendium from organisations such as the Association of Official Agriculture Chemists (AOAC), American Oil Chemists Society (AOCS) and the European Pharmacopoeia (EP) contain derivatisation procedures. FAME's may be produced from vegetable oils, animal fats or waste cooking oils by transesterification. In this process a glyceride reacts with an alcohol in the presence of a catalyst forming a mixture of fatty acid esters and an alcohol thus producing biodiesel. Using triglycerides as the fat source, results in the production of glycerol.

Rapeseed, sunflower, soybean and palm oils are the most common raw materials used for the production of biodiesel. Using methanol in the transesterification process has the advantage that the resulting glycerol can be separated simultaneously during the transesterification process. When using ethanol, the ethanol needs to be free of water and the oil needs to have a low water content as well, to achieve an easy glycerol separation. Where ethanol is used it is fatty acid ethyl esters (FAEE's) that are produced. The end products of the transesterification process are raw biodiesel and raw glycerol. After a cleaning step biodiesel is produced. The purified glycerol can be used in the food and cosmetic industries as well as in the electrochemical industry and as a substrate for anaerobic digestion. Reagecon offers several FAME and FAEE individual compounds and mixtures which can be used to calibrate the GC instrument prior to analysis or as Quality Control Materials during analysis. Deuterated versions are also available for use as internal standards. Such products may be offered as neat materials or in pre-prepared liquid matrices.

Unsaturated Methyl Esters

Product No.	Description	Concentration in Matrix	Pack Size
REUFA001N	Methyl cis-9-hexadecenoate (Palmitoleate) C16:1	Neat	10mg
REUFA001S	Methyl cis-9-hexadecenoate (Palmitoleate) C16:1	10000µg/ml in Heptane	1ml
REUFA002N	Methyl trans-9-hexadecenoate C16:1	Neat	10mg
REUFA002S	Methyl trans-9-hexadecenoate C16:1	10000µg/ml in Heptane	1ml
REUFA003N	Methyl cis-6-octadecenoate (Petroselinate) C18:1	Neat	10mg
REUFA003S	Methyl cis-6-octadecenoate (Petroselinate) C18:1	10000µg/ml in Heptane	1ml
REUFA004N	Methyl trans-6-octadecenoate (Petroselaidate) C18:1	Neat	10mg
REUFA004S	Methyl trans-6-octadecenoate (Petroselaidate) C18:1	10000µg/ml in Heptane	1ml
REUFA005N	Methyl cis-9-octadecenoate (Oleate) C18:1 112-62-9	Neat	10mg
REUFA005S	Methyl cis-9-octadecenoate (Oleate) C18:1 112-62-9	10000µg/ml in Heptane	1ml
REUFA006N	Methyl trans-9-octadecenoate (Elaidate) C18:1 2462-84-2	Neat	10mg
REUFA006S	Methyl trans-9-octadecenoate (Elaidate) C18:1 2462-84-2	10000µg/ml in Heptane	1ml
REUFA007N	Methyl cis-11-octadecenoate (Vaccenate) C18:1 1937-63-9	Neat	10mg
REUFA007S	Methyl cis-11-octadecenoate (Vaccenate) C18:1 1937-63-9	10000µg/ml in Heptane	1ml
REUFA008N	Methyl 12-hydroxy-cis-9-octadecenoate (Ricinoleate) C18:1	Neat	10mg
REUFA008S	Methyl 12-hydroxy-cis-9-octadecenoate (Ricinoleate) C18:1	10000µg/ml in Heptane	1ml
REUFA010N	Methyl linoleate (Linoleate) C18:2	Neat	10mg
REUFA010S	Methyl linoleate (Linoleate) C18:2	10000µg/ml in Heptane	1ml
REUFA011N	Methyl linolelaidate (Linoelaidate) C18:2	Neat	10mg
REUFA011S	Methyl linolelaidate (Linoelaidate) C18:2	10000µg/ml in Heptane	1ml
REUFA012N	Methyl octadecadienoate (Conjugated) C18:2	Neat	10mg
REUFA012S	Methyl octadecadienoate (Conjugated) C18:2	10000µg/ml in Heptane	1ml
REUFA014N	Methyl linolenate (Linolenate) C18:3	Neat	10mg
REUFA014S	Methyl linolenate (Linolenate) C18:3	10000µg/ml in Heptane	1ml
REUFA015N	Methyl g-linolenate (Gamma Linolenate) C18:3	Neat	10mg
REUFA015S	Methyl g-linolenate (Gamma Linolenate) C18:3	10000µg/ml in Heptane	1ml
REUFA016N	Methyl trans-11-eicosenoate C20:1	Neat	10mg

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Unsaturated Methyl Esters

Product No.	Description	Concentration in Matrix	Pack Size
REUFA016S	Methyl trans-11-eicosenoate C20:1	10000µg/ml in Heptane	1ml
REUFA017N	Methyl cis-8-eicosenoate C20:1	Neat	10mg
REUFA017S	Methyl cis-8-eicosenoate C20:1	10000µg/ml in Heptane	1ml
REUFA018N	Methyl cis-11-eicosenoate C20:1	Neat	10mg
REUFA018S	Methyl cis-11-eicosenoate C20:1	10000µg/ml in Heptane	1ml
REUFA019N	Methyl cis-5-eicosenoate C20:1	Neat	10mg
REUFA019S	Methyl cis-5-eicosenoate C20:1	10000µg/ml in Heptane	1ml
REUFA020N	Methyl cis-11,14-eicosadienoate C20:2	Neat	10mg
REUFA020S	Methyl cis-11,14-eicosadienoate C20:2	10000µg/ml in Heptane	1ml
REUFA022N	Methyl cis-8,11,14-eicosatrienoate (Homogamma linolenate) C20:3	Neat	10mg
REUFA022S	Methyl cis-8,11,14-eicosatrienoate (Homogamma linolenate) C20:3	10000µg/ml in Heptane	1ml
REUFA023N	Methyl cis-11,14,17-eicosatrienoate C20:3	Neat	10mg
REUFA023S	Methyl cis-11,14,17-eicosatrienoate C20:3	10000µg/ml in Heptane	1ml
REUFA024N	Methyl arachidonate (Arachidonate) C20:4	Neat	10mg
REUFA024S	Methyl arachidonate (Arachidonate) C20:4	10000µg/ml in Heptane	1ml
REUFA025N	Methyl 5,8,11,14,17-Eicosapentaenoate C20:5	Neat	10mg
REUFA025S	Methyl 5,8,11,14,17-Eicosapentaenoate C20:5	10000µg/ml in Heptane	1ml
REUFA026N	Methyl cis-7,10,13,16,19-Docosapentaenoate (DPA) C22:5	Neat	10mg
REUFA026S	Methyl cis-7,10,13,16,19-Docosapentaenoate (DPA) C22:5	10000µg/ml in Heptane	1ml
REUFA027N	Methyl cis-13-docosenoate (Erucate) C22:1	Neat	10mg
REUFA027S	Methyl cis-13-docosenoate (Erucate) C22:1	10000µg/ml in Heptane	1ml
REUFA028N	Methyl trans-13-docosenoate (Brassidate) C22:1	Neat	10mg
REUFA028S	Methyl trans-13-docosenoate (Brassidate) C22:1	10000µg/ml in Heptane	1ml
REUFA029N	Methyl cis-13,16-docosadienoate C22:2	Neat	10mg
REUFA029S	Methyl cis-13,16-docosadienoate C22:2	10000µg/ml in Heptane	1ml
REUFA030N	Methyl cis-13,16,19-docosatrienoate C22:3	Neat	10mg
REUFA030S	Methyl cis-13,16,19-docosatrienoate C22:3	10000µg/ml in Heptane	1ml
REUFA031N	Methyl cis-7,10,13,16-Docosatetraenoate C22:4	Neat	10mg
REUFA031S	Methyl cis-7,10,13,16-Docosatetraenoate C22:4	10000µg/ml in Heptane	1ml
REUFA032N	Methyl cis-4,7,10,13,16,19-Docosahexenoate C22:6	Neat	10mg
REUFA032S	Methyl cis-4,7,10,13,16,19-Docosahexenoate C22:6	10000µg/ml in Heptane	1ml
REUFA033N	Methyl cis-15-tetracosenoate (Nervonate) C24:1	Neat	10mg
REUFA033S	Methyl cis-15-tetracosenoate (Nervonate) C24:1	10000µg/ml in Heptane	1ml

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Saturated Methyl Esters

Product No.	Description	Concentration in Matrix	Pack Size
RESFA001N	Methyloctanoate (Caprylate) C8:0	Neat	10mg
RESFA001S	Methyloctanoate (Caprylate) C8:0	10000µg/ml in Heptane	1ml
RESFA002N	Methylnonoate (Pelargonate) C9:0	Neat	10mg
RESFA002S	Methylnonoate (Pelargonate) C9:0	10000µg/ml in Heptane	1ml
RESFA003N	Methyldecanoate (Caprate) C10:0	Neat	10mg
RESFA003S	Methyldecanoate (Caprate) C10:0	10000µg/ml in Heptane	1ml
RESFA004N	Methylundecanoate C11:0	Neat	10mg
RESFA004S	Methylundecanoate C11:0	10000µg/ml in Heptane	1ml
RESFA005N	Methyldodecanoate (Laurate) C12:0	Neat	10mg
RESFA005S	Methyldodecanoate (Laurate) C12:0	10000µg/ml in Heptane	1ml
RESFA006N	Methyltridecanoate C13:0	Neat	10mg
RESFA006S	Methyltridecanoate C13:0	10000µg/ml in Heptane	1ml
RESFA007N	Methyltetradecanoate (Myristate) C14:0	Neat	10mg
RESFA007S	Methyltetradecanoate (Myristate) C14:0	10000µg/ml in Heptane	1ml
RESFA008N	Methylpentadecanoate C15:0	Neat	10mg
RESFA008S	Methylpentadecanoate C15:0	10000µg/ml in Heptane	1ml
RESFA009N	Methylhexadecanoate (Palmitate) C16:0	Neat	10mg
RESFA009S	Methylhexadecanoate (Palmitate) C16:0	10000µg/ml in Heptane	1ml
RESFA010N	Methylheptadecanoate (Margarate) C17:0	Neat	10mg
RESFA010S	Methylheptadecanoate (Margarate) C17:0	10000µg/ml in Heptane	1ml
RESFA011N	Methyloctadecanoate (Stearate) C18:0	Neat	10mg
RESFA011S	Methyloctadecanoate (Stearate) C18:0	10000µg/ml in Heptane	1ml
RESFA012N	Methyl 12-hydroxystearate C18:0	Neat	10mg
RESFA012S	Methyl 12-hydroxystearate C18:0	10000µg/ml in Heptane	1ml
RESFA013N	Methylnonadecanoate C19:0	Neat	10mg
RESFA013S	Methylnonadecanoate C19:0	10000µg/ml in Heptane	1ml
RESFA014N	Methyleicosanoate (Arachidate) C20:0	Neat	10mg
RESFA014S	Methyleicosanoate (Arachidate) C20:0	10000µg/ml in Heptane	1ml
RESFA015N	Methylheneicosanoate C21:0	Neat	10mg
RESFA015S	Methylheneicosanoate C21:0	10000µg/ml in Heptane	1ml
RESFA016N	Methyldocosanoate (Behenate) C22:0	Neat	10mg
RESFA016S	Methyldocosanoate (Behenate) C22:0	10000µg/ml in Heptane	1ml
RESFA017N	Methyltricosanoate C23:0	Neat	10mg
RESFA017S	Methyltricosanoate C23:0	10000µg/ml in Heptane	1ml
RESFA018N	Methyltetracosanoate (Lignocerate) C24:0	Neat	10mg
RESFA018S	Methyltetracosanoate (Lignocerate) C24:0	10000µg/ml in Heptane	1ml

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Fatty Acid Ethyl Esters

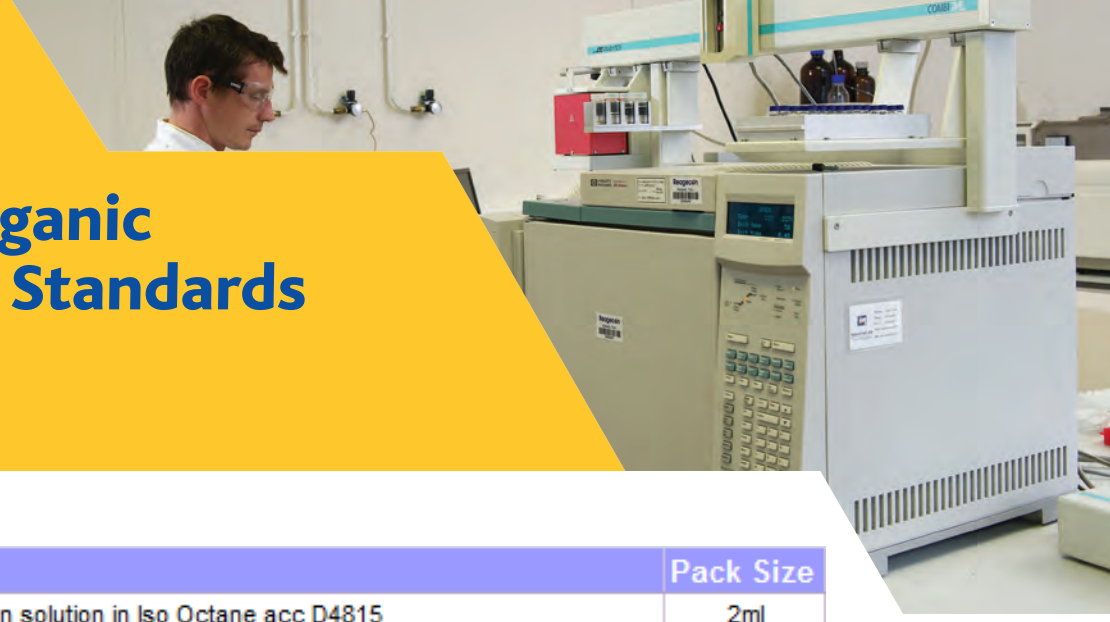
Product No.	Description	Concentration in Matrix	Pack Size
REFAEE001N	Ethyl palmitoleate	Neat	100mg
REFAEE001S	Ethyl palmitoleate	10mg/ml in Hexane	1ml
REFAEE002N	Ethyl caprylate	Neat	100mg
REFAEE002S	Ethyl caprylate	10mg/ml in Hexane	1ml
REFAEE003N	Ethyl caprate	Neat	100mg
REFAEE003S	Ethyl caprate	10mg/ml in Hexane	1ml
REFAEE004N	Ethyl laurate	Neat	100mg
REFAEE004S	Ethyl laurate	10mg/ml in Hexane	1ml
REFAEE005N	Ethyl myristate	Neat	100mg
REFAEE005S	Ethyl myristate	10mg/ml in Hexane	1ml
REFAEE006N	Ethyl palmitate	Neat	100mg
REFAEE006S	Ethyl palmitate	10mg/ml in Hexane	1ml
REFAEE007N	Ethyl stearate	Neat	100mg
REFAEE007S	Ethyl stearate	10mg/ml in Hexane	1ml
REFAEE008N	Ethyl arachidate	Neat	100mg
REFAEE008S	Ethyl arachidate	10mg/ml in Hexane	1ml
REFAEE009N	Ethyl behenate	Neat	100mg
REFAEE009S	Ethyl behenate	10mg/ml in Hexane	1ml
REFAEE010N	Ethyl lignocerate	Neat	100mg
REFAEE010S	Ethyl lignocerate	10mg/ml in Hexane	1ml
REFAEE011N	Ethyl erucate	Neat	100mg
REFAEE011S	Ethyl erucate	10mg/ml in Hexane	1ml
REFAEE012N	Ethyl linoleate	Neat	100mg
REFAEE012S	Ethyl linoleate	10mg/ml in Hexane	1ml
REFAEE013N	Ethyl nervonate	Neat	100mg
REFAEE013S	Ethyl nervonate	10mg/ml in Hexane	1ml
REFAEE014N	Ethyl oleate	Neat	100mg
REFAEE014S	Ethyl oleate	10mg/ml in Hexane	1ml
REFAEE015N	Ethyl heptadecanoate	Neat	100mg
REFAEE015S	Ethyl heptadecanoate	10mg/ml in Hexane	1ml
REFAEE016N	Ethyl linolenate	Neat	100mg
REFAEE016S	Ethyl linolenate	10mg/ml in Hexane	1ml

Should you require FAMEs or FAEEs in deuterated form, please email sales@reagecon.ie

FAME Calibration Standards

Product No.	Description	% Concentration	Solvent	Pack Size
REFAME-CAL0.5V-250	FAME	0.5	Cyclohexane	250ml
REFAME-CAL1.25V-250	FAME	1.25	Cyclohexane	250ml
REFAME-CAL2.5V-250	FAME	2.5	Cyclohexane	250ml
REFAME-CAL3.75V-250	FAME	3.75	Cyclohexane	250ml
REFAME-CAL5V-250	FAME	5	Cyclohexane	250ml
REFAME-CAL7V-250	FAME	7	Cyclohexane	250ml
REFAME-CAL2V-250	FAME	2	Chevron Phillips High Cetone	250ml
REFAME-CAL4V-250	FAME	4	Chevron Phillips High Cetone	250ml
REFAME-CAL6V-250	FAME	6	Chevron Phillips High Cetone	250ml
REFAME-ENCAL7V-250	FAME	7	Chevron Phillips High Cetone	250ml
REFAME-CAL10V-250	FAME	10	Chevron Phillips High Cetone	250ml
REFAME-CAL15V-250	FAME	15	Chevron Phillips High Cetone	250ml
REFAME-CAL20V-250	FAME	20	Chevron Phillips High Cetone	250ml
REFAME-CAL25V-250	FAME	25	Chevron Phillips High Cetone	250ml
REFAME-CAL30V-250	FAME	30	Chevron Phillips High Cetone	250ml

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Volatile Organic Compound Standards (VOCs)

Product No.	Description	Pack Size
REVOC1299	Xylenes Calibration solution in Iso Octane acc D4815	2ml
REVOC1198	Qualitative Peak ID Solution acc ASTM D4815	2ml
REVOC1201	Mixed Oxygenate Solution No1 acc ASTM D4815	2ml
REVOC1202	Mixed Oxygenate Solution No2 acc ASTM D4815	2ml
REVOC1203	Mixed Oxygenate Solution No3 acc ASTM D4815	2ml
REVOC1204	Mixed Oxygenate Solution No4 acc ASTM D4815	2ml
REVOC1205	Mixed Oxygenate Solution No5 acc ASTM D4815	2ml
REVOC1206	Mixed Oxygenate Solution No6 acc ASTM D4815	2ml
REVOC1207	Mixed Oxygenate Solution No7 acc ASTM D4815	2ml
REVOC1208	Mixed Oxygenate Solution No8 acc ASTM D4815	2ml
REVOC1209	Mixed Oxygenate Solution No9 acc ASTM D4815	2ml
REVOC1212	Mixed Oxygenate Solution No10 acc ASTM D4815	2ml
REVOC1213	Mixed Oxygenate Solution No11 acc ASTM D4815	2ml
REVOC1226	Valve Timing Calibration Solution with Internal Standard acc ASTM D5580	2ml
REVOC1228	Performance Check Solution with Internal Standard acc ASTM D5580	2ml
REVOC1221	Mixed Oxygenate Solution No1 with Internal Standard acc ASTM D5580	2ml
REVOC1222	Mixed Oxygenate Solution No2 with Internal Standard acc ASTM D5580	2ml
REVOC1223	Mixed Oxygenate Solution No3 with Internal Standard acc ASTM D5580	2ml
REVOC1224	Mixed Oxygenate Solution No4 with Internal Standard acc ASTM D5580	2ml
REVOC1225	Mixed Oxygenate Solution No5 with Internal Standard acc ASTM D5580	2ml
REVOC1227	Selectivity Solution with Internal Standard acc ASTM D5580	2ml



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Reagecon







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