

Certified Reference Material

This certificate is designed in accordance with ISO 17034 and ISO Guide 31. This certified reference material (CRM) was designed, produced and verified in accordance with ISO/IEC 17025, ISO 17034 and a registered quality management system ISO 9001.

Product Name	Product Code	Lot Number	Format	Expiry Date	Storage
California Solvent Mix Ver. 2, 48 Components, 1,000 µg/mL in Triacetin	DRE-GA09000698TN	2-H374960TN	Multicomponent Solution	25 Apr 2021	≤ -10 °C

Compound Name	CERTIFIED Conc. (mg/L)	Expanded Uncertainty U (mg/L)	CAS	Lot No.	Purity (%)	Amount (mg)	RT (min)
N-propane	1010	51	74-98-6	4643.1.3P	99.97	50.50	4.92
Isobutane	1000	50	75-28-5	1072.1.2.1P	99.8	50.10	5.50
Butane (c4)	1002	50	106-97-8	1009.1.2P	99	50.60	5.97
2,2-dimethylpropane	997.9	51	463-82-1	6945.158.1P	99	50.40	6.15
Methanol	1000	50	67-56-1	328.24.6P	99.9	50.02	6.69
Ethylene Oxide	1003	50	75-21-8	207.1.4P	99.5	50.40	6.92
2-methylbutane	1001	51	78-78-4	1420.1.2.1P	99.4	50.04	7.27
N-pentane (c5)	1001	51	109-66-0	976.9.2.1P	99.5	50.03	7.81
Ethanol	1001	50	64-17-5	202.9.5P	99.9	50.05	8.10
Ethyl Ether	1001	50	60-29-7	226.1.3.1P	99.9	50.03	8.19
2,2-dimethylbutane	999.3	51	75-83-2	4327.1.1P	99	49.97	8.62
Acetone	1000	50	67-64-1	196.271.3P	99.5	50.01	8.79
Isopropyl Alcohol	999.7	50	67-63-0	570.24.5P	100	49.99	8.96
Acetonitrile	1001	50	75-05-8	204.24.1P	99.98	50.06	9.31
2,3-dimethylbutane	1000	50	79-29-8	2086.9.1P	98.9	50.00	9.32
2-methylpentane	1001	51	107-83-5	384.158.1.1P	99	50.03	9.35
Methylene Chloride	1003	50	75-09-2	178.24.3P	99.9	50.16	9.49
3-methylpentane	1000	50	96-14-0	346.7.2P	99.7	50.01	9.72
N-hexane (c6)	1003	51	110-54-3	620.24.1P	98	50.14	10.07
1-propanol	995.6	51	71-23-8	499.18.1P	99.5	49.78	10.48
Ethyl Acetate	1000	51	141-78-6	269.29.2P	99	50.01	11.10
2-butanone (mek)	1005	51	78-93-3	197.18.1P	99.9	50.27	11.13
2-butanol	1000	50	78-92-2	354.29.1P	99.8	50.01	11.28
Tetrahydrofuran (thf)	1004	50	109-99-9	299.271.2P	99.99	50.22	11.50
Chloroform	1008	51	67-66-3	156.29.2P	99.8	50.40	11.54
Cyclohexane	1001	50	110-82-7	308.1.6P	99.5	50.04	11.80
1,2-dimethoxyethane	993.3	50	110-71-4	3198.7.1.1P	99	49.66	11.98
Isopropyl Acetate	1000	51	108-21-4	372.18.1.1P	99.5	50.00	12.06
Benzene	1001	50	71-43-2	146.1.9P	99.99	50.03	12.21
1,2-dichloroethane	1004	50	107-06-2	164.24.1P	99.9	50.21	12.24

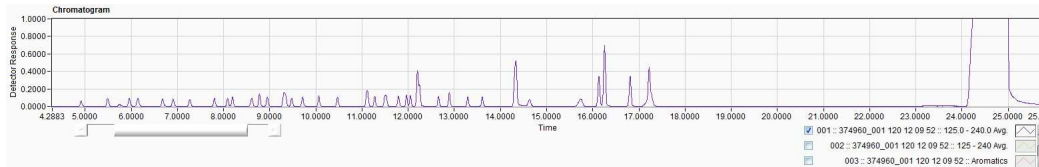
Compound Name	CERTIFIED Conc. (mg/L)	Expanded Uncertainty U (mg/L)	CAS	Lot No.	Purity (%)	Amount (mg)	RT (min)
Heptane (c7)	1000	51	142-82-5	546.9.1P	99	50.00	12.25
1-butanol	1002	51	71-36-3	224.29.2P	99.9	50.09	
Trichloroethylene	1001	51	79-01-6	188.29.1P	98.1	50.07	
1,4-dioxane	1003	51	123-91-1	223.1.3P	100	50.15	
2-ethoxyethanol	1000	51	110-80-5	931.29.1P	100	50.02	
Pyridine	1006	50	110-86-1	101.24.1P	100	50.31	
Toluene	999.9	50	108-88-3	184.24.4P	100	50.00	
Ethylene Glycol	1002	50	107-21-1	307.9.1.1P	99.9	50.10	
1-pentanol	1004	50	71-41-0	858.29.1P	99.9	50.20	
N,n-dimethylformamide	1011	51	68-12-2	359.9.3P	99.99	50.56	
Ethylbenzene	1002	51	100-41-4	174.8.2P	99.9	50.10	
M-xylene	1001	50	108-38-3	193.7.1.2P	99.7	50.04	
P-xylene	1002	50	106-42-3	194.7.1P	99.9	50.09	
O-xylene	1000	50	95-47-6	192.29.2P	99.2	50.02	
Dimethyl Sulfoxide (dmsO)	1017	51	67-68-5	405.9.5P	99.7	50.87	
Isopropylbenzene	1001	50	98-82-8	176.9.3P	99.9	50.04	
N,n-dimethylacetamide	1007	51	127-19-5	1928.7.1P	100	50.37	
Tetramethylene Sulfone	1012	51	126-33-0	1194.1.1P	99.8	50.62	

The producer certifies that this reference material meets the specification stated in this certificate until the expiry date, provided it is stored unopened at the recommended temperature herein. Product warranties for this reference material are set out in the terms and conditions of purchase.

CERTIFIED BY HuiChen Stavros, Ph.D.	CERTIFIED ON 30 Apr 2019		RM Release
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CHROMATOGRAM



[Injection Port SPL1]
 Temperature : 250.0 C
 Total Flow : 127.1 mL/min
 Column Flow : 1.25 mL/min
 Linear Velocity : 23.6 cm/sec

[Column Oven]
 Initial Temperature : 35.0 C
 Equilibration Time : 0.5 min

=Column Oven Temperature
 Program=
 Total Program Time : 24.00 min

Rate (C/min)	Temperature (C)	Hold T
---	35.0	3.00
1	10.0	70.0 0.00
2	20.0	120.0 0.00
3	10.0	200.0 0.00
4	20.0	240.0 5.00

[Column Information]
 Column Name : ZB-624
 Film Thickness : 1.40 um
 Column Length : 60.0 m
 Inner Diameter : 0.25 mm ID

[Detector]
 VUV VGA-100

Method of Preparation

The certified value is based on gravimetric and volumetric preparation of this CRM. This CRM has been confirmed by the appropriate analytical techniques.

Batch Information

Solvent: Triacetin, Lot no. A0390857, 50 mL

Intended Use

This CRM is intended for use in a laboratory as a calibration and quality control standard or in method development for analytical techniques.

Safety

Proper precautions should be observed while handling. See Safety Data Sheet.

Uncertainty

The certified value(s) and uncertainty(ies) are determined in accordance with ISO 17034 with an 95% confidence level (k=2). Uncertainty is based on the Total Combined Uncertainty, including uncertainties of preparation, purity of neat materials, homogeneity, long-term stability testing, and transportation stability.

Traceability

The balances used for gravimetric measurements are calibrated with weights traceable to the national standards (NIST). The calibration of the balances is verified daily internally and annually by an external accredited calibration service. Only Class A glassware is used for volumetric measurements.

Homogeneity

Random replicate samples of the final packaged CRM have been analysed to prove homogeneity consistent with ISO 17034.

Storage

The CRM should be stored in the original sealed bottle at the indicated temperature.

Instructions for Use

The CRM should be used shortly after opening to avoid concentration changes due to evaporation. It is recommended to use 1 µL as the minimum sample size. If storage after opening is necessary, it should be transferred to an amber vial with minimum head space and a Teflon lined silicon septum. If handled as recommended, use period after opening is a maximum of 117 days for an estimated 5% drift in concentration as a result of analyte and/or solvent transpiration. Visit the support section of our website lgcstandards.com for a series of Dr. Ehrenstorfer Tech Tip videos and frequently asked questions.

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The producer of this reference material is registered to ISO 9001:2015 under IZ391-IS4 by NSF-ISR and accredited to ISO 17025:2005 and ISO 17034:2016 by A2LA with the accreditation numbers 3031.01 and 3031.02.



ISO 17034 Accredited
 Reference Material Producer
 Cert. No. 3031.02