



REFERENCE MATERIAL CERTIFICATE

ISO 17034

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
VOC mix for HJ 639-2012, 1000 µg/mL in Methanol

Product Code
DRE-GA09000574ME

Lot Number
2-H413627ME

Format
Multicomponent Solution

Expiry Date
14 Aug 2020

Storage
≤ -10 °C

Compound Name	CERTIFIED Conc. (mg/L)	Expanded Uncertainty U (mg/L)	CAS	Lot No.	Purity (%)	Amount (mg)	RT (min)
Vinyl Chloride	986	22	75-01-4	143.158.5.1P	99	24.90	4.42
1,1-dichloroethylene	1007	23	75-35-4	165.1.1.1P	99	25.18	6.24
Methylene Chloride	1002	21	75-09-2	178.271.1P	99.99	25.06	6.79
Trans-1,2-dichloroethylene	1002	21	156-60-5	167.9.2P	99.8	25.04	7.09
1,1-dichloroethane	1002	21	75-34-3	163.247.1P	98.27	25.04	7.53
Chloroprene	1005	21	126-99-8	315.5.19P	98	250.00	7.60
Cis-1,2-dichloroethylene	1001	37	156-59-2	166.1.6P	97	25.01	8.08
2,2-dichloropropane	1004	32	594-20-7	170.7.3.2P	99.2	25.10	8.10
Bromochloromethane	1004	21	74-97-5	148.1.3P	99.7	25.11	8.32
Chloroform	1002	21	67-66-3	156.29.2P	99.8	25.05	8.38
1,1,1-trichloroethane	1006	29	71-55-6	187.1.1P	99	25.15	8.60
1,1-dichloropropylene	1001	31	563-58-6	171.158.2P	99	25.02	8.73
Carbon Tetrachloride	1002	22	56-23-5	154.9.1P	100	25.06	8.76
Benzene	1002	21	71-43-2	146.1.9P	99.99	25.06	8.94
1,2-dichloroethane	1007	21	107-06-2	164.158.1P	99.9	25.19	8.96
Trichloroethylene	1001	29	79-01-6	188.1.1P	100	25.03	9.54
1,2-dichloropropane	1000	29	78-87-5	168.8.1.1P	99.7	25.00	9.79
Dibromomethane	1001	29	74-95-3	162.1.2P	99.8	25.03	9.90
Bromodichloromethane	1003	21	75-27-4	149.1.10P	97.2	25.07	10.02
Epichlorohydrin	1002	41	106-89-8	1069.7.2P	99.9	25.04	10.30
Cis-1,3-dichloropropylene	1000	50	10061-01-5	172.7.5P	99.7	25.01	10.44
Toluene	1001	21	108-88-3	184.48.1P	100	25.03	10.81
Trans-1,3-dichloropropylene	1001	67	10061-02-6	173.7.4.6P	99	25.02	10.98
1,1,2-trichloroethane	1002	21	79-00-5	195.7.1.6P	99.6	25.05	11.22
Tetrachloroethylene	1003	21	127-18-4	183.1.2P	100	25.07	11.38
1,3-dichloropropane	1001	25	142-28-9	169.7.2.1P	99.8	25.02	11.41
Dibromochloromethane	1002	21	124-48-1	159.29.2P	97.5	25.06	11.69
1,2-dibromoethane	1001	22	106-93-4	161.9.1P	99.9	25.02	11.87
Chlorobenzene	1001	21	108-90-7	155.29.1P	99.9	25.02	12.39
Ethylbenzene	1006	29	100-41-4	174.8.2P	99.9	25.15	12.44

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.

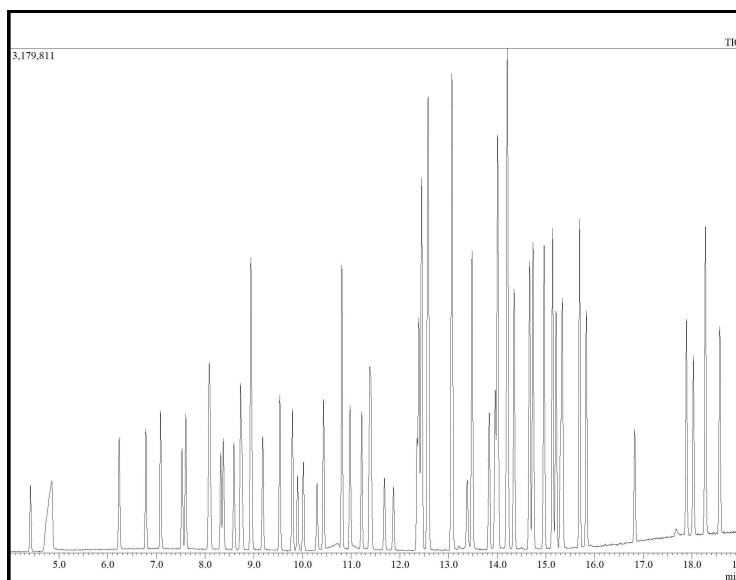
Compound Name	CERTIFIED Conc. (mg/L)	Expanded Uncertainty U (mg/L)	CAS	Lot No.	Purity (%)	Amount (mg)	RT (min)
1,1,1,2-tetrachloroethane	1003	22	630-20-6	181.7.2.8P	99.5	25.06	12.46
M-xylene	1000	21	108-38-3	193.7.1.2P	99.7	25.01	12.58
P-xylene	1002	21	106-42-3	194.7.1P	99.9	25.06	12.58
O-xylene	998.7	29	95-47-6	192.29.3P	99	24.97	13.07
Styrene	1006	26	100-42-5	180.9.4P	99.5	25.14	13.08
Bromoform	1003	29	75-25-2	150.1.2.1P	99.4	25.07	13.38
Isopropylbenzene	999.5	29	98-82-8	176.9.1P	98.9	24.99	13.49
1,1,2,2-tetrachloroethane	1005	29	79-34-5	182.8.2P	99.4	25.13	13.84
1,2,3-trichloropropane	1011	22	96-18-4	189.1.3P	99.5	25.27	13.96
Bromobenzene	1004	29	108-86-1	147.8.1.1P	99.9	25.11	14.00
N-propylbenzene	1001	21	103-65-1	179.7.2P	99.7	25.01	14.02
2-chlorotoluene	1000	21	95-49-8	157.7.1P	99.5	25.00	14.20
1,3,5-trimethylbenzene	1001	29	108-67-8	191.9.2.1P	99.7	25.02	14.22
4-chlorotoluene	1001	21	106-43-4	158.9.3P	99.9	25.04	14.35
Tert-butylbenzene	999.9	21	98-06-6	153.29.1P	99.9	25.00	14.67
1,2,4-trimethylbenzene	1006	31	95-63-6	190.1.3P	99.1	25.15	14.74
Sec-butylbenzene	1003	21	135-98-8	152.1.2.1P	99.5	25.06	14.96
4-isopropyltoluene	1000	29	99-87-6	177.9.2P	99.7	25.01	15.14
1,3-dichlorobenzene	1000	21	541-73-1	44.1.2P	99.8	25.01	15.21
1,4-dichlorobenzene	1001	21	106-46-7	45.29.2P	99.9	25.01	15.34
N-butylbenzene	1003	21	104-51-8	151.7.3.2P	99.2	25.08	15.69
1,2-dichlorobenzene	1000	21	95-50-1	43.7.1P	99.8	25.01	15.83
1,2-dibromo-3-chloropropane	1001	21	96-12-8	160.7.2.1P	98.4	25.03	16.83
1,2,4-trichlorobenzene	1000	21	120-82-1	54.29.1P	99.6	25.01	17.89
Hexachlorobutadiene	1003	29	87-68-3	47.158.2P	97	25.07	18.03
Naphthalene	1001	21	91-20-3	26.9.1P	99.8	25.04	18.28
1,2,3-trichlorobenzene	1008	23	87-61-6	185.1.1.6P	99	25.19	18.57

CERTIFIED BY
Adrienne Ormand

CERTIFIED ON
15 Jun 2020

Adrienne Ormand

RM Release



Instrument
GC/MS

Detection
MS

Column/Flow
Phenomenex ZB-624 60m x 0.25
mm, ID 1.4 μ m / 1 mL/min

Method Details
Rate Temp. (C) Hold time (min)
35.0 1.0
10.0 70.0 0.0
20.0 120.0 0.0
10.0 200.0 0.0
20.0 240.0 5.0

Inj.-Vol
1 μ L

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: P/T Methanol, Lot no. 20050385, 25 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 μ L 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 60 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