VSL
Dutch Metrology Institute

VOC Programme

Factsheet and registration form

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Fact Sheet VOC Programme

Production of Primary Reference Materials for VOCs at trace levels

VSL has a special programme to collect client enquiries for 3 types of high accuracy gas mixtures in compressed gas cylinders containing Volatile Organic Compounds (VOC) at trace levels. These gas standards are used for the calibration of equipment in Air Quality monitoring.

These gas mixtures are Primary Reference Materials (PRM), the gas standards with the highest metrological accuracy and traceability, or Research Gas Mixtures (RGM), the gas standards in development with the best metrological accuracy and traceability.

Once a minimum number of subscriptions are collected per gas mixture type, VSL will carry out the production.
A more efficient production of these complex gas mixtures, results in costs reduction and therefore in a more interesting price for our clients!

You can subscribe and download the registration form via our website (www.vsl.nl/en/vocprogramme) and by sending it to the CRM Programme team by e-mail or by post to the contact details below.

Contact details:
CRM Programme team
E-mail address: VOCProgramme@VSL.nl
Post address:
VSL B.V.
Thijsseweg 11
2629 JA Delft
The Netherlands

NMHC (Non-Methane Hydrocarbons)- Ozone Precursors

Component	CAS No.	Component	CAS No.
Acetylene	74-86-2	2-Methylpentane	107-83-5
Benzene	71-43-2	n-Octane	111-65-9
n-Butane	106-97-8	i-Octane	540-84-1
iso-Butane	75-28-5	n-Pentane	109-66-0
1-Butene	106-98-9	i-Pentane	78-78-4
i-Butene	115-11-7	1-Pentene	109-67-1
cis-2-Butene	590-18-1	trans-2-Pentene	646-04-8
trans-2-Butene	624-64-6	Propane	74-98-6
1,3-Butadiene	106-99-0	Propylene	115-07-1
Ethane	74-84-0	Toluene	108-88-3
Ethylbenzene	100-41-4	1,2,4-Trimethylbenzene	95-63-6
Ethylene	74-85-1	1,3,5-Trimethylbenzene	108-67-8
n-Heptane	142-82-5	o-Xylene	95-47-6
n-Hexane	110-54-3	m-Xylene	108-38-3
Isoprene	78-79-5	p-Xylene	106-42-3
Nominal composition:	5 – 10 - 20 nmol/mol (ppb) (give your preference on the registration form)		
Balance gas:	Nitrogen		
Expanded uncertainty:	3 - 5 %		
Status:	PRM		
Cylinder volume / type:	5 Liter / Aluminum Special (UN marked)		
Cylinder outlet:	DIN-1		
Stability (months):	36		

Air Toxic

Component	CAS No.	Component	CAS No.
Benzene	71-43-2	Tetrachloroethylene	127-18-4
Chloroform (trichloromethane)	67-66-3	Toluene	108-88-3
1,4-Dichlorobenzene	106-46-7	Trichloroethylene	79-01-6
Ethylene dichloride (1,2-dichloroethane)	107-06-2	Vinyl Chloride (chloroethene)	75-01-4
Methylene chloride (Dichloromethane)	75-09-2	m-Xylene	100-42-5
Ethylbenzene	100-42-4	p-Xylene	127-18-4
Styrene (phenylethene)	100-42-5	o-Xylene	108-88-3
Nominal composition:	100 nmol/mol (ppb)		
Balance gas:	Nitrogen		
Expanded uncertainty:	5 %		
Status:	PRM		
Cylinder volume / type:	5 Liter / Aluminum Special (UN marked)		
Cylinder outlet:	DIN-1		
Stability (months):	24		

Oxy-VOCs

Component	CAS No.	Component	CAS No.
Acetaldehyde	75-07-0	Methacrolein	78-85-3
Acetone	67-64-1	Methyl Ethyl ketone (2-butanone)	78-93-3
Ethanol	64-17-5	Methyl Vinyl ketone	78-94-4
n-Hexane	110-54-3	Propane	74-98-6
Methanol	67-56-1		
Nominal composition:	100 nmol/mol (ppb)		
Balance gas:	Nitrogen		
Expanded uncertainty:	3 – 10 % depending on the component		
Status:	Research Gas Mixture (RGM)		
Cylinder volume / type:	10 Liter / Aluminum Special (Pi marked)		
Cylinder outlet:	DIN-1		
Stability (months):	24 (not applicable to Methanol)		

Technical specifications

The gas mixtures will be prepared according to ISO standard 6142-1:2015 (E) “Gas analysis - Preparation of calibration gas mixtures - Gravimetric method”. The pressure in the cylinders will be approximately 11 MPa. The tolerance in preparation will be ≤ 10% relative for each VOC, with exception of the following components of the RGM Oxy-VOCs: acetaldehyde, methanol and ethanol. For methanol and ethanol, the assigned analytical value will be given on the certificate.

The certificate with state traceability to VSL Primary Standards.
The uncertainty will be reported as the expanded uncertainty U with a coverage factor k=2.

Quality specifications

VSL has an ISO 17025 accreditation as calibration laboratory (K999, www.rva.nl) and an ISO guide 34 (P002, www.rva.nl) for the preparation of VOC gas standards both according to ISO 6142 (Gravimetric method) and ISO 6145 (dynamic method) in the range part-per-billion (ppb) to part-per-million (ppm). VSL and NIST maintain a DoE on a wide variety of gas standards, including some of the NMHC – Ozone precursors.

Fee & time schedule

The minimum number of registrations per gas mixture type is 5 for NMHC – Ozone precursors and Oxy-VOC and 7 for Air Toxics.
The fee details per gas mixture are provided in the registration form and they include cylinder costs and Dangerous Goods Declaration.
The price does not include V.A.T., shipment costs or any duty to be paid in your country. The preparation of the gas mixtures will occur after the purchase orders have been settled and the lead time will be approximately 5 months.

For questions and enquiries about other VOC compositions (components and/or concentrations) please contact: VOCProgramme@VSL.nl

Contact information

For more information about our services,
feel free to contact our staff.

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