



Generate a sequence certificate

Improve the traceability of your gas mixture generation

The option "CERTIF" in the **GasMix™** software allows to enhance quality assurance features.

A **printable sequence certificate** can be issued at the end of the dilution sequence.

Based on the information contained in the Audit Trail, concentrations that have been generated during a dilution sequence and sent to the analyzers are recalculated based on the real total flow. The average value and the relative standard deviation for each analyte step are reported.

All certificates will have a **unique tag number**, based on the serial number of the GasMix™ instrument.

Different information helping **the traceability of gas mixtures** is provided on the certificate:

- Date and time
- Project used
- Audit trail linked to
- Duration of the sequence
- User
- For each mixture generated:
 - Date and time of the beginning of the mixture
 - Date and time of the end of the mixture
 - Flow set points with the uncertainty associated and average of the real flow with RSD
 - Concentration set points and average of the concentrations generated recalculated from real flow measurements.

An example of a certificate

 Issue date: vendredi 25 octobre 2024 16:06:16 Expiration date: vendredi 25 octobre 2024 16:06:16 Project: test propane cascade Audit-trail: 20241025_150900 Sequence total time: 1:04:00			 CERTIFICATE #4_0_117_UN24-268_UNKNOWN_NUMBER (continued)		
CERTIFICATE #4_0_117_UN24-268_UNKNOWN_NUMBER					
Mixture #1 (replica #1) Start: 25/10/2024 15:10:35 End: 25/10/2024 15:18:06					
Channel	Flow setpoint	Real flow	Gas 2	0,00 Nm³/min	0,00 ± 0,00 Nm³/min
Liquid A	0,00 g/h	0,00 ± 0,00 g/h	Out1	11,3 Nm³/min	11,3 ± 0,03 Nm³/min
Gas A	0,00 Nm³/min	0,00 ± 0,00 Nm³/min	Cascade Gas	2988 Nm³/min	2988 ± 0,41 Nm³/min
Liquid B	0,00 g/h	0,00 ± 0,00 g/h	OUTPUT	3000 Nm³/min	3035 ± 6078 Nm³/min
Gas B	2994 Nm³/min	2994 ± 0,26 Nm³/min	Analyte		Concentration setpoint (ppm mol/mol)
Gas 1	5,10 Nm³/min	5,10 ± 0,00 Nm³/min	Air (Air)	...	999920
Gas 2	0,00 Nm³/min	0,00 ± 0,00 Nm³/min	Propane (C3H8)	80,00	79,165
Out1	42,4 Nm³/min	42,4 ± 0,03 Nm³/min			
Cascade Gas	857 Nm³/min	857 ± 0,39 Nm³/min			
OUTPUT	900 Nm³/min	899 ± 0,39 Nm³/min			
Analyte	Concentration setpoint (ppm mol/mol)	Real concentration (ppm mol/mol)			
Air (Air)	...	999920			
Propane (C3H8)	80,00	79,997			
Mixture #2 (replica #1) Start: 25/10/2024 15:18:39 End: 25/10/2024 15:26:08			Mixture #5 (replica #1) Start: 25/10/2024 15:42:42 End: 25/10/2024 15:50:12		
Channel	Flow setpoint	Real flow	Channel	Flow setpoint	Real flow
Liquid A	0,00 g/h	0,00 ± 0,00 g/h	Liquid A	0,00 g/h	0,00 ± 0,00 g/h
Gas A	0,00 Nm³/min	0,00 ± 0,00 Nm³/min	Gas A	0,00 Nm³/min	0,00 ± 0,00 Nm³/min
Liquid B	0,00 g/h	0,00 ± 0,00 g/h	Liquid B	0,00 g/h	0,00 ± 0,00 g/h
Gas B	782 Nm³/min	782 ± 0,25 Nm³/min	Gas B	797 Nm³/min	797 ± 0,21 Nm³/min
Gas 1	17,5 Nm³/min	17,5 ± 0,00 Nm³/min	Gas 1	0,00 Nm³/min	0,00 ± 0,00 Nm³/min
Gas 2	0,00 Nm³/min	0,00 ± 0,00 Nm³/min	Gas 2	111 Nm³/min	111 ± 0,02 Nm³/min
Out1	29,3 Nm³/min	29,3 ± 0,05 Nm³/min	Out1	4,58 Nm³/min	4,58 ± 0,04 Nm³/min
Cascade Gas	7970 Nm³/min	7970 ± 0,57 Nm³/min	Cascade Gas	695 Nm³/min	695 ± 0,35 Nm³/min
OUTPUT	8000 Nm³/min	4442 ± 7100 Nm³/min	OUTPUT	700 Nm³/min	2568 ± 5749 Nm³/min
Analyte	Concentration setpoint (ppm mol/mol)	Real concentration (ppm mol/mol)	Analyte	Concentration setpoint (ppm mol/mol)	Real concentration (ppm mol/mol)
Air (Air)	...	999919	Air (Air)	...	999199
Propane (C3H8)	80,00	80,010	Propane (C3H8)	800,00	800,17
Mixture #3 (replica #1) Start: 25/10/2024 15:26:40 End: 25/10/2024 15:34:09			Mixture #6 (replica #1) Start: 25/10/2024 15:50:44 End: 25/10/2024 15:58:13		
Channel	Flow setpoint	Real flow	Channel	Flow setpoint	Real flow
Liquid A	0,00 g/h	0,00 ± 0,00 g/h	Liquid A	0,00 g/h	0,00 ± 0,00 g/h
Gas A	0,00 Nm³/min	0,00 ± 0,00 Nm³/min	Gas A	0,00 Nm³/min	0,00 ± 0,00 Nm³/min
Liquid B	0,00 g/h	0,00 ± 0,00 g/h	Liquid B	0,00 g/h	0,00 ± 0,00 g/h
Gas B	1522 Nm³/min	1521 ± 0,24 Nm³/min	Gas B	624 Nm³/min	624 ± 0,20 Nm³/min
Gas 1	2,31 Nm³/min	2,31 ± 0,00 Nm³/min	Gas 1	0,00 Nm³/min	0,00 ± 0,00 Nm³/min
Gas 2	0,00 Nm³/min	0,00 ± 0,00 Nm³/min	Gas 2	176 Nm³/min	175 ± 0,06 Nm³/min
Out1	13,2 Nm³/min	13,2 ± 0,03 Nm³/min	Out1	32,7 Nm³/min	32,7 ± 0,14 Nm³/min
Cascade Gas	236 Nm³/min	236 ± 0,36 Nm³/min	Cascade Gas	8967 Nm³/min	8967 ± 0,74 Nm³/min
OUTPUT	250 Nm³/min	3046 ± 7017 Nm³/min	OUTPUT	9000 Nm³/min	3639 ± 7107 Nm³/min
Analyte	Concentration setpoint (ppm mol/mol)	Real concentration (ppm mol/mol)	Analyte	Concentration setpoint (ppm mol/mol)	Real concentration (ppm mol/mol)
Air (Air)	...	999919	Air (Air)	...	999200
Propane (C3H8)	80,00	80,012	Propane (C3H8)	800,00	800,00
Mixture #4 (replica #1) Start: 25/10/2024 15:34:41 End: 25/10/2024 15:42:11			Mixture #7 (replica #1) Start: 25/10/2024 15:58:45 End: 25/10/2024 16:06:14		
Channel	Flow setpoint	Real flow	Channel	Flow setpoint	Real flow
Liquid A	0,00 g/h	0,00 ± 0,00 g/h	Liquid A	0,00 g/h	0,00 ± 0,00 g/h
Gas A	0,00 Nm³/min	0,00 ± 0,00 Nm³/min	Gas A	0,00 Nm³/min	0,00 ± 0,00 Nm³/min
Liquid B	0,00 g/h	0,00 ± 0,00 g/h	Liquid B	0,00 g/h	0,00 ± 0,00 g/h
Gas B	837 Nm³/min	837 ± 0,24 Nm³/min	Gas B	634 Nm³/min	634 ± 0,21 Nm³/min
Gas 1	18,2 Nm³/min	18,0 ± 0,00 Nm³/min	Gas 1	0,00 Nm³/min	0,00 ± 0,00 Nm³/min
			Gas 2	151 Nm³/min	151 ± 0,03 Nm³/min
			Out1	248 Nm³/min	248 ± 0,37 Nm³/min
			Cascade Gas	250 Nm³/min	3155 ± 6994 Nm³/min
			OUTPUT		
			Analyte	Concentration setpoint (ppm mol/mol)	Real concentration (ppm mol/mol)
			Air (Air)	...	999198
			Propane (C3H8)	800,00	800,27





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CERTIFICATE #4.0_117_LN24-268_UNKNOWN_NUMBER (continued)

Mixture #8 (replica #1)		Start: 25/10/2024 16:06:46 End: 25/10/2024 16:14:15	
Channel	Flow setpoint	Real flow	
Liquid A	0,00 g/h	0,00 ± 0,00 g/h	
Gas A	0,00 NmL/min	0,00 ± 0,00 NmL/min	
Liquid B	0,00 g/h	0,00 ± 0,00 g/h	
Gas B	2850 NmL/min	2850 ± 0,26 NmL/min	
Gas 1	0,00 NmL/min	0,00 ± 0,00 NmL/min	
Gas 2	150 NmL/min	149 ± 0,03 NmL/min	
Out1	40,0 NmL/min	40,0 ± 0,04 NmL/min	
Cascade Gas	2460 NmL/min	2459 ± 0,40 NmL/min	
OUTPUT	2500 NmL/min	3073 ± 6557 NmL/min	
Analyte	Concentration setpoint (ppm mol/mol)	Real concentration (ppm mol/mol)	
Air (Air)	...	999199	
Propane (C3H8)	800,00	800,05	

This certificate was produced by LiqMix Cascade LN24-268.
LiqMix Cascade LN24-268 complies with ISO 6145-7 method.
Reported uncertainties of measurements are based
on the standard deviation multiplied by a factor of 2.

The MFC calibration procedure is NIST traceable.

OPERATOR

SIGN

Certificate #4.0_117_LN24-268_unknown_number

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