GASMIX™ by AlyTech

LIQMIX CASCADE

Generate your gas standard from a liquid down to ppb levels

The LiqMix Cascade is a laboratory instrument designed for automatic generation of customized calibration gas mixtures by controlled evaporation of a liquid and future dynamic dilution/mixing with one or several gases.

The system can generate a standard gas at different concentrations in a programmed sequence with good accuracy, high repeatability and full traceability. Rich remote control functionalities of the software and automated programmed sequences enable full automation by synchronizing the mixer/diluter with a gas chromatograph, pre-concentrator, spectrometer, gas analyzer or other system.

BENEFITS :

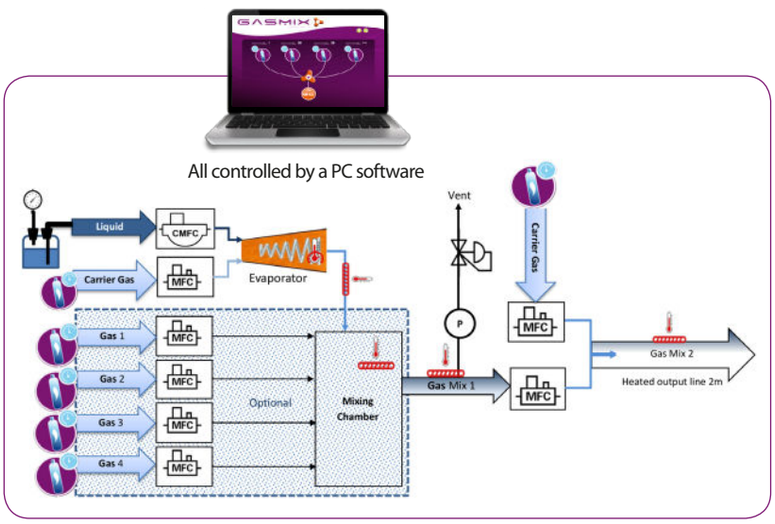
- Creating gas phase standards from a gas, liquid or liquid cocktail mixture
- Wide range of concentrations from % down to ppb generated on-site
- Complies to ISO 6145-7
- LiqMix software dœs all calculations and devices control even for very complex mixtures
- Build, save, run complex automated sequences of mixing/diluting
- Robust design, simple in use, fully automated operation
- Full automation of the process provides real time-saving for the operator
- Heated lines prevent condensation and maintain the vapors in gas phase till the delivery point

Automated, cost effective way for on-site generation of gas standards for chemicals that are not commercially available in cylinders, like unstable, reactive compounds in complex multicomponent mixtures. LiqMix Cascade is a simple and reliable way to perform multi-point calibrations, linearity and hysteresis checks, LOQ / LOD validation with gas standards such as BTEX, other hydrocarbons mix, siloxanes, ethanol and phenol, and others.

www.gasmix.com

Intelligent multi-stage cascade dilution offers very wide dynamic range of concentrations from % to ppb levels

Operation principle of LiqMix Cascade is based on the proven technology of Mass Flow Controllers (MFC) for gases and liquids. On the first dilution stage Coriolis MFC accurately delivers a liquid into a vapouriser regulated at user-defined temperature. Evaporated into a flow of a carrier gas, the liquid is turned into a gas phase and transferred to a mixing chamber where it can be mixed with other gases introduced by up to 4 optional MFCs. With a dilution ratio up to 10^4 at the 1st stage, pure gas or liquid can be diluted down to hundreds ppm. If lower concentration is required, a part of the gas/vapor mixture sends to the 2nd dilution stage, where it is future diluted down to ppb level. All interconnections and outlet line are heated avoiding re-condensation up to the delivery point. **Following highest metrology requirements, the instrument not only accurately prepares the gas mixtures, but it also automatically calculates and reports maximum relative uncertainty for every delivered concentration.**



Minimal achievable concentration by the LiqMix Cascade depends on the molar mass of liquid. Some examples:

INITIAL CONCENTRATION	FINAL CONCENTRATION
Ethanol 100%	50 ppb mol
Octane 100%	15 ppb mol
Siloxane (D4) 100%	5 ppb mol

To go lower, liquid components can be mixed or diluted.

Software does proper calculation even for complex mixtures.

TECHNICAL SPECIFICATIONS

1st stage

- Number of liquid channels: 1
- Liquid MFC Coriolis technology, from 5g/h to 200 g/h FS
- Liquids: Pure liquid or a liquid mixture (ex.: water, organic solvents) without precipitation, polymerization or salt formation (for specifics, please contact us)
- Liquid flask (optional) should be pressurized by inert gas
- Number of gas channels: up to 5
- Inlet Gas pressure: stable and regulated within 3-8 bar
- Gas compatibility: pure gases, concentrated gas mixtures, most of aggressive and reactive gases (for specifics, contact us)

- Dilution ratio of the initial concentration on 1st stage: up to 1:10000
- Accuracy: less than 2% all over the scale

2nd stage (Cascade)

- Number of gas channels: 1
- Dilution ratio of the initial concentration on 2nd stage: up to 1:10000
- MFC operation range: 2 to 100% FS
- Flow accuracy: ±0.5% of setpoint all over the scale
- Repeatability: less than 0.1% of setpoint

- Overall dilution ratio of 2 stages: up to 10^8
- Heated output line length 2m in standard
- Outlet Gas Pressure: atmospheric, higher pressure possible
- Connectors: Swagelok 1/8", other on request

- Software: required PC with Windows 7 or higher, Ethernet port communication

- Operation temperature: 10-50°C
- Power supply: 90-260Vac, 1,5-4A, 50-60Hz
- Dimensions: L x W x H 42x47x46 cm
- Weight: approx. 35 kg (depends on configuration)

* Note: Specifications subject to change without notice

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