VOC emission test chamber EK1000

Highly accurate and affordable VOC chamber testing in the automotive industry

Welcome

Marc Andresen
Olfasense GmbH
Fraunhoferstr.13
24118 Kiel
Germany

Tel.: +49 (0)431-22012-0
Fax: +49 (0)431-22012-17

sales@olfasense.com

Olfasense and CTS – A joint venture that makes sense

Dear Madam, dear Sir,

Thank you very much for your interest in our EK1000 VOC emission test chamber.

Olfasense is the world-leading supplier of odour laboratory technology, which is used by more than 400 laboratories, research institutes, universities and companies worldwide. In our daily work, Olfasense also offers specialist odour consultancy services to evaluate products and materials. Besides using sensory evaluation techniques, Olfasense helps clients to understand the chemical composition of air samples in terms of specific VOCs.

Olfasense has also been accredited for performing proficiency tests according to EN 13725 and VDA 270 since 2005, and obtained accreditation according to the new standard for proficiency testing bodies, EN 17043, in December 2011. In addition, Olfasense is regularly organizing VOC proficiency tests for the automotive industry.

CTS is one of the leading specialists in the field of environmental simulation. Their innovative and technically high-quality products are delivered to the most renowned industrial companies worldwide, with more than 12,000 devices sold in Germany and abroad. Major client segments include the automotive industry and its suppliers, as well as test laboratories.

By consolidating their respective know-how and expertise, our two companies have developed the EK1000 VOC emission test chamber, providing clients a technically and economically optimized test system to characterize emissions of volatile organic compounds under precise test conditions, complying with the requirements of common European and international, as well as specific manufacturer standards.

If you would like to know more about the advantages of our emission test chambers, please contact us.

Best regards

Marc Andresen
Product Sales & Customer Care – Olfasense GmbH

Standard compliance

FULLY COMPLIANT WITH :

- **ISO 12219-4** (Determination of VOCs from vehicle interior parts and materials)
- **VDA 276** (Determination of Organic substances as emitted from automotive interior products using a 1 m³ test chamber)
- **GS97014-3 BMW Method** (Determination of VOCs from components, semifinished products and materials)
- **PN 780 Porsche Method** (Interieur – Emission behavior)
- **VCS 1027, 2769 Volvo Method** (Determination of volatile organic substances from interior components/systems using a 1 m³ emission chamber)
- **PV 3942 Volkswagen Method** (Determining organic emissions from components for the passenger compartment of motor vehicles. Emission test)

OPTIONAL:

- SHED function for testing according to **GS-97014-2 BMW Method** (Emissions measurement in SHED chambers. Determination of volatile, organic emissions from components, semi-finished products and materials that do not carry fuel)
- Fogging device according to **VDA 276** and **VCS 1027, 2769 Volvo Method**
- **ISO 16000-9** (VOC emissions from building products and furnishing)
- **EN 717-1** (Formaldehyde emissions from wood-based panels)
- **GEV – testing method** (VOC emissions from products for flooring installation, adhesives and building materials)

Highly accurate and affordable VOC chamber testing in the automotive industry

The Olfasense VOC emission test chamber EK1000 allows characterization of the emissions of volatile organic compounds under precise test conditions, and is fully compliant with the requirements of ISO 12219-4 and VDA 276.

The chamber meets also all requirements of the manufacturer standardards GS97014-3 (BMW method), PN 780 (Porsche method), VCS 1027, 2769 (Volvo method), as well as PV 3942 (Volkswagen method).

The chamber is optionally available with a SHED function for testing according to GS-97014-2, as well as a fogging device according to VDA 276 and VCS 1027, 2769 (Volvo method).

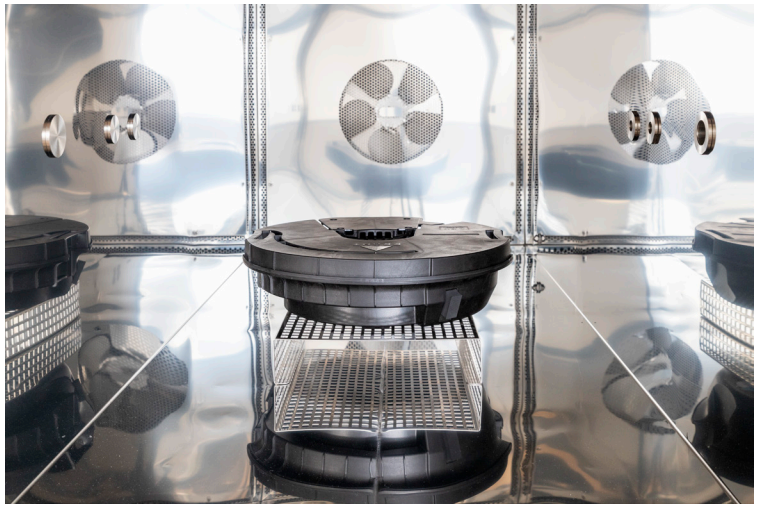
Standard features

Incubator

- External dimensions: 2790 x 1263 x 1980 mm (LWH)
- Temperature range: room temperature plus 5° C to 210° C inside the VOC emission test chamber
- Adjustable fan speed
- Automated emergency stop by temperature selection limiter class 2 (DIN 12880)
- Left hinged door
- Electro certificate of acceptance

If you have individual requirements, please ask for your tailormade product solution.

Emission test space



- VOC emission test chamber made of polished stainless steel, usable space: 1735 x 745 x 745 mm (LWH)
- Precise compliance with all method and measurement parameters
- Minimized adhesion
- User-friendly pressure chamber door locks
- Rotor with drive via non-contact magnetic coupling and emission-free ceramic bearings (speed adjustable)
  - patent pending
- Air switch: e.g. from regulated and humidified 6.67l/min to dry 50l/min

Standard features

- Setting, control and monitoring of parameters: temperature, humidity, mass flow
- Integration of additional data channels (e.g. FID)
- Multi-chamber edition
- Interfaces: USB, RS232, RS422, RS485 (usable e.g. for FID data connection); an FID is not included
- Multi-language e.g. German, English, Spanish

Data logger software

Sampling connections

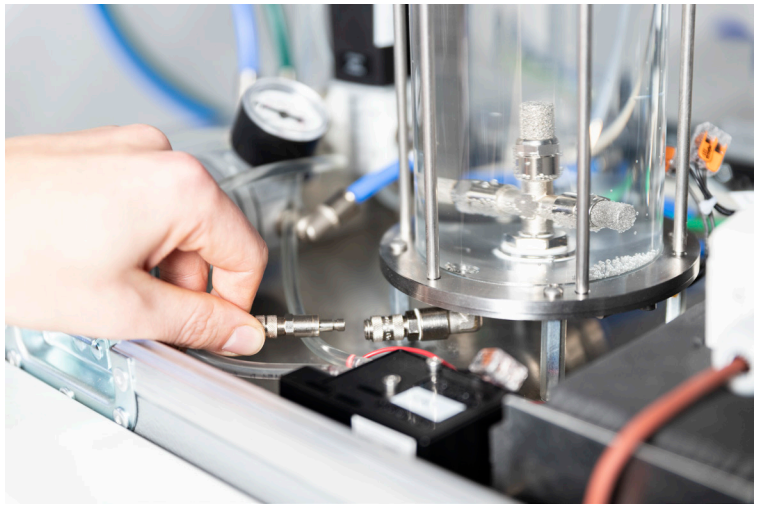
- Sampling connections on the right
- Process-monitoring sensor (temperature and humidity in the chamber)
- Functional reliability, mass flow control at chamber inlet
- Heated sampling port, 4 ports (e.g. Swagelok, others on request)

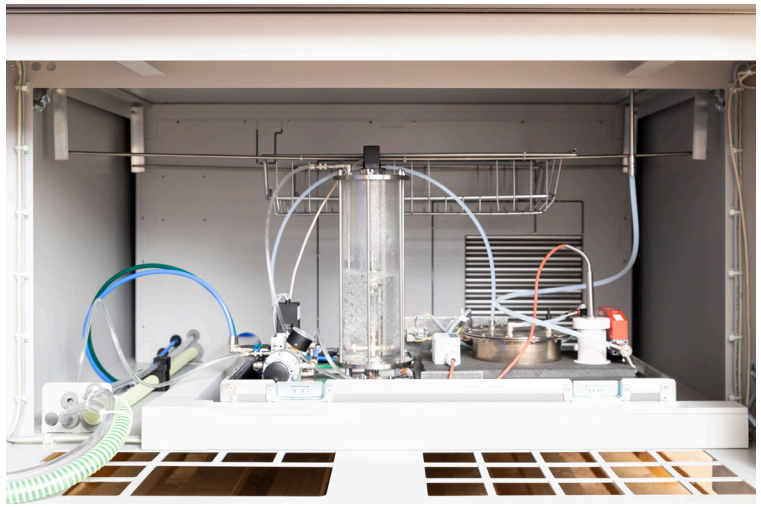
If you have individual requirements, please ask for your tailormade product solution.

Standard features

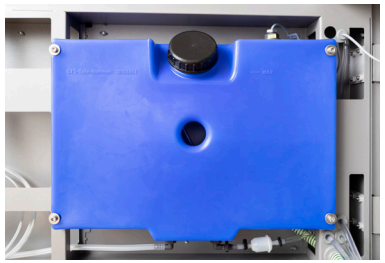
- Easy to maintain
- Exchangeable by plug and play technology
- Can be exchanged by the client within a few minutes
- Comes in a robust transport box for easy maintenance

Humidity control unit





Other standard features



- Viton door seal, thermally loadable up to 160° C; easy to replace
- Lab water container
- Separate connections for compressed air and for purging air

Optional features

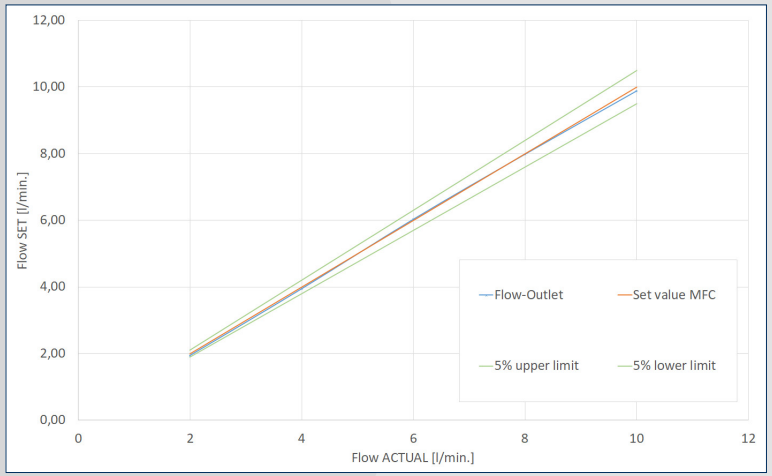
- Lab water connection
- Fogging-device (without cooling thermostat device) - VDA 276, VCS 1027, 2769
- Nose mask mounted directly on the test chamber - VCS 1027, 2769
- Tedlar bag for volume compensation - GS-97014-2
- Air cooled refrigerant compressor - GS-97014-2

Excerpt of standard compliance test

Olfasense has conducted validation tests for the VOC emission test chamber EK1000, including, but not limited to spatial temperature distribution, leak tightness, intermixing and background concentration. The chamber showed compliance with the normative requirements. Additional documentation is available on request.

Leak tightness

To check the leak tightness, the outlet volume flow at several operating points was compared with the set values of the mass flow controller using a calibrated flow meter. The loss rate was then determined, which confirmed the required air tightness. The leak rate was also tested at 3000 Pa overpressure. The high performance result of 0.6 l/min. equals 0.06% of chamber volume.

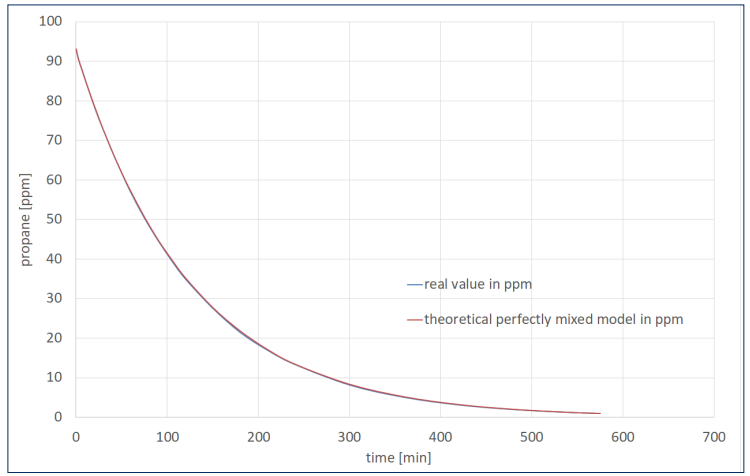


Background concentration

Analysis of TVOC and single target VOC on background concentration, supplied air quality and the water used for humidification showed compliance with the normative requirements.

Intermixing

This test was realized through a displacement test with propane, and showed actual values that were close to the expected values of ideal intermixing over the entire observation period.

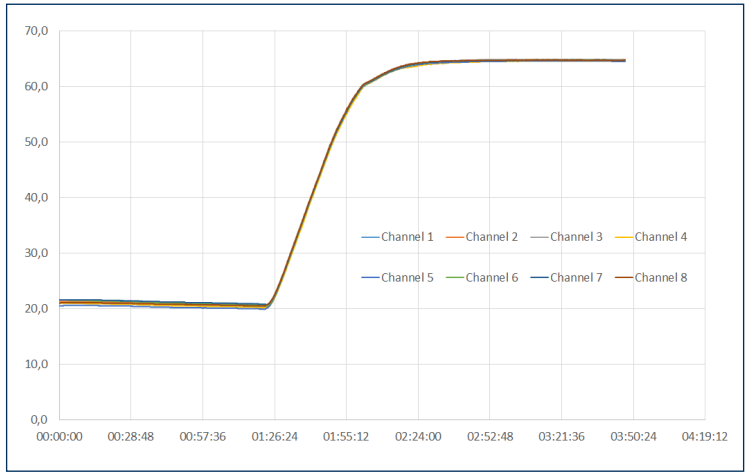


Technical data

Spatial temperature distribution

To test the spatial temperature distribution, eight PT100 temperature sensors were positioned in a wire frame in the middle of the emission test chamber. The uniformity of the distribution was better than the resolution of the temperature sensors (±0.2 K).

64,8				64,7
		64,8		
	64,6		64,8	
		64,8		
64,6				64,7



Description		EK1000
Emission test space volume (usable)		1000 l (960 l)
Conditioning		Air jacket temperature conditioning
Temperature range		+10°C to +130°C
Temperature deviation over time		+/- 0.1 K to +/- 0.3 K
Temperature homogeneity spatially		+/- 0.1 K to +/- 0.5 K
Humidity range		5% rh to 80% rh (at 23° C)
Deviation in humidity over time		+/- 1% rh to +/- 3% rh
Desorption		up to 210°C, adjustable
Air flow		1 to 12 l/min (fixed purging air)
Air exchange rate		approx. 0.1 to 2.0 chamber volume per hour (continuously adjustable via mass flow controller with optional high performance calibration +/- 0.3% of end value plus 0.5% of measurement value)
Air change control		electronic MFC (long-term stability < 1%)
Air velocity range (above test specimen)		0.1 - 0.5 m/s
Leak tightness		< 0.1% test space volume per min. at 1000 Pa overpressure
Test space	width	745 mm
	depth	1735 mm
	height	745 mm
External dimensions (max.)	width	1263 mm
	depth	2790 mm
	height	1980 mm
Weight		approx. 1200 kg
SPL		< 68 dB (A)
Rated capacity	(max.)	8.2 kW
Electrical connection		400 V + 6 / -10%, 3/N, 50 Hz
Factory calibration (optional)		+23°C / 50% rh with max 1h-1 exchange rate and +65°C / 5% rh with max 0.4-1 exchange rate

We reserve the right to make any technical alterations.

olfasense

www.olfasense.com

Olfasense GmbH
Fraunhoferstr.13
24118 Kiel
Germany

Tel.: +49 (0)431-22012-0
Fax: +49 (0)431-22012-17

sales@olfasense.com