



Ionicon Analytik GmbH  
Eduard-Bodem-Gasse 3  
6020 Innsbruck  
Austria

mailto: [info@ionicon.com](mailto:info@ionicon.com)  
Tel: +43 512 214 800  
Web: [www.ionicon.com](http://www.ionicon.com)

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### **IONICON PTR-TOF 8000 helps measuring air quality onboard Airbus aircraft**

*For Airbus, cabin air quality is the key to a comfortable flight - IONICON PTR-MS technology helps the aircraft manufacturer analyzing the air.*

On aircraft, cabin air quality contributes significantly to the comfort and well being of passengers and crews alike. Commercial aircraft operate primarily in the troposphere and lower stratosphere, which is an environment hostile to life. A sophisticated aircraft environmental control system ensures that our journey onboard aircraft usually is a comfortable experience despite outside conditions of -50°C, high ozone concentrations and only 1/5th of the ambient pressure on the earth's surface. Outside air which is usually very clean, particularly during flight, is conveyed into the pressurized fuselage and approximately the same amount is discarded overboard by the environmental control system. The entire cabin air is exchanged with outside air every three minutes.

In an article in the Airbus / FAST magazine #50 (August 2012) Dr. Andreas Bezold\* explains details of cabin air quality, the aircraft environmental control system and measurement campaigns involving an [IONICON PTR-TOF 8000 instrument](#) providing further insights:

"[...] Airbus is promoting and supporting international research projects and working groups, to acquire independent external expertise and scientific knowledge by promoting best standards for an ideal cabin environment and its verification. [...] Currently, a number of air quality measurements are conducted on the A380 flying test bed for the new A350XWB (Extra Wide Body) Trent engine. These analytical capabilities were also used to tackle problems that could occur during production flights, which are conducted for each aircraft prior to delivery by Airbus. Any contamination introduced during manufacturing will become apparent when the aircraft air supply system is operated as a whole, and some parts of the bleed air system are subjected to the highest operational temperatures for the first time.

Recently a sophisticated measurement system was planned and installed on several A330/A340 Family aircraft, consisting of a unique online mass spectrometer (Ionicon PTR TOF 8000) and a multifunctional sampling system (Fraunhofer IBP) to elucidate the origin of a particular smell that occurred during production flights only. [...]

With this analytical system, a marker substance and finally the root cause for the smell could be identified unambiguously, based on the results of air quality measurements on the aircraft during flight. Knowing the precise root cause and having clear evidence at hand, corrective actions could



be implemented at the supplier which is manufacturing the component responsible for the smell, and will be further followed-up."

Homepage of Airbus / FAST magazine: <http://www.airbus.com/support/publications/>

\*Dr. Andreas BEZOLD  
Airbus Operations GmbH  
[andreas.bezold@airbus.com](mailto:andreas.bezold@airbus.com)

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**About IONICON:**

IONICON is the world's leading producer of VOC detectors with market-leading, on-line and real-time, single-digit pptv-level detection limits using the unique [Proton Transfer Reaction – Mass Spectrometry \(PTR-MS\)](#) and [Switchable Reagent Ions \(SRI/SRI+\)](#) technology. Since 1998 IONICON has provided leading scientists with extremely reliable VOC monitoring and quantification instruments in many different [areas of application](#) including environmental research, pollution monitoring, atmospheric chemistry, food & flavour science and illicit substance detection.

The [IONICON product portfolio](#) comprises the PTR-QMS Series: the IONICON High-Sensitivity PTR-QMS 500 with its market-leading detection limit of < 1 pptv; the IONICON PTR-QMS 300 - a very robust and small VOC monitoring system at an affordable price; and the PTR-TOFMS Series (IONICON PTR-TOF 8000 providing a mass resolution of up to 8000 m/ $\Delta$ m and the IONICON PTR-TOF 2000 with its detection limit < 5 pptv).

IONICON sold its 200<sup>th</sup> PTR-MS instrument in early 2012.

IONICON also produces special monitoring solutions for various industrial applications, has a strong in-house R&D department and is a partner in many international research projects with renowned academic and leading industrial partners such as Airbus.

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