MRO Services
Delivering Fully Compliant, Reliable and Proven Ozone Converter Regeneration Services

Improving Cabin Air Quality with BASF MRO Services
Enhanced comfort and safer in-flight operations for pilots, crew and passengers
Aircraft Air Handling System
BASF Deoxo Ozone/VOC Converters

Aircraft Environmental Control System (ECS)

- Regulates cabin air supply, pressure and temperature
- Outside air incorporated through engine bleed air (heated, pressurized)
- Catalytic ozone converter unit process bleed air in route to cabin

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\begin{align*}
2O_3 & \rightarrow 3O_2 \\
\text{Step (I)} & \quad O_3 + * \rightarrow O^* + O_2 \\
\text{Step (II)} & \quad O_3 + O^* \rightarrow O_2^* + O_2 \\
\text{Step (III)} & \quad O_2^* \rightarrow * + O_2
\end{align*}
\]
BASF Deoxo Ozone Converters Create Healthier Cabin Air

- Standard aircraft cruising altitudes from 9 km to 13 km (up to ~3 ppm O₃ possible)
- FAA in the US (EASA in the EU) regulates O₃ cabin air concentrations
  - 100 ppb 3 hr average O₃ (up to 95% conversion)
  - 250 ppb peak O₃

Recent in-flight evaluations (2008/2010/2013)

- Pacific & Asian Intl flights (no converter info)
  - Failed: 20% with 3 hr average O₃ greater than 100 ppb

- US domestic flights without O₃ catalyst converter
  - Failed: 1/46 flights with peak O₃ greater than 250 ppb
  - Concern: 10% with peak O₃ greater than 100 ppb

- US domestic flights with O₃ catalyst converter
  - Passed: 100% with 3 hr average values less than 10 ppb
Aircraft Volatile Organic Compounds (VOC) Pollutants

Optional Ozone/VOC dual function converter

- Aircraft bleed air taken from jet engine after compression, before combustion stage
- Cabin odor comfort levels affected by aircraft fluid VOCs introduced through bleed air intake
- Commonly associated with episodic events related to temporary seal failures or leaks of aircraft fluids
- Result in the intake of potential contaminants into bleed air
  - Engine oils
  - Hydraulic fluids
  - Cleaning/Deicing fluids
- Specific aircrew health concerns related to organophosphate compounds in the bleed air