



On-site gas analysis for ABO

Thermo Scientific Antaris FTIR
Aviator's Breathing Oxygen (ABO)
Gas Analysis System



Introduction

There are thousands of fighter jets deployed around the world, each carrying a cylinder of specialized breathing gas for the crew. The contents of each of these thousands of gas cylinders need to meet strict standards to ensure that they are safe to be taken to altitude. Each and every tank must contain only the highest quality of oxygen with little to no contamination.

Only aviator's grade breathing oxygen, or ABO, meets this specification. Neither medical grade nor industrial grade oxygen is a safe substitute because those do not meet the same rigorous standards for extreme dryness, high purity, and stringent contamination controls.

A major challenge in verifying the quality of aviator's breathing oxygen lies in the difficulty of its transport due to strict regulatory, safety, and logistical constraints. With tanks of ABO often kept near the airplanes that will use them, laboratory analytical equipment that could be used to test the gas is rarely in close proximity. Any system that is both sensitive enough to verify the quality of the ABO and sturdy enough to be transported to where it is needed would be a major benefit.

The Thermo Scientific™ Antaris™ FTIR Aviator's Breathing Oxygen (ABO) Gas Analysis System is a rugged, portable system that enables rapid validation of the compressed oxygen used by pilots and crew during flight operations. Use of sophisticated FTIR spectroscopic analysis enables detection of common contaminants that may be present due to the manufacturing process—contaminants such as methane, acetylene, and CFC/HCFC can be readily spotted and identified. The instrument's sturdy design and FTIR spectroscopy's ability to quantify multiple compounds in a single analysis make the Antaris ABO Analyzer a robust, readily deployable solution for validating the quality of aviator breathing oxygen.

The science behind the Antaris ABO Analyzer

Fourier transform infrared (FTIR) spectroscopy is a powerful technique for analyzing gas samples. Many gases have unique infrared signatures, allowing FTIR to analyze multiple compounds in a single analysis that is fast and precise. FTIR spectroscopy requires minimal sample handling, making it a preferred technique over other analytical options.

Thermo Fisher Scientific's FTIR capabilities make it an excellent choice for analyzing Aviator's Breathing Oxygen (ABO) for contaminants.

Everything ABO testing requires in one rugged package

Deploying and using the Antaris ABO Analyzer has been made simpler and more robust by integrating the FTIR analyzer system into a rugged shipping case. The front and back panels of the case are removed at start up to allow easy access to sampling ports and purge gas lines.

Included in the system with the Antaris ABO Analyzer are all the necessary tools, manifolds and regulators needed to deliver a thorough, confident analysis.

- An uninterruptable power supply – A UPS guards against the possibility of unstable or inconsistent conditions.
- A portable purge gas generator – Between this and the UPS, the Antaris ABO Analyzer can operate almost independently of available resources.
- Oxygen analyzer (optional) – This option can be fully integrated into the unit to help achieve comprehensive analysis of the ABO.
- Thermo Scientific™ RESULT™ Software – Specialized software enables foolproof operation and reporting through preloaded calibration models and workflows.



Antaris FTIR Aviator's Breathing Oxygen (ABO) Analyzer at a glance:

Components measured	Up to 25 components can be measured simultaneously, including freons, hydrocarbons, carbon monoxide, and carbon dioxide
Sample type	Gas
Dimensions	51 in. (H) x 30.25 in. (W) x 41.5 in. (D)
Weight	240 kg
Optional accessories	Purge gas generator, uninterruptible power supply, oxygen analyzer
Voltage	120/240V



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