

# Altitude Testing

**Intertek**

Valued Quality. Delivered.



Today's products are designed to work everywhere from sea level to the highest mountains. And components often have to be transported in airplane cargo holds.

Altitude testing can be one of the most challenging product development tasks for a company due to the time and expense often needed to travel to an appropriate region. However, Intertek Transportation Technologies can handle your altitude simulation testing needs without ever having to leave your desk.

From large engines to small batteries and everything in between, Intertek can test your products at various altitudes and help you meet any necessary industry test standards.

## Multiple Locations:

Intertek Automotive Research in San Antonio, Texas, offers altitude testing up to 15,000 feet for engines up to 900 hp. They can even add in 25 degree (F) chilled fluids for special cycles or non-standard operating conditions.

Plymouth, Michigan, tests batteries and other small objects to more than 49,000 feet. The chamber can be powered inside with a variety of electrical options as needed.

The chamber at our Grand Rapids, Michigan, facility can simulate altitudes in excess of 150,000 feet and can vary the internal temperature as required. Future lab additions include a chamber that was used in developing technology for the Gemini space program.



Photo courtesy of NASA

## Quick Intertek Facts

- Altitude testing is critical for products shipped via air cargo
- Elevation testing is available with emissions up to 900 hp
- Intertek can simulate the real-life situations a product might face in use or transport



### Engine / Emissions

Can handle altitude testing with engines ranging from small lawn and garden size up to Class 8 vehicles, as well as calibration and emissions.

- Capable of simulating 15,000' on engine ratings up to 900 Hp (Higher than 15,000' on lower ratings)
- Suitable for Not-To-Exceed (NTE) testing
- Standard Gaseous emissions and particulates available
- Non-Standard gaseous emissions via FTIR
- Fuels include Gasoline, Diesel and Compressed Natural Gas
- Chilled Fluids (25 DegF) for special cycles or non-standard operating conditions
- Combustion airflow measured using LFE
- Fuel Flow measured using Coreolis method
- Cylinder pressure measurements
- Automated mapping routines in place for rapid calibration development
- Capable of Transient and steady-state operation
- Combustion temperature and humidity can be tailored for specific operation
- Exceptional control of simulated altitude even over transient cycles (COV < 1% @ 12,000' over HD-FTP cycle)
- Rapid pressure stabilization between altitude points
- Includes 40CFR1065 capable emissions equipment (continuous-gas, batch-gas, batch-PM)

### Other Products, Multiple Standards

Intertek has the capabilities and experience to handle a variety of products from batteries, to medical and even Military and aerospace applications. Environmental conditions can be applied as needed, or power inside the chamber. Some of the standards we can test to include:

- UN 38.3
- IEC 62133
- UL 2054
- MIL-STD-810
- MIL-DTL-7788H 4.4.12 Altitude
- MIL-STD-202G Method 105C
- IEC 60601-1-11
- IEC 60068-2-13

### The Intertek Advantage

Intertek is a leading quality solutions provider to industries worldwide. From auditing and inspection, to testing, training, advisory, quality assurance and certification, Intertek adds value for its customers by helping improve the quality and safety of their products, assets and processes. With a network of more than 1,000 laboratories and offices and over 36,000 people in more than 100 countries, Intertek supports companies' success in the global marketplace, by helping customers to meet end users' expectations for safety, sustainability, performance, integrity and desirability in virtually any market worldwide.

### Intertek

T: 1-800-WORLDCON

E: [icenter@intertek.com](mailto:icenter@intertek.com)

[www.intertek.com](http://www.intertek.com)

TT016 05/14

For more information please visit [www.intertek.com/automotive](http://www.intertek.com/automotive), contact us at [icenter@intertek.com](mailto:icenter@intertek.com), or call us at 1-800-WORLDCON

 Follow us on Twitter: [@Intertek\\_TT](https://twitter.com/Intertek_TT)