

Aviation: Jet Engine Study

Industry
Transportation & Energy

Region
EMEA

Intertek Solutions
Aviation Fuel

“The change in airspace quality, from the volcano, was unprecedented. Clients needed urgent analysis and advice to help understand how engines and systems were reacting to the volcanic ash.”

The Icelandic Eyjafjallajökull Volcano awoke with massive explosive eruptions in April 2010. Potentially dangerous volcanic ash spread across European skies and shot to heights which interfered with airline traffic.

Intertek helped the aviation industry test, measure and understand the impact of volcanic ash on jet engines and other systems to assess their performance and safety during the crisis.



Industry challenge

The massive eruption of the Iceland volcano Eyjafjallajökull illustrated the potential vulnerability of jet engines to high altitude jagged volcanic ash and other airborne particles. Concerns that ash could damage aircraft engines caused widespread airspace closures and interrupted travel across Europe. As the ash drifted across Europe, thousands of commercial flights were cancelled across the continent. The travel plans of millions of people around the world were affected as the volcano continued to spew ash into the upper atmosphere.

Aviation authorities, manufacturers, and airlines sought urgently to analyze and test the potential threat to jet engine safety and aircraft systems from the ash and calculate at what point it would become safe to “reopen the skies”.

The Solution

Responding quickly, Intertek laboratories in Europe worked with jet aviation authorities and commercial clients to monitor potential damage to jet engines and systems from collisions with airborne particles like volcano dust. Clients used Intertek’s test data and results to determine if the engines when exposed to volcanic ash, suffered from engine wear or experienced surface damage, to help their overall assessments of the safety of the situation.

Volcanic magma contains a large variety of heavy metals, every extra element detected and tested for provided valuable information to our clients.

We tested for the presence of wear metal elements, such as silver (Ag), aluminium (Al), chromium (Cr), copper (Cu), iron (Fe), magnesium (Mg), silicon (Si) and titanium (Ti). To help determine if contamination with the Icelandic volcanic ash, we also assessed the presence of additional elements, including calcium (Ca), potassium (K), phosphorous (P) and sulfur (S).

Business Results

Intertek’s rapid and thorough testing gave the critical clients data they needed to help make important next-step decisions in handling the volcano problem and protecting flight safety. The volcano was unprecedented and unique. Intertek was able to design and conduct analysis to help an industry facing a challenging and critical set of circumstances.

For further information:

Intertek Belgium

Tel: +32 3 543 90 89

Email:
testingservices@intertek.com

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