

Overview

The Lufthansa Group selects equipment and expertise of FAUDI Aviation as a precautionary measure in order to control and mitigate the contamination risk of microbial growth in aircraft wing tanks. When aircraft on ground are exposed to fluctuating climatic conditions for a prolonged period, the contamination risk of microbiological growth increases significantly.

The FAUDI Aviation team specialises in the development and implementation of solutions for complex aviation fuel quality assurance. Within weeks, mobile carts were converted for the purpose of biocide additive injection into the aviation fuel being delivered to an aircraft wing. The injection equipment on these mobile carts is hazardous area approved and specifically designed to comply to operational requirements defined in aircraft maintenance manuals.

Managing aviation fuel quality following an operational shutdown is paramount. The Lufthansa Group uses mobile injection carts from FAUDI Aviation for biocide treatment in order to save costs and to improve flight safety.



Operational Challenge

Although airlines such as Lufthansa took on a leading role with the transport of essential goods, including medical care, during the pandemic crisis, a large proportion of their fleet was temporarily grounded at airports and decommissioned. With airlines preparing for the day when demand for air travel returns, into-plane refuelling companies together with filter manufactures will play a key role in the recommissioning of fuelling equipment and in safeguarding aircraft wing tanks from unwanted contaminants.

When aircraft are grounded for prolonged periods, climate variations are one of the most important factors to consider when estimating the operational risk level. Water can be introduced into an aircraft wing tank by variations in relative humidity, or by precipitation of dissolved water in the aviation fuels caused by falling temperature. Microbes as fungi, yeast and bacteria live in water and feed off the hydrocarbons in aviation fuels. Microbiological contamination of aviation fuels can cause operational problems such as corrosion of the wing skin, fuel quantity indication systems to read incorrect values, and blocking of the scavenge systems and engine filters.

Aircraft wing tanks are monitored routinely to determine if they are infected with microbial contamination. If the aircraft wing tank is not thoroughly cleaned, then there is a risk of microbiological contamination to reoccur, thus it will result in more financial impact on the airline and additional maintenance action.

Solution

A comprehensive understanding of how microbes in aviation fuels can cause devastating damage to aircrafts and fuel handling systems is vital. Shortly after FAUDI Aviation was introduced to the risk of contamination by microbiological growth in aircraft wing tanks, it began to equip mobile carts for the purpose of biocide fuel additive injection into an aircraft wing. Biocide fuel additives are very effective in controlling microbiological growth. The adding of a biocide at the required concentration occurs homogenously with the aviation fuel being delivered to the aircraft from the aviation fuel delivery vehicle. The biocide injection system is designed specifically for high flow rates and large volume transfers to accommodate common fuel flow rates from refuellers and hydrant dispensers. Components adhere to the relevant hazardous area zones for fuelling of an aircraft. All pipework and accessories equipped on the biocide injection cart, such as additive injection pump, tank with level sensor, flow rate sensor and wireless industrial controller are made of stainless steel. This system handles accurate additive dosage during typical fuelling operations. The training on the equipment for into-plane operators and airline technicians was carried out by FAUDI Aviation application engineers on-site.



Biocide Hydrant Coupler connected to an Aircraft

Unique Design of Intermediate Coupler and Hoses

In this configuration, the only contaminated device with added fuel is the intermediate coupler. Pure biocide is supplied from the cart to the coupler. It is easy to operate, clean or switch to other additives. No additional risks of pressure for the inlet coupler and the aircraft.

Intermediate Coupler with Additive Injection Port

Additive Hose

The first aircraft have been fuelled with additive injection powered by FAUDI Aviation in June. FAUDI Aviation is currently preparing more mobile carts for additive injection to support airlines and into-planes companies in Europe in mitigating the risk of aviation fuel contamination.

Good maintenance practices will help to prevent microbial contamination. Updated training procedures, preventive maintenance, frequent tank drainage, and investigation of all incidents of water are crucial.

Smart Interface for Mobile Devices

ITP operators have full control over additive injection when using mobile devices such as smartphones or tablets. It is possible to preset the amount of additive to be dosed (105 ppmV or 210 ppmV).

The additive injection can be easily started and stopped. By presetting the automatic flow, the biocide is added automatically. With manual flow setting, ITP operators specify the flow manually.



Standard Interface for Mobile Devices

Contact

Our dedicated team of experts together with our global service network will gladly support your operations and provide you with the necessary information and equipment.

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Injection Carts with Road Approval

The support from Lufthansa Group is gratefully acknowledged.