

SAFETY BULLETIN

Published by: QA & SAFETY

DATE: 14th OCTOBER 2022

Issued No: SMS/SB/04/2022

Rev No: 00

AIRCRAFT DEFUELING

INTRODUCTION

Fuel must be removed from an aircraft's fuel tank when maintenance must be done on the fuel system, when the fuel level gauges are to be calibrated, and when work on the fuel system requires use of electrical equipment or other equipment that might generate heat or sparks. The tank must also be defueled if the aircraft is to be shipped, stored OR weigh. Defueling is more dangerous than fueling because, even though relatively small amounts of fuel are involved, the procedure is more difficult and drainage provisions are usually inconvenient. All safety precautions must be observed. Aircraft fuel tanks must be defueled by power or by gravity. For speed and efficiency, power should be used to remove most of the fuel and only final draining should be done by gravity.

POTENTIAL HAZARD AND MITIGATION ACTION OF AIRCRAFT DEFUELING:

1. STATIC GENERATION HAZARD:

Jet A-1 has a low electrical conductivity, making it possible for static electricity to be generated and for charges to be accumulated. The degree to which a static charge may be acquired by aviation fuels depends upon many factors: the amount and type of residual impurities, dissolved water, the linear velocity through piping systems, the presence of static generating mechanisms e.g. Filters and the opportunity for the fuel to relax for a period of time to allow any charge generated to dissipate safely to earth. Jet A-1 is more prone to static generation than AVGAS.

MITIGATION ACTION:

Ground the container by attaching the grounding wire clip to the container on one end and a ground rod at the other end. Ground the aircraft to the ground rod by connecting a cable to an unpainted surface of the aircraft, other than the radio antenna or propeller, and to a ground rod driven to the specified depth.

2. HEALTH HAZARD:

Jet A-1 is classified, for supply purposes as harmful, as a result of the aspiration hazard and irritation to the skin. However, exposure to higher vapor concentrations can lead to nausea, headache and dizziness. The main hazards arise from skin contact and in the inhalation of mists. Skin contact over long periods can lead to defatting of the skin, drying, cracking and possibly dermatitis. Excessive and prolonged inhalation of mists may cause chronic inflammatory reaction of the lungs and a form of pulmonary fibrosis.

MITIGATION ACTION:

Defueling will only be carried out with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The ventilations also need to keep gas, vapor or dust concentrations below any lower explosive limits. While chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling Jet A-1 fuel.

3. ENVIRONMENTAL OR SPILL HAZARD:

Spillage and leakage of fuel should be avoided at all times. Every spill is a fire hazard as well as an environmental pollutant. Fuel that is spilled on ground will cause the area involved to be toxic. Other than that fuel is also a chemical that is harmful to aquatic organisms and may cause long-term adverse effects to the aquatic environment.

MITIGATION ACTION:

Avoid release to the environment. Stop leak if safe to do so. Avoid the spillage or runoff entering drains, sewers or watercourses. Contain spillage with approved spill kit, sand, earth or other suitable non-combustible material. Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air).

CONCLUSION

In conclusion, it is clear that even though aircraft defueling is a simple task, but there are a lot of hazards and risk involved in carrying out the task. Maintenance personnel should always be equipped with appropriate PPE, obey all the safety precautions and beware of the hazards and risk present to avoid and accidents.

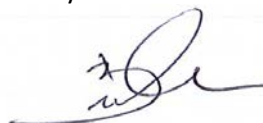
Issued no: AAe/SB/04/2022

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