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THE NEXT GENERATION FREE WATER SENSING TECHNOLOGY

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The International Air Transport Association (IATA) Guidance Material for Aviation Turbine Fuel Specifications specifies that the concentration of undissolved or 'free' water in aviation kerosene shall not exceed 30ppm at point of delivery to the aircraft. The Air Transport Association (ATA) of America Specification 103 requires that the free water concentration downstream of receiving and dispensing filtration shall not exceed 15ppm. Free water constitutes not only slugs of water but also emulsified water droplets which are suspended in the fuel. Free water is a fuel contaminant and limits have been established to prevent the formation of ice crystals which can block fuel flow to the engine and can support microbiological contamination, contributing to the corrosion of metallic components.

Testing of aviation kerosene at the point of delivery to the aircraft is crucial to verify that the level of free water is below the specification limits and that water removal systems are operating satisfactorily. A number of test kits are available for this purpose which operate under the general principle of contacting a fuel sample with a water sensitive medium which indicates the presence of free water by changing color. In this paper we discuss the relative merits of these tests as well as disclosing the latest developments of the next generation free water sensing technology.