

GOOD HUSBANDRY AND MAINTENANCE PRACTICES TO PREVENT MBG

Presented at GTP Aviation Fuel Conference
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AGENDA

- Water Formation in Fuel - Principle
- Preventive Maintenance
- Remediation/Corrective Maintenance
- Summary

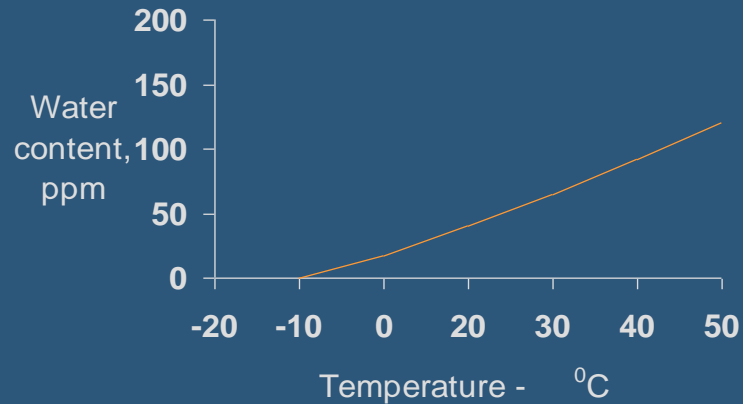
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WATER FORMATION IN FUEL

Water solubility in Jet fuel



90 ppm dissolved water in 300 000 L of jet fuel can produce 27 L of free water at low fuel temperature (<-10 C)

WATER IN FUEL FORMATION

Dissolved water in fuel is normal

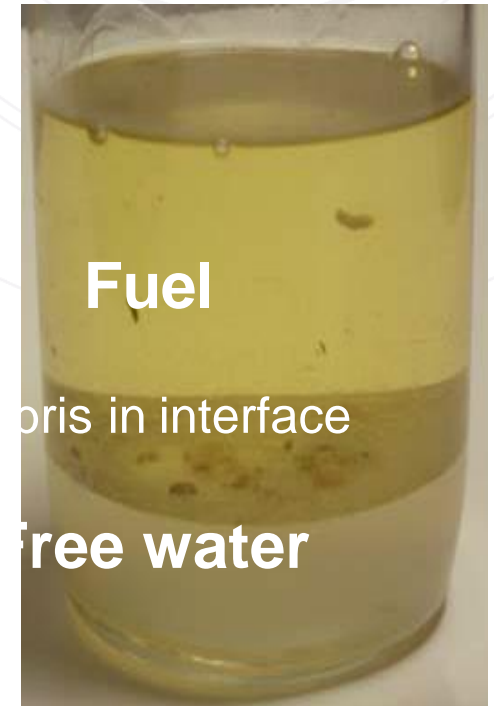
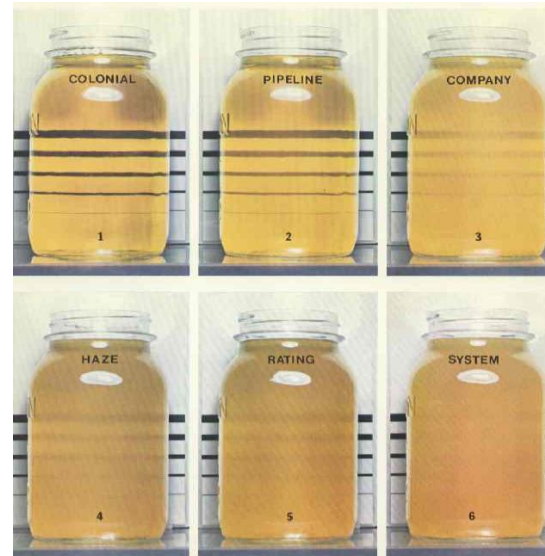
Free (undissolved) water must be addressed

Water content in fuel is a function of the fuel temperature

Water will be generated above water solubility line

Above water solubility line, fuel will become hazy and can generate free water

Free water in fuel is enemy No 1



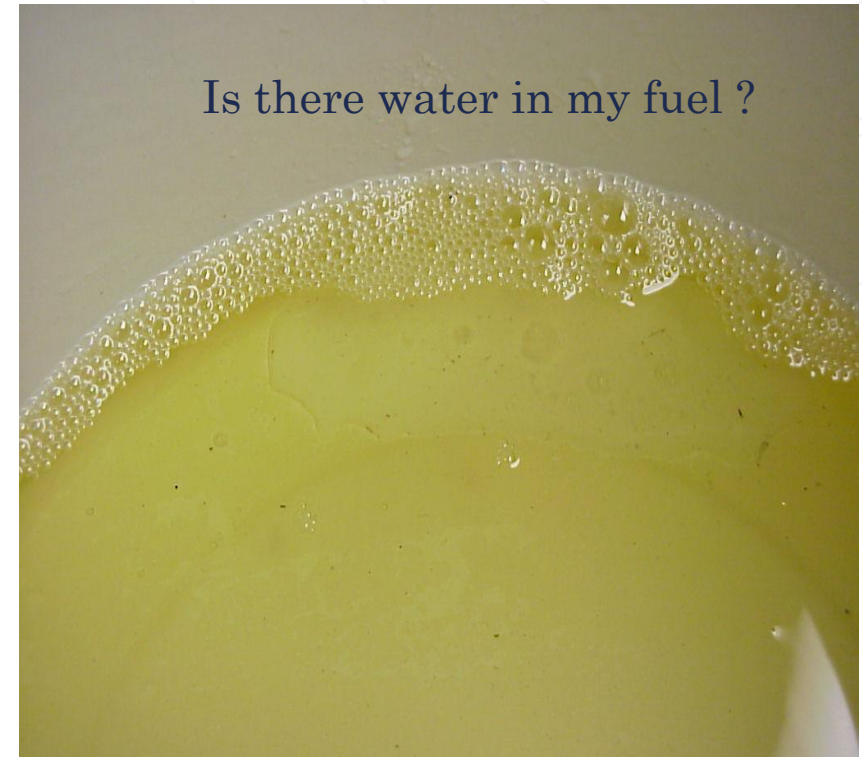
Definite Problem

PREVENTIVE MAINTENANCE

Proper fuel systems design and operational equipment meeting industry standards; e.g. ASTM, ATA, EI, JIG, IATA etc.

Scheduled maintenance considerations:

- Daily water drain from operational storage tanks, FWS, refueling vehicles
- Inspect and test your fueling equipment regularly (daily/weekly/monthly etc.)
- Regular fuel recirculation as needed
- Regular/scheduled fuel sampling and testing for MBG with appropriate test equipment
- Special attention to recovery tanks as they have contaminated fueling equipment
- Unusual fuel appearance is cause for investigation



REMEDIATION/CORRECTIVE MAINTENANCE

- Quarantine contaminated fuel and related equipment
- Take representative sample(s) from your affected equipment
- Determine the extent of equipment being affected by MBG
- Test both fuel, fuel/water mix and/or water layer (if present in sufficient amount)
- Clean all affected equipment
- Repair and /or replace faulty equipment
- Eliminate any potential source of water ingress
- Only on-specification fuel shall be considered for use
- Consideration and use for biocides (aircraft only), as applicable (EI 1566)
- ***Faulty fuel systems and fuel displaying any evidence of contaminants shall not be used***



REMEDIATION/CORRECTIVE MAINTENANCE

- Institute investigative processes and measures
- Consider consulting test kit manufacturers to assess the best maintenance approach
- Implement proper fuel testing regime using aviation industry recognized test kits
- Consider human factors
- Educate and train personnel in quality assurance processes and control regarding MBG testing
- Institute adequate record keeping
- Promote good communication with concerned parties involved in operating a fueling equipment



SUMMARY

- Good water management program will minimise risk of MBG formation
- Identify and implement corrective measures as soon as unusual circumstances is encountered
- Prevention is more cost effective and less disruptive than fixing problems
- Consider condition monitoring approach and adapt your sampling and testing program to your environment and equipment.
- Complaisance will lead to failure
- Institute good communication with all concerned parties including the operational community, as applicable to your facility to avoid confusion
- Institute sound preventive measures to ensure the operability of your fuel facility via sampling and testing
- Third party audit and inspection can help in maintaining operational fuelling systems
- ***Fuel sampling and testing is key to prevent MBG***

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TAKE HOME MESSAGE

Regular maintenance of fueling equipment including elimination of free water along with sound fuel management program (sampling and testing) is key to ensure flight safety

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THANK YOU



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