

# Simple solutions for a complex problem



The thought of how dangerous undissolved water in jet fuel can be, is enough to unsettle anyone's stomach.

So it'll come as a relief to know that there's a quick, easy and affordable way to make sure your fuel is water free – the Shell Water Detector.

It's the aviation industry's test system of choice, employed over 10 million times a year around the world. Using a syringe fitted with a Shell Water Detector capsule, it only takes a matter of moments to check the fuel at any stage of your delivery system.

And these capsules are probably the most cost-effective safety measure you'll ever introduce.

For more information, or to place an order, contact Shell Aviation at [info\\_SWD\\_SAV@shell.com](mailto:info_SWD_SAV@shell.com) or look at our website [www.shell.com/aviation/aeroshell](http://www.shell.com/aviation/aeroshell)



# Shell Water Detector

The Shell Water Detector is a device for determining the presence in jet fuels of finely dispersed undissolved water in concentrations lower than those normally detectable by visual examination. Water dispersions of this type can result from the emulsification of a water/fuel mixture during pumping, or from the precipitation of dissolved water due to a fall in fuel temperature.

## Construction

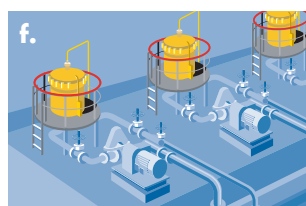
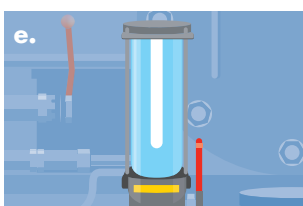
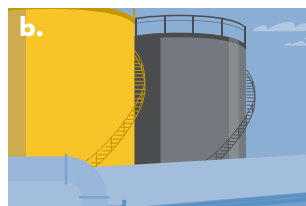
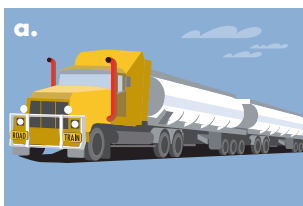
The following items are necessary for the test:

- Standard polythene or nylon hypodermic syringe of 5ml capacity with a Record type nozzle fitting.
- Plastic detector capsule in which is fitted a disc of filter paper treated with water sensitive chemicals.

## Application

The Shell Water Detector should be used as follows to check samples of jet fuels immediately after they are drawn:

- Road vehicle and RTW drain samples - before discharge into airport storage.
- Bottom samples from airport tanks - immediately before release.
- Fueller and trailer compartment drain samples - after each replenishment.
- Hydrant dispenser filter drain samples - after each aircraft fuelling.
- Fueller filter drain samples - after the first aircraft fuelling, after filling or topping up either Fueller or trailer.
- Drain samples from filtration equipment on hydrant delivery and Refueller loading rack delivery.



## Use

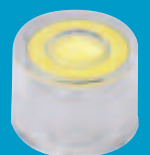
Each time you should use a new capsule. The capsule should be fitted to the syringe, then the capsule and approximately half of the syringe is immersed in the sample under test and the plunger withdrawn until the fuel reaches the 5ml mark. The capsule should be examined for any difference in colour between the inner wetted portion and the outer portion which is protected by the plastic moulding. It is important to note that:

- The screw cap should be replaced on the capsule container immediately after the required capsule has been removed to prevent discolouration of the remaining capsules by atmospheric humidity. Unused capsules should not be left lying about or kept loose in the pocket.
- A capsule should be used once only and then discarded because the sensitivity of the device is a function of the quantity of fuel passing through the paper.



## Interpretation of Results

The presence of undissolved water is indicated by a change in colour of the centre portion of the detector paper. The Shell Water Detector begins to react at very low levels of water contamination even below 15ppm and the resulting colour change becomes progressively more noticeable with increasing water content until at approximately 30ppm a distinct green colour is obtained giving a positive indication of water contamination. At lower water contamination levels a yellow/green colour is obtained which increases to blue/green and finally blue/black at very high levels of water contamination.



## Storage Life and Supply Arrangements

The recommended life for Shell Water Detector capsules is nine months from manufacture date. The date is marked on the bottom of each tube of 8 capsules, and printed on each box of 10 tubes (each box containing 80 capsules in total).