



Shell Aviation

Shell Water Detector

Technical advises for use

The **Shell Water Detector** (SWD) capsule determines the presence of finely dispersed suspended water in jet fuel at concentrations lower than those normally detectable by visual examination.

PPE

PVC gloves (gloves that are impervious to fuel)
Eye protection

Safety Footwear
Anti-static clothing

Equipment

Clean glass jar or metal bucket with bonding cable attached
Syringe

SWD capsule
Record sheet

Procedure

Step 1: Check the equipment

- Detector capsule: examine the bottom of the tube to ensure the capsules have not passed their expiry date.
- 5 ml syringe (0.2 fl oz) – the syringe operates freely and the nozzle is not damaged
- Glass jar or closed circuit sample: ensure the sample jar is clean and free from water

Step 2: Fit the capsule

- Remove a capsule from the tube. Handle carefully and do not touch or allow any moisture onto the yellow paper of the capsule
- Close the tube to avoid contamination of other capsules at ambient humidity.
- Check that paper is uniformly yellow, if it is not, discard and use another capsule
- Fit the capsule to the syringe with the plunger in the depressed position

Step 3: Draw a sample

- Use the sample from the visual check you have just completed
- If you do not already have the sample, follow the task breakdown procedures from the Visual Clear and Bright Procedure

Step 4:

- Immerse the capsule and approximately half of the syringe using a circular motion into the sample



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- Ensure you are using gloves that are impervious to fuel

Step 5:

- Pull the plunger to draw 5 ml of fuel sample into the syringe

Step 6:

- Withdraw the syringe from the fuel and examine the capsule immediately for any change of color in the centre wetted area of the capsule

Step 7: Results

- If there is no color change, the sample is acceptable
- The color of the centre can change to slight yellow/ green at very low dispersed water concentrations with the change to green becoming progressively more noticeable with increasing water content
- A few green speckles or a slight change in color would be recorder as a “trace”, a distinct color change would be recorder as “suspended water”.
- If there is any color change in the capsule, re-sample and re-test until a negative water result is obtained.

Step 8: After sampling

- Dispose of the used capsule safely. It can only be used ONCE.
- Empty the contents of the syringe back into the sample container and return into recovery tank
- Complete the documentation

Interpretation of Shell Water Detector Results

The presence of suspended water is indicated by a change in color of the centre portion of the detector capsule.

It changes from **faint yellow to green** if water is detected

Storage Life

The life for unused Shell Water Detector capsules is approximately 7/8 months from the time of manufacture. The expiry date month and year is marked on the bottom of each tube of capsules.

Unused capsules should be stored in their container with the cap screwed tightly to prevent discoloration by humidity.

Each capsule must only be used once.