



TORONTECH

AUTOMATIC WATER REACTION TESTER FOR JET FUEL



Automatic Water Reaction Tester for Jet Fuel - ToronWRT™ 1094

Automatic Water Reaction Tester ToronWRT™ 1094 is designed to run the ASTM D1094 water reaction test for aviation gasoline and aviation turbine fuels. It helps determine whether water-miscible components are present and how they affect aqueous-layer volume change and the fuel-water interface. The system automates the standardized shaking motion using a gas-driven vertical reciprocating mechanism and microcomputer control for timing and stroke settings.

ToronWRT™ 1094 automates the ASTM D1094 workflow where a fuel sample is shaken at room temperature with a phosphate buffer solution in carefully cleaned glassware. After agitation and a set quiescent period, the operator evaluates the change in aqueous-layer volume and the appearance of the interface as the “water reaction” result. The unit supports adjustable routes, periods, and motion parameters, then provides a quiescent-time display and an alarm prompt. A soft LED light source supports clearer interface observation under different lab lighting conditions.

APPLICATIONS

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Application

- Jet fuel quality screening: water reaction testing supports aviation turbine fuel QC by showing how contaminants or water-miscible components can alter interface behavior after agitation. ASTM notes the method can reveal certain contaminants in turbine fuels, while it is not reliable for detecting surfactants that disarm filter-separators quickly.
- Aviation gasoline contamination check: ASTM describes this method as useful for revealing water-soluble components such as alcohols when applied to aviation gasoline, based on volume-change behavior and interface appearance. ToronWRT™ 1094 provides the controlled motion and timing to run the same technique consistently.

- Lab standardization and repeatability: Manual shaking can introduce operator variation. ToronWRT™ 1094 uses microcomputer control to manage the experimental period and route, and it calculates the number of round-trips. That supports more consistent execution across shifts and sites.
- Training and inspection workflows: The built-in LED illumination and post-test prompts help inspection teams read interface appearance more easily. RS232 communication and a built-in thermal micro-printer support basic documentation in routine QC environments.



Standards

- ASTM D1094 – Standard Test Method for Water Reaction of Aviation Fuels.

FEATURES

Automatic Water Reaction Tester for Jet Fuel - ToronWRT™ 1094 Key Features

- Gas-driven high-speed vertical reciprocating motion for standardized agitation.
- Microcomputer control to manage test period, stroke route, and round-trip count.
- Flexible parameter settings for route, period, and related motion settings.
- Quiescent-time display with alarm prompt after the experiment.
- LED soft light source for easier interface observation across different environments.
- Data saving with RS232 communication and thermal micro-printer support.
- Low-noise operation and simple controls for routine lab use.

TECHNICAL SPECIFICATIONS

Automatic Water Reaction Tester for Jet Fuel - ToronWRT™ 1094 Technical Specification

Item	ToronWRT™ 1094
Standard	ASTM D1094

Item	ToronWRT™ 1094
Rated voltage	AC 220 V $\pm$ 10%, 50 Hz (110V is also available)
Power	40 W
Communication	RS232
Printer	Thermosensitive micro-printer
Light source	LED lighting
Amplitude adjustment	120-250 mm (5 mm increments)
Speed adjustment	2-4 times/s
Regular time	115-125 s
Quiescent time	5 min
Ambient conditions	10-40°C; humidity $\leq$ 85%



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