

DST-1000 Acid Purification System

The Savillex DST-1000 Acid Purification System is used to purify acids used in trace metals analysis by the process of sub-boiling distillation. The DST-1000 is a compact, integrated unit that is simple to use and safe to operate unattended in a fume hood. It can purify up to 1 L of acid at a time, converting trace metal (1 ppb) grade to high purity (10 ppt) grade, and provides a significant cost savings to any trace metals lab. The DST-1000 can be used to purify HNO₃, HCl and HF, producing 500 mL of high purity acid in approximately 12 hours. For very high throughput labs, a larger version (DST-4000) is also available.

Design Features

The DST-1000 features a PFA reservoir/condenser vessel with the lower (reservoir) section surrounded by an electric heating mantle. All wetted parts are high purity PFA. Acid to be purified is added to the vessel via a conveniently located front fill tube which fills the reservoir from the bottom. The acid level in the reservoir is displayed by the liquid level gauge on the fill tube. Power is supplied to the heating mantle by a variable temperature controller with three temperature settings: LO, MID and HI. The acid in the reservoir is gently heated and high purity acid vapor is generated. The acid vapor condenses on the walls of the upper part of the vessel (condenser) and is collected in a channel which drains into a 1000 mL Purillex™ PFA collection bottle. The domed shape of the condenser allows for efficient air cooling and acid vapor condensation. No water cooling is needed, which greatly simplifies installation and also reduces waste. The vent assembly in the vessel and the vent in the bottle transfer closure allow air into the vessel as the acid is distilled, and allow displaced air out of the bottle as it fills. Both vents are fitted with PTFE membranes, which prevent airborne contamination from entering the system. The pressure equalization tube maintains even pressure throughout the system during the distillation process to prevent pressurization.

The production rate of high purity acid is dependent on the temperature setting used. A temperature setting of HI will produce acid at approximately 40 mL/hr. The temperature setting only affects the production rate and not the purity of the acid. The maximum acid temperature that can be generated by the heating element is well below the boiling point of the acid so there is no potential for contaminants to be carried over with the distillate. The low maximum temperature and integrated thermal fuse in the heating element also provides a high degree of safety during the distillation process. The lower temperature settings are useful when operating the DST-1000 unattended or for extended periods of time. The process can be stopped at any time if high purity acid is needed urgently. Otherwise, the heater should be manually switched off when the remaining acid volume in the chamber reaches 50-100 mL. After cooling, the residual acid is drained to waste.

The DST-1000 is extremely simple to install and with a footprint of only 36.5 cm x 20 cm and a height of 45 cm. The DST-1000 will fit into the smallest fume hoods. The controller is connected via a 3 m cord and is designed to be placed outside the fume hood.



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Savillex Data Sheet

System Components

The DST-1000 Acid Purification System comes complete with a controller, 1000 mL Purillex PFA collection bottle and a bottle bracket.

Specifications

Feature	Specification
Power Source (three-wire earth grounded only)	100, 115 or 230 VAC +/- 5%, 50/60 Hz
Power Supply	70 watt resistance heater
Power Cord Length	3 m (9.8 ft) DST-1000 unit to control box 2 m (6.6 ft) control box to outlet
Dimensions (footprint)	Length: 36.5 cm (14.4 in) Width: 20.0 cm (7.9 in) Height: 45.0 cm (17.7 in)
Shipping Weight	7.25 kg (16 lbs)
Capacity	1000 mL
Acids That Can Be Purified by the DST-1000	HNO ₃ , HCl and HF
Certification	CE certified and RoHS compliant

Ordering Information

Description	Part #
DST-1000 100 VAC	525-1000-100
DST-1000 115 VAC	525-1000-115
DST-1000 230 VAC	525-1000-230
DST-1000 230 VAC (UK 3-pin fused plug)	525-1000-230UK

Optional Part

Polypropylene Spill Tray, 10" x 20" x 1-5/8"	730-0525
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