

Turn Your ICP Up To 11

with the U5000AT+
Ultrasonic Nebulizer!

Greater Efficiency | Lower Detection Limits

- Very high efficiency nebulization, up to 15%, c.f vs. 2–3% for conventional pneumatic nebulization
- Aerosol desolvation for plasma stability and reduced solvent-based continuum background
- Offers up to 10 times improvement in analyte signal detection limits



Get the most out of your plasma-based instruments with the Teledyne CETAC U5000AT+ Ultrasonic Nebulizer. The U5000AT+ offers up to 10× lower detection limits for trace element measurements with ICP-OES and ICP-MS. Liquid samples are introduced onto a piezoelectric transducer, providing greater analyte transport efficiency to the plasma. An integrated desolvation system with electrothermal cooling removes excess sample aerosol solvent and ensures stable plasma operation.

Performance

The U5000AT+ converts more sample into useable aerosol, with an efficiency of 10–15% versus 2–3% for conventional pneumatic nebulizers. The result is up to 10x improvement in analyte signal and detection limits. For example, Figure 1 below depicts an approximate 8x enhancement in signal for antimony (Sb) using the U5000AT+ with ICP-OES detection. For ICP-OES detection, limits fall below 1 µg/L for many elements. For ICP-MS sub-ng/L limits can be achieved; even lower limits may be obtained under clean-room conditions. Short term (60 minute) and long-term (8 hour) stability is excellent, with %RSDs typically < 1%.

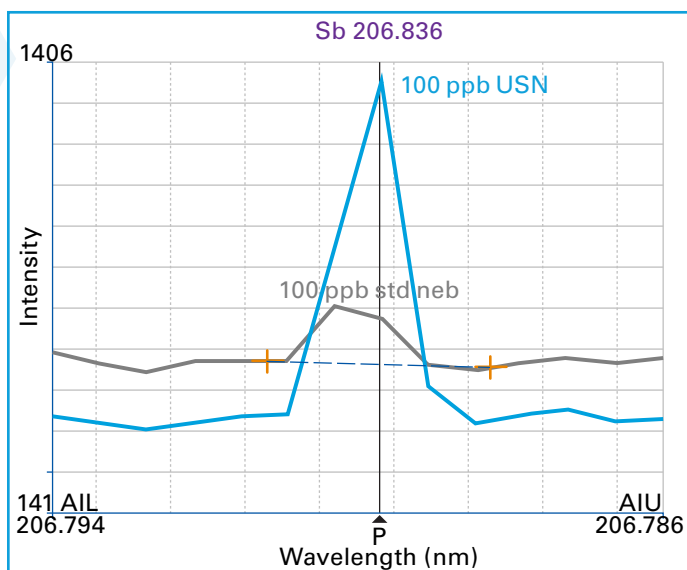


Figure 1. Comparison of signal intensities for 100 µg/L Sb using standard pneumatic nebulizer and U5000AT+ USN

Fast and Easy Setup

Each U5000AT+ comes with an interface kit for easy connection to the host ICP-OES or ICP-MS. Setup can be completed in about 5 minutes.

Convenient Features

The U5000AT+ has a compact footprint for placement on a benchtop or laboratory cart. Modular design allows easy replacement of the entire glassware assembly. This unique feature is useful for switching between very different sample types. An optional membrane desolvator (MDX-200) can be added for further removal of sample solvent (aqueous or volatile organic).

Simple Operation

With the press of a button, the U5000AT+ generates sample aerosol; an integrated autotuning oscillator provides stable operation so no adjustment is typically needed between different liquid sample types.

Dedicated, front mounted temperature controllers (Heater and Cooler) can be quickly reset for aqueous or organic applications. The U5000AT+ does not require computer control from the host ICP-OES or ICP-MS instrument. For automated sample introduction, the sample inlet tube of the U5000AT+ can be easily connected to an autosampler sample probe.

Principle Of Operation

The host ICP-OES or ICP-MS peristaltic pump introduces liquid sample across a piezoelectric transducer; the oscillations of the transducer enable the formation of a fine sample aerosol. A flow of Ar nebulizer gas from the same ICP-OES or ICP-MS sweeps the aerosol out of a spray chamber, through a heated tube, and then through an electrothermally cooled condenser.

This process provides dried sample particles which are transported by the nebulizer gas to the ICP-OES or ICP-MS for analysis. Any excess sample liquid from the spray chamber and condensed sample solvent are removed by an on-board drain peristaltic pump.

Specifications

Sample Uptake Rate: 0.5 to 2.5 mL/min

Nebulizer Gas Flow: 0.5 to 1.5 L/min

Heater Temperature: 120°C to 160°C

Cooler Temperature: -20°C to +10°C

Voltage: 100-120 VAC, 50/60 Hz, 4.5A
220-240 VAC, 50/60 Hz, 2.5A

Dimensions:

Height: 25.4 cm (10")

Width: 35.6 cm (14")

Depth: 34.9 cm (13¾")

Weight: 12.3 kg (27 lbs)

Warranty: 12 month limited