

Dual Quartz Laser Chamber & PFA-LS Nebulizer

Homogenizes Laser Ablated material with nebulized solution.

ESI introduce the Dual Quartz Laser Chamber, which allows the combination of a nebulized solution with laser ablated material.

This chamber comprises of a cyclonic spray chamber which exits into a Scott type chamber. The chamber filters out any large particles and homogenizes the 2 sample streams together.

- Ablated aerosol and nebulized solution mixed together
- Homogenized aerosol produces stable signal
- Large particles removed by cyclonic chamber
- Additional gas port included

The Dual Quartz Laser chamber should be used in combination with the PFA-LS nebulizer. This nebulizer has been designed to operate at lower gas flow rates allowing more gas flow to pass through the laser ablation chamber.

- Designed to work with laser systems
- 20 μ L/min sample uptake reduces solvent load
- Nebulizer gas flow 0.3 to 0.4 L/min
- Allows higher flow through laser chamber even when nebulized aerosol is added to sample stream



PFA-LS20 Nebulizer



Dual Quartz Laser Chamber

The LS-20 Nebulizer can also be used in combination with the **Apex Sample Inlet System** to produce a completely dry aerosol.

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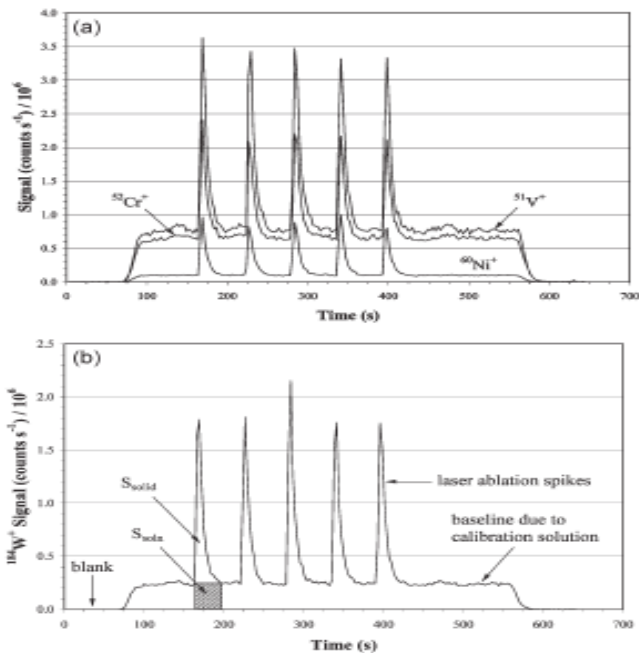
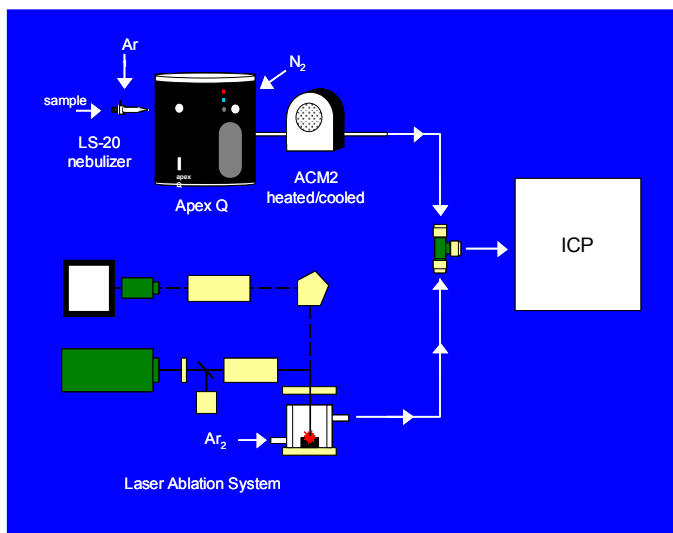


Fig. 2 Signal vs. time profiles for ablation of five localized spots on NIST SRM 1264a steel, 50 laser shots per sample spike; (a) $^{51}\text{V}^+$, $^{52}\text{Cr}^+$ and $^{60}\text{Ni}^+$, (b) $^{184}\text{W}^+$. Boxed areas in Fig. 2(b) show signals integrated for calibration procedure. Concentrations in weight percent are V 0.106%, Cr 0.066%, Ni 0.142%, W 0.102%.

	Concentration (ppm)		
	Measured	Certified (information) values	Rel. difference (%)
Mn	40.8 ± 7.9	39.6	3.0
Fe	51.6 ± 6.1	51	1.2
Co	36.0 ± 4.7	35.5	1.4
Ni	39.2 ± 4.7	38.8	1.0
Cu	38.5 ± 6.7	37.7	2.1
Ba	41.6 ± 5.5	(41)	1.5
Nd	36.2 ± 2.6	(36)	0.56
Sm	39.5 ± 4.7	(39)	1.3
Eu	36.5 ± 4.7	(36)	1.4
Dy	35.1 ± 2.5	(35)	0.29
Er	39.3 ± 4.2	(39)	0.77
Tl	15.8 ± 1.6	(15.7)	0.64
Pb	39.2 ± 5.8	38.57	1.6

Data published by Aeschliman et al, J. Anal. At. Spectrom., 2003, 18, 872-877. Showing the signal from an LS-20 and a laser ablation.

LS-20 in combination with the APEX to produce a Dry Aerosol.



	Sensitivity ^{238}U	Oxide Levels UO^+/U^+
Laser + N_2	1914271	0.10%
Laser + LS-20 Laser Chamber + N_2	2154110	4.47%
Laser + LS-20 + Apex	2011899	0.10%

The use of the LS-20 with the Apex & ACM results in oxide levels which are equivalent to those obtained when using the laser only.

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