

Table 5.4. Modified ICP-MS methods capable of measuring trace levels of As in the presence of matrix chloride.

Method	Strategy for Dealing with ArCl ⁺ Interference	Matrix	Method Detection Limit
High resolution ICP-MS	Resolves the As peak from the ArCl ⁺ peak	Drinking water ^a	29 ng L ⁻¹
		Drinking water with up to 1 g Cl L ⁻¹ ^b	260 ng L ⁻¹
Collision/reaction cell ICP-MS	ArCl ⁺ interacts with reaction gas to form noninterfering species	5% HCl ^c	153 ng L ⁻¹
Mixed-gas plasma ICP-MS	Suppresses formation of ArCl ⁺	Drinking water with up to 1 g Cl L ⁻¹ ^b	< 300 ng L ⁻¹
		99 mg Cl L ⁻¹ ^d	240–480 ng L ⁻¹
Electrothermal vaporization ICP-MS	Thermally pre-separates As from the matrix	37% HCl ^e	40 ng L ⁻¹
Membrane desolvation ICP-MS	Removes HCl in addition to water vapor prior to ionization	Drinking water with up to 1 g Cl L ⁻¹ ^b	100 ng L ⁻¹
Hydride generation ICP-MS (or AFS)	Pre-separates As from the matrix by forming, trapping, and analyzing arsine hydrides	2% Cl ^f	1.4–4.2 ng L ⁻¹
		Drinking water with up to 1 g Cl L ⁻¹ ^b	0.25 ng L ⁻¹
LC-ICP-MS or IC-ICP-MS	Chromatographically separates As species from chloride before introduction into ICP-MS	Drinking water ^g	400–800 ng L ⁻¹
		2% Cl ^f	57–116 ng L ⁻¹

a: this study

b: Klaue and Blum (1999)

c: Niemela et al. (2003)

d: Hill et al. (1992)

e: Thomas (2003)

f: Nakazato et al. (2002)

g: Day et al. (2002)