

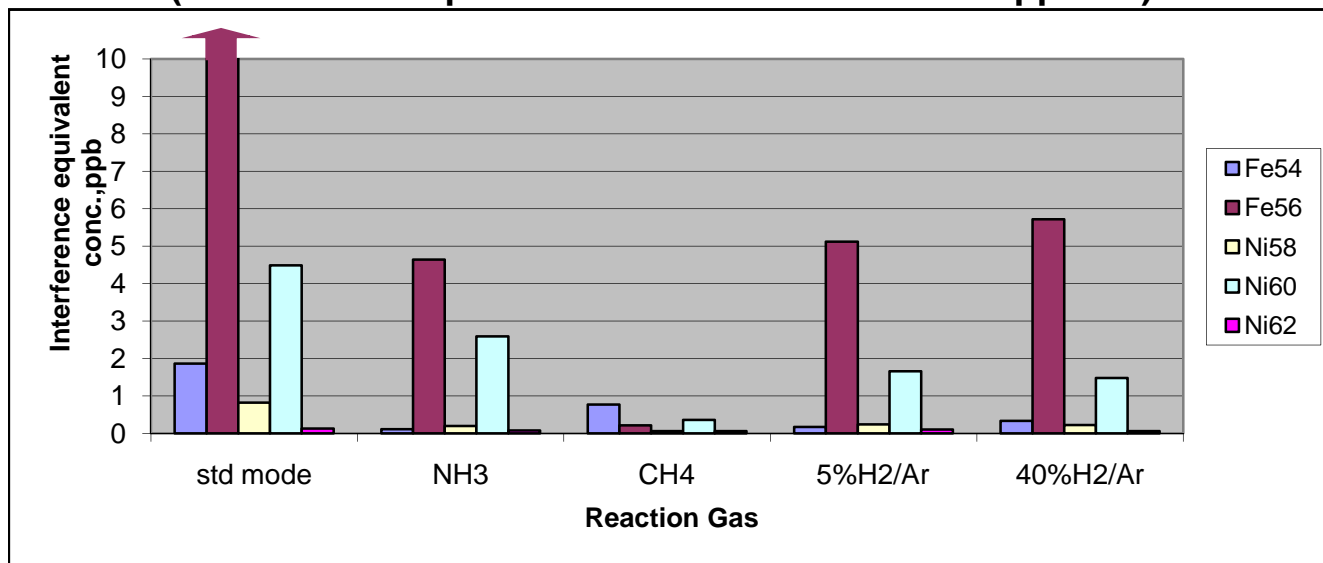
## DRC gases and their effect on elements

YY=goes well with this gas	Y=goes reasonably well	XX=doesn't go well, no advantage					
Element/mass	Interference	NH3	CH4	H2	O2	Comments	
Li6	none	Y	Y	Y		light element tends to be scattered	
Li7	none	Y	Y	Y		light element tends to be scattered	
Be9	none	Y	Y	Y		light element tends to be scattered	
B11	none	XX	XX	Y		light element tends to be scattered	
Na23	bgd	YY	XX	Y			
Mg24	C2	YY	Y	Y			
Mg25	C2H	YY	X	Y			
Mg26	C2	YY	X	Y			
Al27	CN	YY	XX	XX		only NH3 reacts with CN	
Si28	O2	XX	XX	Y	YY	Si reacts with gases, SiO works at 44, but Ca overlap	
P31	NOH	XX	XX	XX	YY	P disappears with most gases, PO47 works well	
S32	O2	XX	XX	XX	YY	S disappears with most gases, SO48 works well	
K39	ArH	YY	XX	Y			
Ca40	ArO	YY	YY	Y			
Ca43	ArH	YY	XX	XX		low sensitivity isotope	
Ca44	Ar ArH	YY	YY	Y		used for correction if necessary	
Sc45	ArH, CaH	XX	XX	XX		reacts with most gases and disappears	
Ti46		XX	Y	XX		No reaction between CH4 and Ti+, looks promising	
Ti47		XX	X	XX		Ti+ loses charge to some gases	
Ti48	C4,SO,Cx	XX	Y	XX		CX type interferences	
Ti49		XX	Y	XX	YY	TiO2 at mass 81 works with 2ml/min O2 cell gas	
Ti50		XX	Y	XX			
V51	ClO, ArC	YY	XX	XX		H2/CH4 does not remove ClO	
Cr52	ArC	YY	YY	Y			
Cr53	ClO, ArC	YY	XX	XX		H2/CH4 does not remove ClO	
Fe54	ArN	YY	YY	YY			
Mn55	ArNH	YY	YY	YY			
Fe56	ArO	YY	YY	YY			
Fe57	ArOH	XX	XX	Y		CaNH3+ formed with NH3	
Ni58	ArO	YY	YY	YY			
Co59	ArOH	YY	YY	YY			
Ni60	ArO	YY	YY	YY		CaO lowest with CH4	
Cu63	NaAr	YY	Y	YY			
Zn64	SOO, POO	YY	Y	XX		H2 doesn't remove SOO	
Cu65	SOO, POO	YY	Y	Y		NH3 does remove SOO with high q	
Zn66	SOO, POO	YY	Y	Y			
Zn67		Y	X	Y			
Zn68	SOX, Ba++	YY	YY	Y			
Ga71	none	YY	YY	YY	YY	good internal std	
Ge72	none	Y	Y	Y		reacts to form hydrides, can be used as internal std	
As75	ArCl	XX	Y	YY	YY	AsO at mass91 with 0.3ml/min O2	
Se78	ArAr	Y	YY	YY	YY	Kr interference is removed	
Se80	ArAr	Y	YY	YY	YY	NH3 removes Br+	
Sr88		YY	YY	YY			
Zr90		XX	YY	YY		Zr reacts with NH3	
Zr91		XX	YY	YY			
Mo95		YY	YY	Y		no interferences but good focussing	
Mo98		YY	YY	Y			
Rh103		YY	YY	YY	YY	good internal std	
Ag107	none	YY	YY	YY	YY		
Ag109	none	YY	YY	YY	YY		
Cd111	MoO	Y	YY	Y	YY	need to use high flows of O2 to remove MoO	
Cd114	MoO	Y	YY	Y	YY	need to use high flows of O2 to remove MoO	
In115		YY	YY	YY	YY	good internal std	
Sn118		YY	YY	YY			
Sn120		YY	YY	YY			
Sb121	none	YY	YY	YY			
Sb123	none	YY	YY	YY			
Te125	none	YY	YY	YY		potential as internal std	
Ba137		YY	YY	YY			
Ba138		YY	YY	YY			
Re185		YY	YY	YY	YY	good internal std	
Ir191		YY	YY	YY	YY	good internal std	
Ir193		YY	YY	YY	YY	good internal std	
Hg202		XX	YY	YY		Hg reacts with NH3, used to separate Hg from Pb	
Tl203		YY	YY	YY			
Tl205		YY	YY	YY			
Pb206		YY	YY	YY			
Pb207		YY	YY	YY			
Pb208		YY	YY	YY			
Bi209	none	YY	YY	YY		good internal std for Pb	
U238		XX	YY	YY	YY	UO2 formed with O2	

## The Most Common Interferences in ICP-MS

Analyte	Interference(s)	Reaction Gas(es)
<sup>24</sup> Mg	C <sub>2</sub>	NH <sub>3</sub>
<sup>27</sup> Al	CN, CNH	NH <sub>3</sub>
<sup>39</sup> K	ArH	NH <sub>3</sub>
<sup>40</sup> Ca	ArH	NH <sub>3</sub>
<sup>51</sup> V	ClO	NH <sub>3</sub>
<sup>52</sup> Cr	ArC	NH <sub>3</sub> , H <sub>2</sub> , CH <sub>4</sub>
<sup>53</sup> Cr	ArC, ClO	NH <sub>3</sub>
<sup>54</sup> Fe	ArN	NH <sub>3</sub> , H <sub>2</sub> , CH <sub>4</sub>
<sup>55</sup> Mn	ArNH	NH <sub>3</sub> , H <sub>2</sub> , CH <sub>4</sub>
<sup>56</sup> Fe	ArO	NH <sub>3</sub> , H <sub>2</sub> , CH <sub>4</sub>
<sup>58</sup> Ni	ArO	NH <sub>3</sub> , H <sub>2</sub> , CH <sub>4</sub>
<sup>59</sup> Co	ArOH	NH <sub>3</sub> , H <sub>2</sub> , CH <sub>4</sub>
<sup>60</sup> Ni	ArO	NH <sub>3</sub> , H <sub>2</sub> , CH <sub>4</sub>
<sup>63</sup> Cu	ArNa	NH <sub>3</sub> , H <sub>2</sub> , CH <sub>4</sub>
<sup>75</sup> As	ArCl	H <sub>2</sub> , CH <sub>4</sub>
<sup>78</sup> Se	ArAr	NH <sub>3</sub> , H <sub>2</sub> , CH <sub>4</sub>
<sup>80</sup> Se	ArAr	NH <sub>3</sub> , H <sub>2</sub> , CH <sub>4</sub>

### Effect of Reaction gas on CaO(H) type Interferences (Interference Equivalent Concentrations for 100ppmCa)



CaO interferences in ICP-MS Table of interference equivalent concentrations measured with CeO/Ce=0.03

Values are concentration equivalents in ug/L or ppb for 10 and 100mg/L or ppm of Ca.

Analyte/Mass	std mode	DRC gas			
	NH3	CH4	5%H2/Ar	40%H2/Ar	
	100ppmCa	100ppmCa	100ppmCa	100ppmCa	100ppmCa
Fe54	1.86	0.11	0.77	0.17	0.33
Fe56	99.44	4.64	0.21	5.12	5.72
Ni58	0.82	0.2	0.06	0.24	0.22
Ni60	4.49	2.59	0.36	1.66	1.48
Ni62	0.13	0.08	0.06	0.1	0.06

