

APPLICATION NOTE

SIMS Detection Limits of Selected Elements in SiC Under Normal Depth Profiling Conditions

DISCUSSION

SIMS is a powerful analytical technique which allows detection of all elements from H to U with excellent sensitivity. The table provides a list of typical detection limits for impurities in a SiC matrix. These detection levels are for normal depth profiling conditions of blanket wafers.

O ₂ ⁺ Primary Ion Beam Positive Ions		Cs ⁺ Primary Ion Beam Negative Ions	
Element	DI (atoms/cm ³)	Element	DI (atoms/cm ³)
Li	1E+13	H	2E+17
B	2E+13	B	1E+15
N	5E+16	N	2E+15
-	-	N*	2E+14
Na	2E+13	O	5E+16
Mg	2E+13	F	5E+14
Al	2E+13	P	1E+14
K	5E+12	S	1E+15
Ca	1E+14	Cl	5E+14
Ti	1E+13	As	5E+14
V	1E+12	-	-
Cr	5E+13	-	-
Mn	5E+13	-	-
Fe	2E+14	-	-
Ni	5E+14	-	-
Cu	2E+14	-	-
Ga	5E+13	-	-
Zr	1E+14	-	-
Nb	2E+14	-	-
Mo	1E+14	-	-
Ta	5E+13	-	-
W	1E+14	-	-

* can be achieved with raster change technique