

Measurement Uncertainty & Reporting Range Values for Chemical Analysis and Materials Testing Decision Rules

Measurment Uncertainty Values

Site	Accreditation	C	Mn	Si	S	P	Cu	V	Cr	Ni	Sn	Mo	Al	Nb	Ti	B	N	Ca	Ceq
Laverton Steel Mill	1726	0.022	0.022	0.010	0.006	0.002	0.010	0.002	0.006	0.005	0.001	0.001	0.003	0.001	0.0003	0.0005			0.024
Sydney Steel Mill	2482	0.014	0.018	0.010	0.004	0.003	0.009	0.001	0.005	0.004	0.001	0.002	0.001	0.001	0.0005	0.0005	0.004		
Bureau Vertias Minerals - Whyalla	626	0.006	0.008	0.006	0.001	0.001	0.001	0.002	0.060	0.002	0.001	0.004	0.058	0.001	0.0010	0.0001	0.005	0.0003	

+/- percentage of elements by mass

Laverton and Sydney Steel Mills measurement uncertainty is an "expanded uncertainty" including uncertainty from sampling in the calculations

The expanded uncertainty has a coverage factor, K of 1.96

Reporting Range Values

Site	Element	C	Mn	Si	S	P	Cu	V	Cr	Ni	Sn	Mo	Al	Nb	Ti	B	N	Ca
Laverton Steel Mill Accreditation: 1726	Low Reporting Limit (%)	0.01	0.01	0.01	0.001	0.001	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.001	0.001	0.0001		
	High Reporting Limit (%)	1.31	1.38	0.50	0.058	0.037	0.69	0.153	0.46	0.81	0.09	0.5	0.087	0.290	0.073	0.0110		

Sydney Steel Mill Accreditation: 2482	Low Reporting Limit (%)	0.01	0.01	0.01	0.001	0.001	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.001	0.001	0.0001	0.001	
	High Reporting Limit (%)	0.80	1.68	1.20	0.08	0.11	0.40	0.52	3.00	2.90	0.10	0.90	0.44	0.490	0.140	0.0120	0.026	

Bureau Vertias Minerals - Whyalla Accreditation: 626	Low Reporting Limit (%)	0.01	0.01	0.01	0.001	0.001	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.001	0.001	0.0001	0.001	0.0001
	High Reporting Limit (%)	1.40	2.00	2.20	0.40	0.10	0.60	1.00	1.50	1.50	0.15	0.80	0.15	0.300	0.250	0.0100	0.030	0.005

Percentage of elements by mass

NOTE: Elements reported at the lower reporting limit may be analysed at these limits or lower. Effect of MU should also be considered.

Material Testing Decision Rules

Material testing requirements and specified ranges, for components of interest, are well defined in standard product descriptions or determined prior to order acceptance. Industry standards and specifications have been developed over extended time periods and measurement uncertainty is deemed to give no additional material performance risk.

Where compliance to a specification is stated - a simple acceptance rule is applied, i.e. If the test result is within the range specified in the referenced specification or standard, then the result is considered to be compliant. No additional allowance for measurement uncertainty is considered.

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