

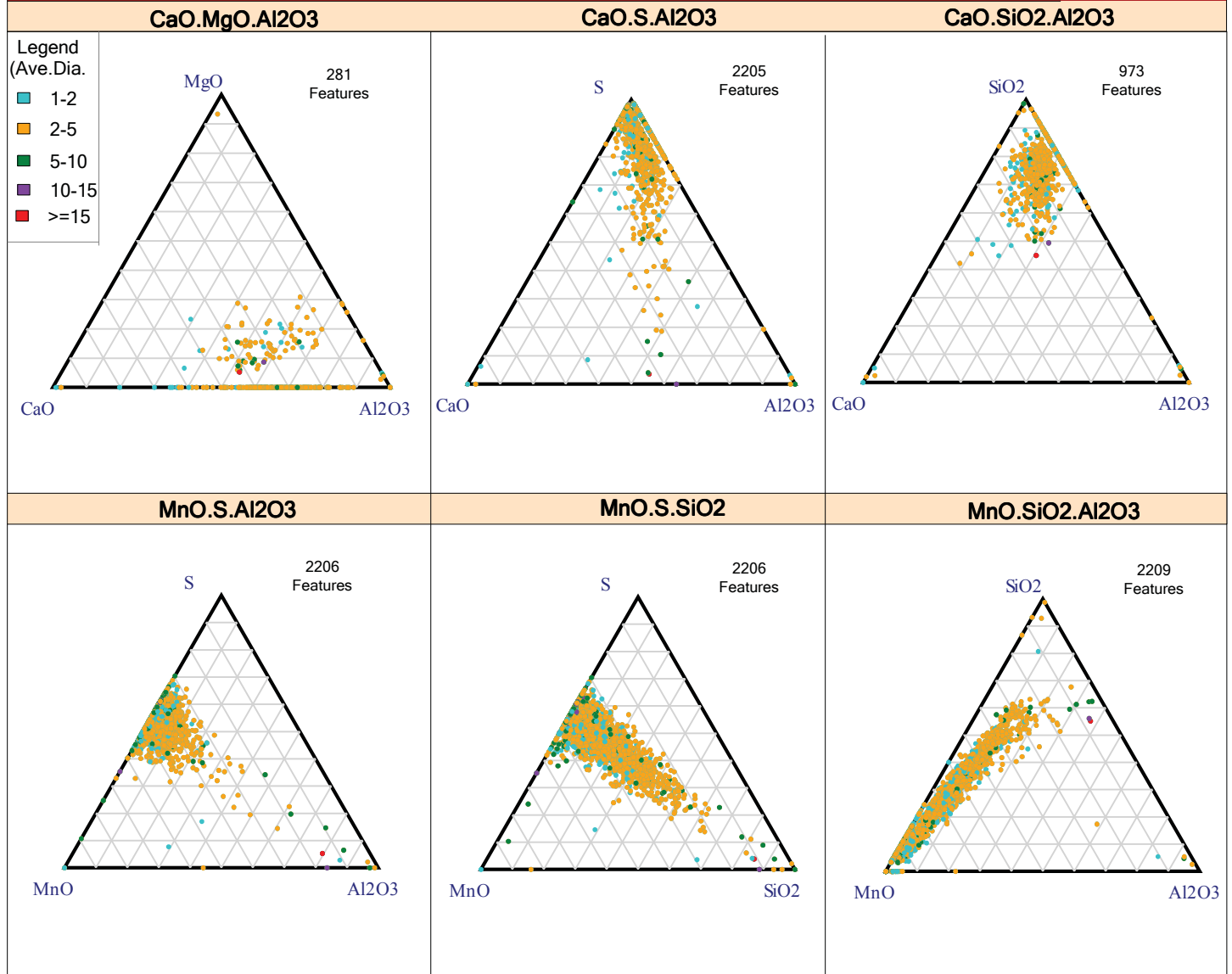
# Metals Quality Analyzer Report

## Information

Sample	Run	Operating Parameters
Sample ID:	Analysis Date: 4/27/2011	Accl. V: 20 KeV
Sample Time:	Total Features: 2210	Min Size: 1 μm
Grade:	Area Scanned: 50.220 mm <sup>2</sup>	Max Size: 225 μm
Location: Slab	Features / mm <sup>2</sup> : 44.01	Min EDS: 0.5 Sec.
Heat #: Low C	Database IDs: 1834 R 2544 D	Max EDS: 1 Sec.

Rev1

## Ternary Diagrams



# Metals Quality Analyzer Report

Summary Of Elemental Chemistry and Inclusion Index			
Average Elemental Composition		Inclusion Index	
<b>Mg</b> 0.2 %	<b>Mn</b> 48.5 %	<b>0.04669 %</b>	
<b>Al</b> 3.5 %	<b>Si</b> 7.9 %		
<b>Ca</b> 1.2 %	<b>Ti</b> 1.2 %		
<b>S</b> 36.3 %	<b>Al/Ca</b> 2.9		
* Ave. Elemental Composition = Wt% / Area of Inclusions / Area Scanned			

All Inclusion Classification Summary	
Inclusion Summary	
Characterized Inclusions	
<b>2210</b>	

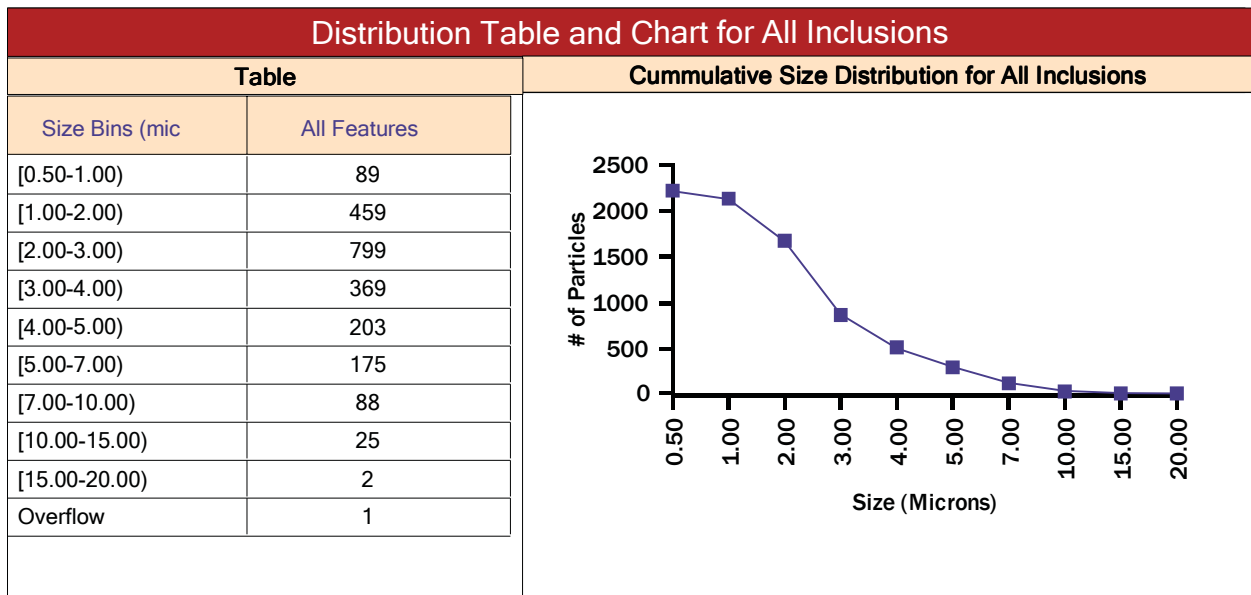
\* DAvg, Dmax, and StdDev is based on DAve. Parameter (um)  
\*\* Area% and Incl. Index is based on Area Parameter

Class	Total #	Features/mm <sup>2</sup>	Area%	Incl. Index	DAvg	DMax	StdDev
MnS	1496	29.79	75.63	0.0353084 %	2.48	4.77	0.89
Mn Si S Al	560	11.15	14.62	0.0068235 %	1.47	1.47	0.00
Ca Si Al Over 5	94	1.87	8.26	0.0038549 %	3.92	34.18	3.53
Mn Si S	40	0.80	0.83	0.0003854 %	3.63	5.51	1.36
Unclassified	6	0.12	0.23	0.0001085 %	2.82	7.38	0.92
Alumina	5	0.10	0.18	0.0000855 %	2.79	5.42	1.81
MgO 25	4	0.08	0.19	0.0000879 %	1.79	1.79	0.00

Size Distribution Table (microns)														
Based on Area														
Inclusion Type	Total	DAvg.	DMax.	0-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50	Overflow
Alumina	5	8.6	23.9	2	0	1	0	0	0	1	1	0	0	0
Ca Si Al Over 5	94	20.6	900.1	4	2	8	4	6	34	28	2	2	0	4
CaSi	1	2.0	2.0	0	0	1	0	0	0	0	0	0	0	0
MgO 25	4	11.0	23.7	0	0	1	0	1	0	1	1	0	0	0
Mn Si Al	1	1.3	1.3	0	1	0	0	0	0	0	0	0	0	0
Mn Si S	40	4.8	16.4	1	8	8	3	6	9	5	0	0	0	0
Mn Si S Al	560	6.1	39.9	13	48	48	72	99	20	61	8	4	0	0
MnS	1496	11.9	222.3	15	16	16	19	11	24	21	92	47	27	71
Spinel Rich	1	5.5	5.5	0	0	0	0	0	1	0	0	0	0	0
TiAl	1	2.0	2.0	0	1	0	0	0	0	0	0	0	0	0
TiS MnS	1	6.1	6.1	0	0	0	0	0	1	0	0	0	0	0
Unclassified	6	9.1	25.5	0	2	1	0	0	1	1	1	0	0	0



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Elemental Composition											
Particle Type	Al	Ca	Cl	K	Mg	Mn	Na	S	Si	Ti	
Alumina	85	0	1	0	2	5	1	1	4	1	
Ca Si Al Over 5	15	9	0	1	1	29	1	19	24	1	
CaSi	4	11	1	0	0	45	0	25	10	3	
MgO 25	0	2	0	1	29	6	3	2	57	0	
Mn Si Al	13	17	2	0	0	28	4	2	32	2	
Mn Si S	2	1	1	1	0	48	1	33	12	2	
Mn Si S Al	7	1	0	1	0	42	1	29	17	2	
MnS	1	1	0	0	0	53	1	40	3	1	
Spinel Rich	51	0	0	1	9	21	0	7	8	3	
TiAl	11	2	0	0	1	15	0	3	56	12	
TiS MnS	2	0	0	0	0	38	0	34	3	24	
Unclassified	2	56	1	1	1	22	0	2	16	0	
All particles analyzed	4	1	0	1	0	49	1	36	8	1	

\* Average Wt% for ALL Inclusions

