

TO DETERMINE MASS SUSCEPTIBILITY OF SLAG SAMPLES FROM BLAST FURNACE SITES

<u>Calibration samples</u>	Mass g	Bridge reading	Total susceptibility $k_T \times 10^{-8} \text{ m}^3$	Mass susceptibility $\chi \times 10^{-8} \text{ m}^3 \text{ kg}^{-1}$
Manganese sulphate	50.00	60.8	4.06	81.2
High alumina cement	50.00	542	35.80	716
<u>Bretton</u>				
BRE-A	19.65	40.2	2.68	137
BRE-B	50.77	115	7.64	150
BRE-C	28.87	55.8	3.73	129
BRE-D	17.28	79	5.26	304
BRE-E	26.54	62	4.14	156
BRE-F	16.58	29	1.94	117
BRE-G	44.13	340	22.48	509
BRE-H	27.30	175	11.59	425
BRE-I	52.97	760	50.18	947
BRE-J	42.17	106	7.04	167
BRE-K	23.54	230	15.22	647
BRE-L	30.22	105	6.98	231
<u>Rockley</u>				
ROC-A	35.82	78	5.19	145
ROC-B	22.59	55.0	3.67	163
ROC-C	20.46	168	11.13	544
ROC-D	18.36	51.4	3.43	187
ROC-E	47.13	113	7.50	159
ROC-F	26.77	34.9	2.33	87
ROC-G	24.65	38.5	2.57	104
ROC-H	18.45	72	4.80	260
ROC-I	23.45	41.7	2.78	119
ROC-J	50.43	79	5.26	104
ROC-K	64.81	1140	75.24	1161
ROC-L	52.30	142	9.42	180
<u>Sowerby Bridge</u>				
SOW-A	20.18	24.1	1.61	80
SOW-B	28.14	34.4	2.30	82
SOW-C	43.65	129	8.56	196
SOW-D	37.52	46.1	3.08	82
SOW-E	37.43	34.1	2.28	61
SOW-F	26.46	45.7	3.05	115
SOW-G	12.26	25.6	1.71	139
SOW-H	41.39	1582	104.40	2522
SOW-I	23.45	792	52.29	2230
SOW-J	53.72	93	6.18	115
SOW-K	11.8	3.6	0.24	20

Mean	)	327
Median	) Bretton	199
Standard Deviation	+/-)	260
Mean	)	268
Median	) Rockley	161
Standard Deviation	+/-)	307
Mean	)	513
Median	) Sowerby Bridge	115
Standard Deviation	+/-)	925
Mean	) Sowerby Bridge	99
Median	) except	82
Standard Deviation	+/-) SOW-H & SOW-I	50

Chart data

Total sus.	Meter	Total sus.	Meter
0	0		
4.06	60.8	4.06	60.8
		35.80	542

Slope & constant values as calculated by data trendline:

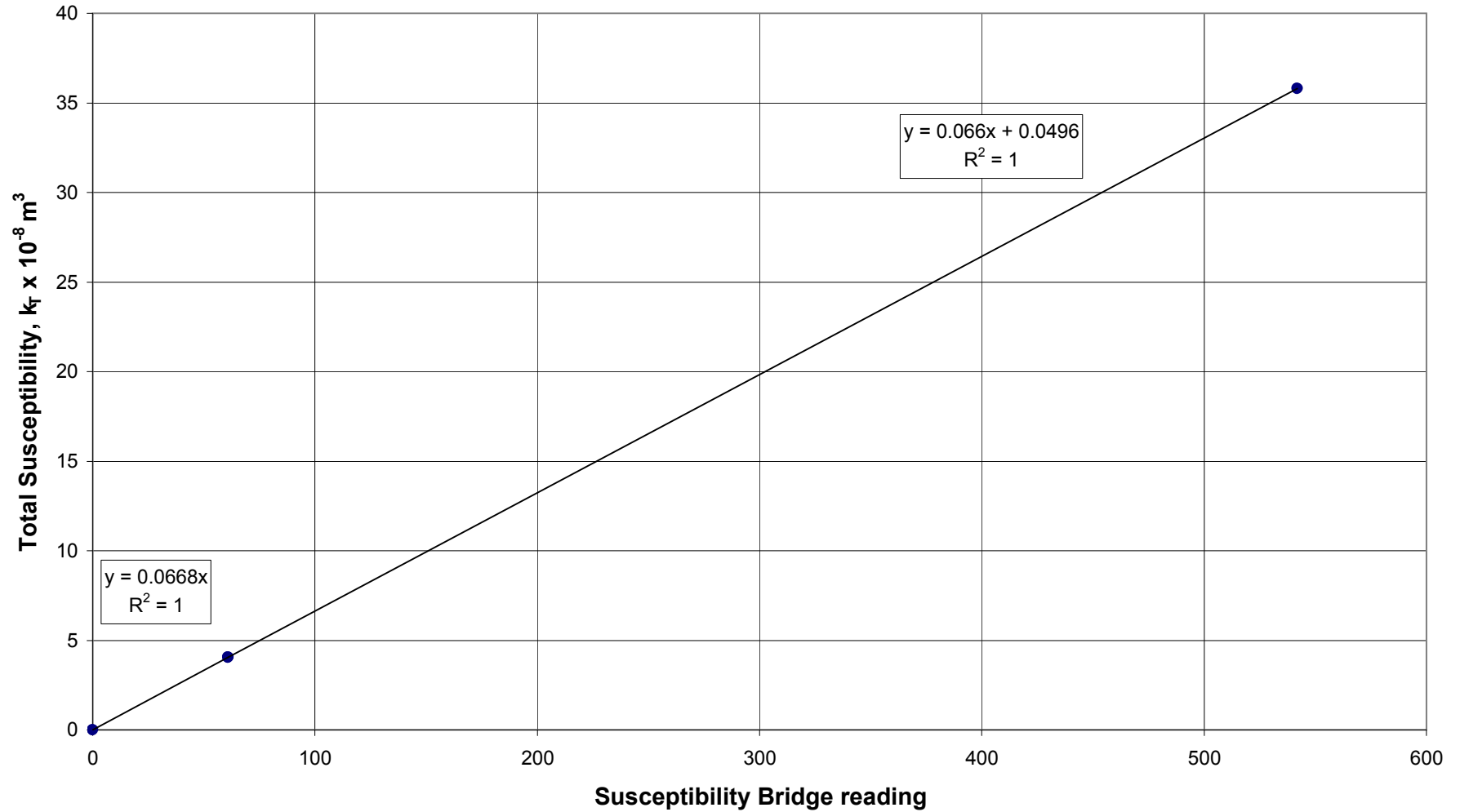
m	c	x	y
0.0668	0	60.8	4.0614
0.0660	0.0496	60.8	4.0624
0.0660	0.0496	542	35.8216

Slope & constant values as calculated from raw data:

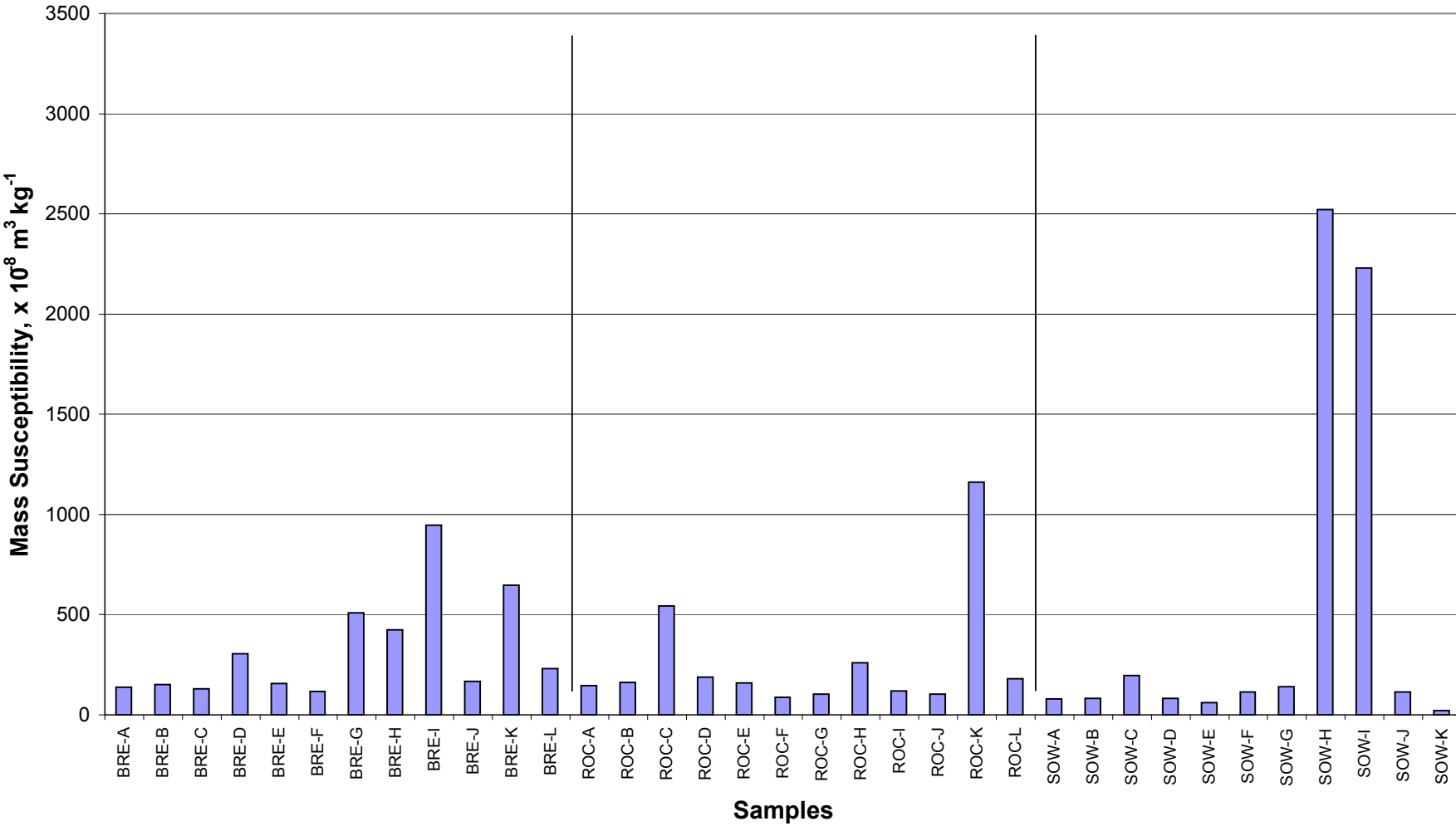
m	c	x	y
0.06678	0	60.8	4.06
0.06596	0.049626	60.8	4.06
0.06596	0.0496259	542	35.80

Above slope & constant values used in formula to calculate total susceptibility from the corresponding meter reading.

BLAST FURNACE SLAG SAMPLES SUSCEPTIBILITY CALIBRATION CURVE



BLAST FURNACE SLAG SAMPLES MASS SUSCEPTIBILITY



**TO DETERMINE MASS QUADRATURE SUSCEPTIBILITY AND MAGNETIC VISCOSITY
OF SLAG SAMPLES FROM BLAST FURNACE SITES**

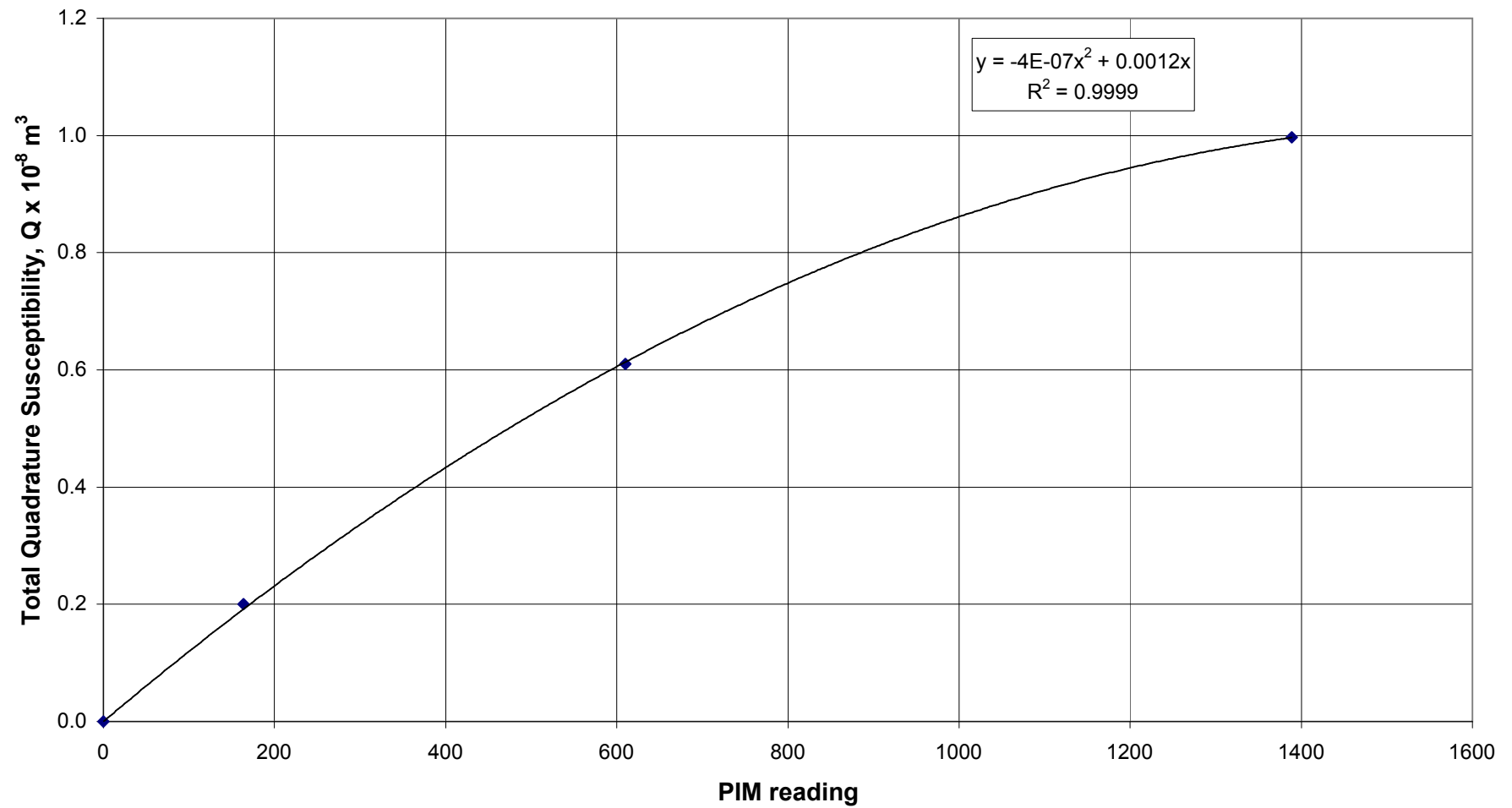
<u>Calibration samples</u>	Mass g	PIM reading	Total quad. sus. $Q \times 10^{-8} \text{ m}^3$	Mass quad. sus. $q \times 10^{-8} \text{ m}^3 \text{ kg}^{-1}$	Magnetic viscosity %
High alumina cement	50.00	164	0.20	4.0	
BS87	50.00	610	0.61	12.2	
BS62	38.20	1389	1.00	26.1	
<u>Bretton</u>					
BRE-A	19.65	3	0.00	0	0.1
BRE-B	50.77	10	0.01	0	0.2
BRE-C	28.87	8	0.01	0	0.3
BRE-D	17.28	12	0.01	1	0.3
BRE-E	26.54	2	0.00	0	0.1
BRE-F	16.58	1	0.00	0	0.1
BRE-G	44.13	122	0.14	3	0.6
BRE-H	27.30	70	0.08	3	0.7
BRE-I	52.97	245	0.27	5	0.5
BRE-J	42.17	39	0.05	1	0.7
BRE-K	23.54	175	0.20	8	1.3
BRE-L	30.22	33	0.04	1	0.6
<u>Rockley</u>					
ROC-A	35.82	12	0.01	0	0.3
ROC-B	22.59	3	0.00	0	0.1
ROC-C	20.46	560	0.55	27	4.9
ROC-D	18.36	80	0.09	5	2.7
ROC-E	47.13	6	0.01	0	0.1
ROC-F	26.77	6	0.01	0	0.3
ROC-G	24.65	11	0.01	1	0.5
ROC-H	18.45	7	0.01	0	0.2
ROC-I	23.45	14	0.02	1	0.6
ROC-J	50.43	44	0.05	1	1.0
ROC-K	64.81	1999	0.80	12	1.1
ROC-L	52.30	70	0.08	2	0.9
<u>Sowerby Bridge</u>					
SOW-A	20.18	1	0.00	0	0.1
SOW-B	28.14	2	0.00	0	0.1
SOW-C	43.65	65	0.08	2	0.9
SOW-D	37.52	2	0.00	0	0.1
SOW-E	37.43	9	0.01	0	0.5
SOW-F	26.46	7	0.01	0	0.3
SOW-G	12.26	3	0.00	0	0.2
SOW-H	41.39	374	0.39	9	0.4
SOW-I	23.45	157	0.18	8	0.3
SOW-J	53.72	2	0.00	0	0.0
SOW-K	11.8	1	0.00	0	0.5

Mean	)	2	0.4
Median	) Bretton	1	0.4
Standard Deviation	+/-)	3	0.4
Mean	)	4	1.1
Median	) Rockley	1	0.6
Standard Deviation	+/-)	8	1.4
Mean	)	2	0.3
Median	) Sowerby Bridge	0	0.3
Standard Deviation	+/-)	3	0.3
Mean	) Sowerby Bridge	0	0.3
Median	) except	0	0.2
Standard Deviation	+/-) SOW-H & SOW-I	1	0.3

Chart data

Total quad.	PIM
0	0
0.20	164
0.61	610
1.00	1389

BLAST FURNACE SLAG SAMPLES QUADRATURE SUSCEPTIBILITY CALIBRATION CURVE



BLAST FURNACE SLAG SAMPLES MASS QUADRATURE SUSCEPTIBILITY & MAGNETIC VISCOSITY

