

TO DETERMINE MASS SUSCEPTIBILITY OF STINGAMIRES SM04 TRENCH 2
ARCHAEO-MAGNETIC DATING REMAINDER MATERIAL

<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	61.4	4.06	81.2
High alumina cement	50.00	528	35.80	716
<u>Test samples</u>				
T2-1	12.07	312	21.11	1749
T2-2	4.46	60.3	3.99	894
T2-3	4.32	40.5	2.68	620
T2-4	1.60	19.0	1.26	785
T2-5	40.47	321	21.72	537
T2-6	37.01	441	29.88	807
T2-7A	33.94	245	16.55	488
T2-7B	35.37	588	39.88	1128
T2-7C	45.73	717	48.66	1064
T2-8	10.88	60.4	3.99	367
T2-9	5.90	30.4	2.01	341
T2-10A	16.36	345	23.35	1427
T2-10B	33.59	580	39.34	1171
T2-10C	41.87	569	38.59	922
T2-11A	29.90	1565	106.34	3557
T2-11B	34.55	1875	127.43	3688
T2-11C	11.93	1674	113.76	9535
T2-12	3.36	108	7.23	2152
T2-13A	34.00	568	38.52	1133
T2-13B	24.18	1422	96.61	3996
T2-13C	25.13	936	63.55	2529
T2-13D	28.55	1967	133.69	4683
T2-14A	30.11	774	52.53	1745
T2-14B	28.16	504	34.17	1213

T2-15A	9.61	380	25.73	2678
T2-15B	9.08	366	24.78	2729
T2-16A	22.60	614	41.65	1843
T2-16B	21.26	542	36.75	1729
T2-16C	22.25	567	38.45	1728
T2-16D	20.96	606	41.11	1961
T2-17A	15.50	623	42.26	2727
T2-17B	13.69	538	36.48	2665
T2-17C	12.94	560	37.98	2935
T2-17D	12.41	561	38.04	3066
T2-18	1.36	81	5.39	3966
T2-19A	13.67	710	48.18	3525
T2-19B	11.99	645	43.76	3650
T2-19C	11.97	642	43.55	3639
T2-20A	22.32	707	47.98	2149
T2-20B	23.05	730	49.54	2149
T2-20C	22.96	734	49.81	2170
T2-20D	12.28	431	29.20	2378
T2-21	12.55	280	18.93	1508
T2-22	1.11	32.8	2.17	1954
T2-23A	6.36	731	49.61	7800
T2-23B	6.10	712	48.32	7921
T2-23C	7.38	671	45.53	6169
T2-23D	5.64	696	47.23	8374

Mean	)	2665
Median	) All samples	2149
Standard Deviation	+/-)	2146
Mean	)	1939
Median	) Lining material (1-14)	1152
Standard Deviation	+/-)	2028
Mean	)	3392
Median	) Heat affected clay (15-23)	2702
Standard Deviation	+/-)	2047

Chart data

Total sus.	Meter	Total sus.	Meter
0	0		
4.06	61.4	4.06	61.4
		35.80	528

Slope & constant values as calculated by data trendline:

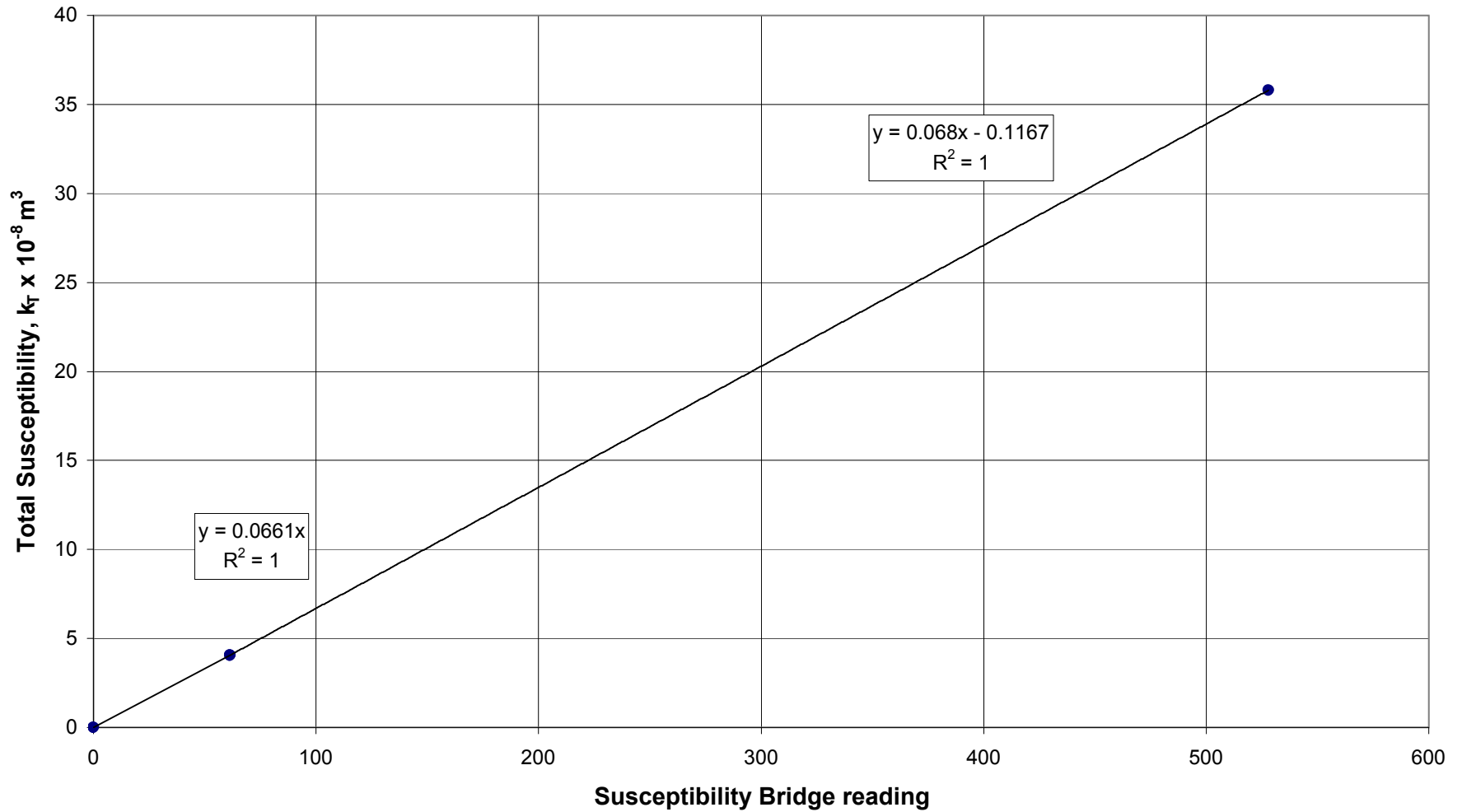
m	c	x	y
0.0661	0	61.4	4.0585
0.0680	-0.1167	61.4	4.0585
0.0680	-0.1167	528	35.7873

Slope & constant values as calculated from raw data:

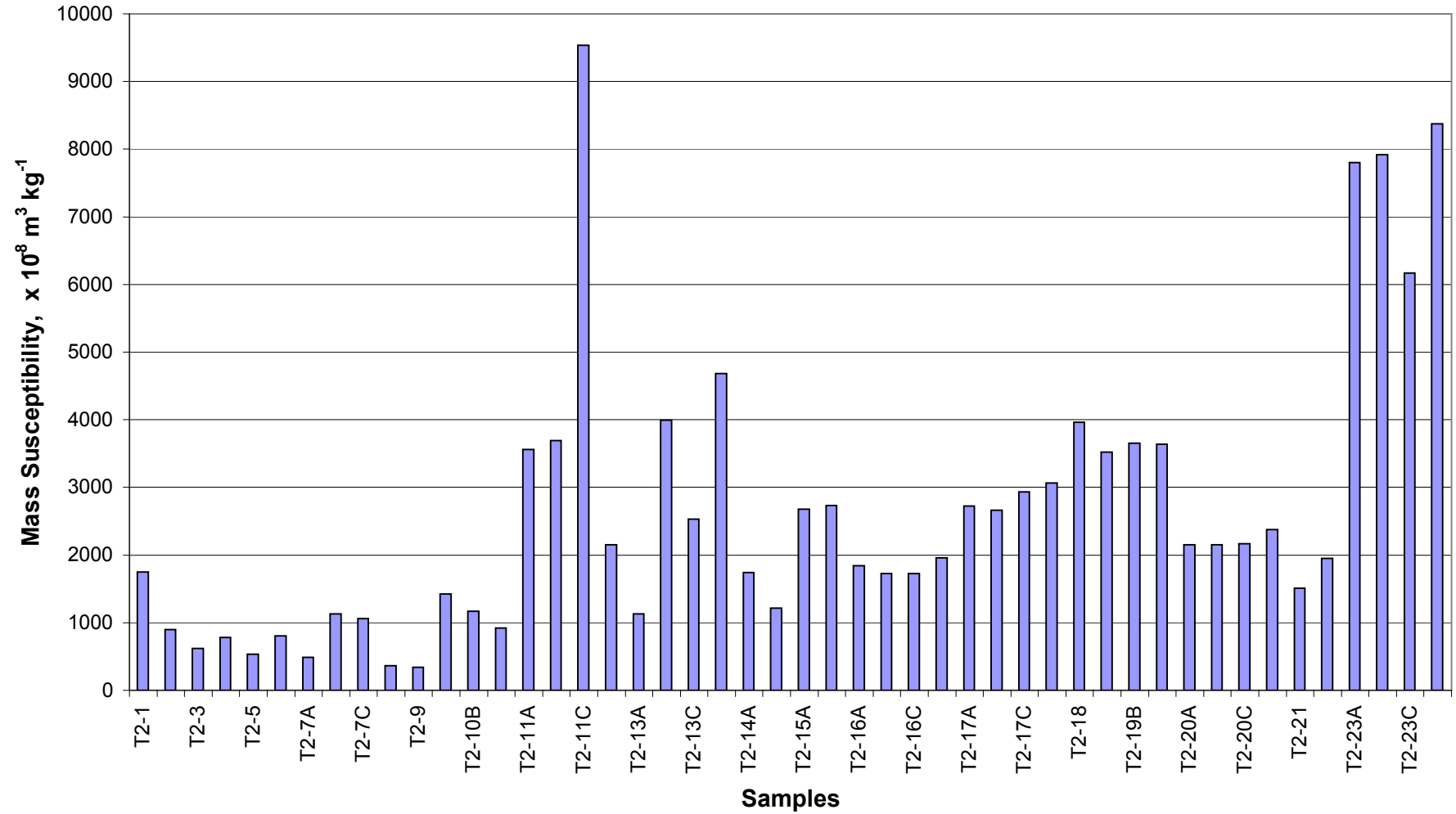
m	c	x	y
0.06612	0	61.4	4.06
0.06802	-0.11667	61.4	4.06
0.06802	-0.11667	528	35.80

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

SM04 TRENCH 2 A.M.D. MATERIAL SUSCEPTIBILITY CALIBRATION CURVE



SM04 TRENCH 2 A.M.D. MATERIAL MASS SUSCEPTIBILITY



**TO DETERMINE MASS QUADRATURE SUSCEPTIBILITY AND MAGNETIC VISCOSITY OF
STINGAMIRES SM04 TRENCH 2 ARCHAEO MAGNETIC DATING REMAINDER MATERIAL**

<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	151	0.20	4.0	
BS87	50.00	587	0.61	12.2	
BS62	40.64	1287	1.06	26.1	
<u>Test samples</u>					
T2-1	12.07	300	0.33	28	1.6
T2-2	4.46	34	0.04	9	1.0
T2-3	4.32	20	0.02	6	0.9
T2-4	1.60	14	0.02	10	1.3
T2-5	40.47	152	0.18	4	0.8
T2-6	37.01	390	0.42	11	1.4
T2-7A	33.94	56	0.07	2	0.4
T2-7B	35.37	142	0.16	5	0.4
T2-7C	45.73	118	0.14	3	0.3
T2-8	10.88	14	0.02	2	0.4
T2-9	5.90	16	0.02	3	1.0
T2-10A	16.36	186	0.21	13	0.9
T2-10B	33.59	330	0.36	11	0.9
T2-10C	41.87	400	0.43	10	1.1
T2-11A	29.90	760	0.74	25	0.7
T2-11B	34.55	490	0.52	15	0.4
T2-11C	11.93	1850	1.19	100	1.0
T2-12	3.36	46	0.05	16	0.8
T2-13A	34.00	180	0.21	6	0.5
T2-13B	24.18	430	0.46	19	0.5
T2-13C	25.13	280	0.31	12	0.5
T2-13D	28.55	700	0.69	24	0.5
T2-14A	30.11	280	0.31	10	0.6
T2-14B	28.16	200	0.23	8	0.7

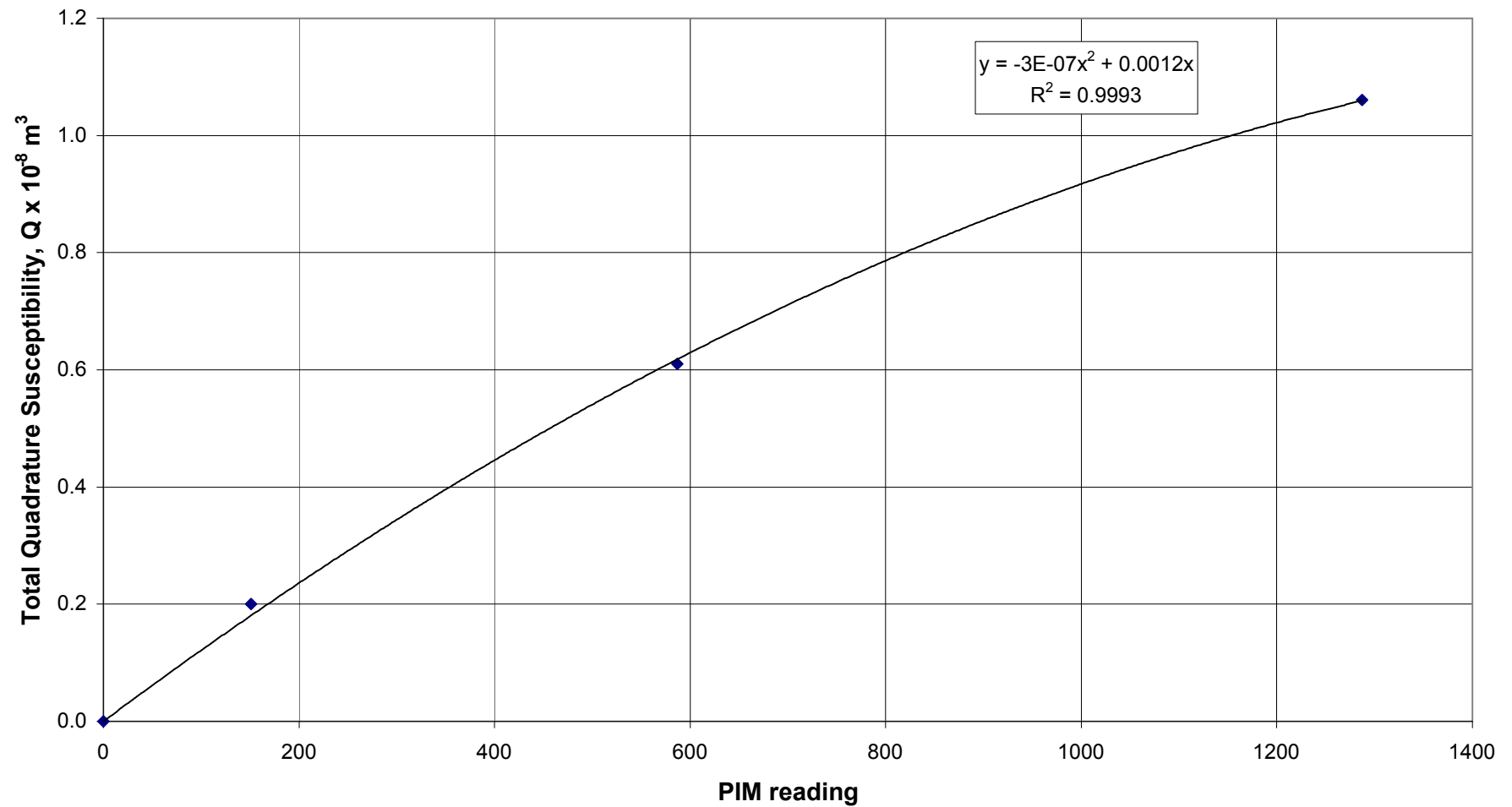
T2-15A	9.61	940	0.86	90	3.4
T2-15B	9.08	1040	0.92	102	3.7
T2-16A	22.60	1894	1.20	53	2.9
T2-16B	21.26	1798	1.19	56	3.2
T2-16C	22.25	1999	1.20	54	3.1
T2-16D	20.96	1820	1.19	57	2.9
T2-17A	15.50	1976	1.20	77	2.8
T2-17B	13.69	1720	1.18	86	3.2
T2-17C	12.94	1780	1.19	92	3.1
T2-17D	12.41	1524	1.13	91	3.0
T2-18	1.36	260	0.29	215	5.4
T2-19A	13.67	1896	1.20	88	2.5
T2-19B	11.99	1936	1.20	100	2.7
T2-19C	11.97	1790	1.19	99	2.7
T2-20A	22.32	1840	1.19	53	2.5
T2-20B	23.05	1845	1.19	52	2.4
T2-20C	22.96	1910	1.20	52	2.4
T2-20D	12.28	985	0.89	73	3.1
T2-21	12.55	682	0.68	54	3.6
T2-22	1.11	90	0.11	95	4.9
T2-23A	6.36	1999	1.20	189	2.4
T2-23B	6.10	1650	1.16	191	2.4
T2-23C	7.38	1850	1.19	162	2.6
T2-23D	5.64	1745	1.18	209	2.5

Mean	)	57	1.9
Median	) All samples	52	2.0
Standard Deviation	+/-)	58	1.3
Mean	)	15	0.8
Median	) Lining material (1-14)	10	0.7
Standard Deviation	+/-)	20	0.4
Mean	)	99	3.1
Median	) Heat affected clay (15-23)	89	2.9
Standard Deviation	+/-)	53	0.7

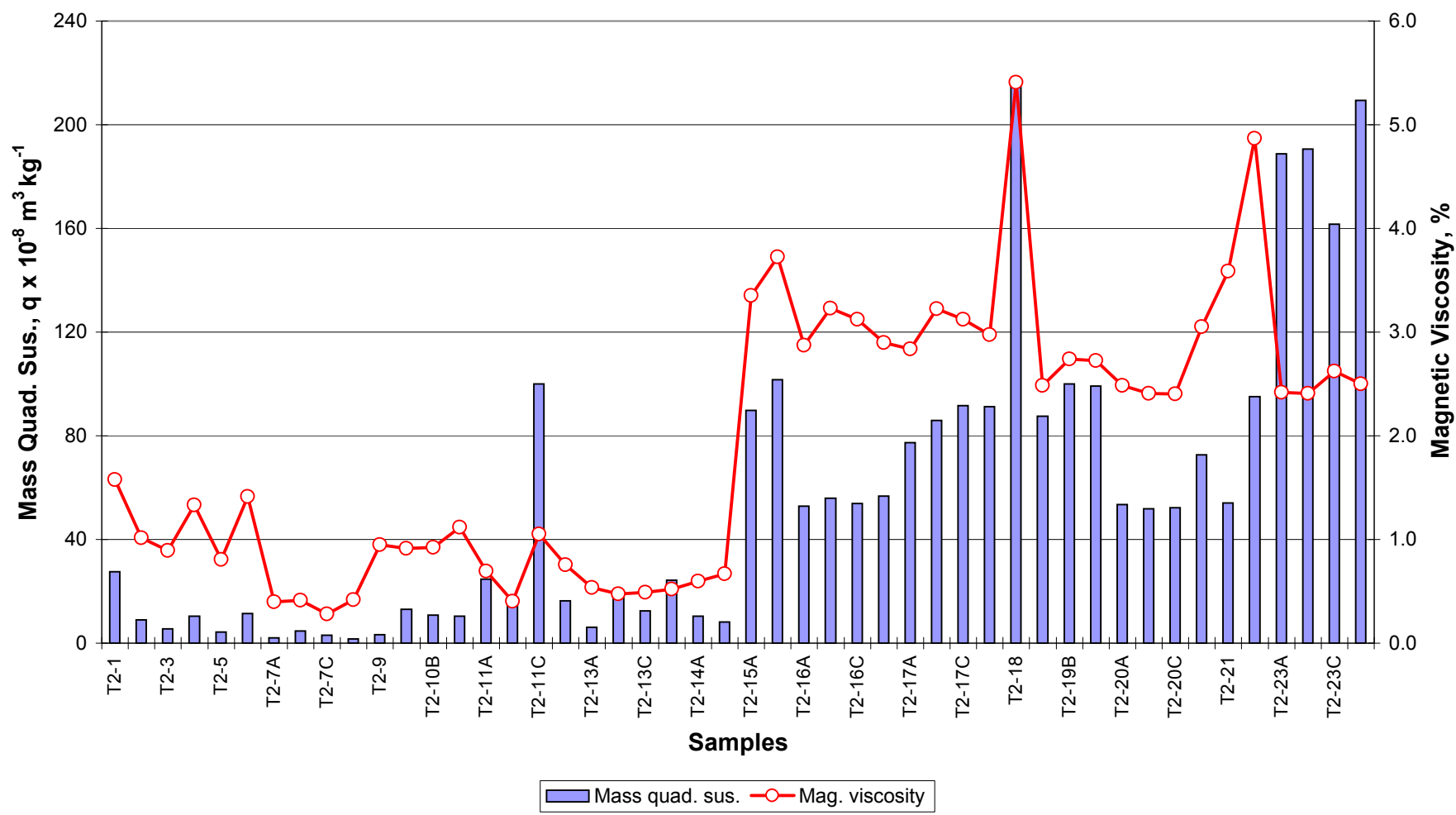
Chart data

Total quad.	PIM
0	0
0.20	151
0.61	587
1.06	1287

SM04 TRENCH 2 A.M.D. MATERIAL QUADRATURE SUSCEPTIBILITY CALIBRATION CURVE



SM04 TRENCH 2 A.M.D. MATERIAL **MASS QUADRATURE SUSCEPTIBILITY & MAGNETIC VISCOSITY**



As-measured results

	Mass g	Total susceptibility $k_T \times 10^{-8} \text{ m}^3$	Total quad. sus. $Q \times 10^{-8} \text{ m}^3$
T2-1	12.07	21.11	0.33
T2-2	4.46	3.99	0.04
T2-3	4.32	2.68	0.02
T2-4	1.60	1.26	0.02
T2-5	40.47	21.72	0.18
T2-6	37.01	29.88	0.42
T2-7A	33.94	16.55	0.07
T2-7B	35.37	39.88	0.16
T2-7C	45.73	48.66	0.14
T2-8	10.88	3.99	0.02
T2-9	5.90	2.01	0.02
T2-10A	16.36	23.35	0.21
T2-10B	33.59	39.34	0.36
T2-10C	41.87	38.59	0.43
T2-11A	29.90	106.34	0.74
T2-11B	34.55	127.43	0.52
T2-11C	11.93	113.76	1.19
T2-12	3.36	7.23	0.05
T2-13A	34.00	38.52	0.21
T2-13B	24.18	96.61	0.46
T2-13C	25.13	63.55	0.31
T2-13D	28.55	133.69	0.69
T2-14A	30.11	52.53	0.31
T2-14B	28.16	34.17	0.23
T2-15A	9.61	25.73	0.86
T2-15B	9.08	24.78	0.92
T2-16A	22.60	41.65	1.20
T2-16B	21.26	36.75	1.19
T2-16C	22.25	38.45	1.20
T2-16D	20.96	41.11	1.19
T2-17A	15.50	42.26	1.20
T2-17B	13.69	36.48	1.18
T2-17C	12.94	37.98	1.19
T2-17D	12.41	38.04	1.13
T2-18	1.36	5.39	0.29
T2-19A	13.67	48.18	1.20
T2-19B	11.99	43.76	1.20
T2-19C	11.97	43.55	1.19
T2-20A	22.32	47.98	1.19
T2-20B	23.05	49.54	1.19
T2-20C	22.96	49.81	1.20
T2-20D	12.28	29.20	0.89
T2-21	12.55	18.93	0.68
T2-22	1.11	2.17	0.11
T2-23A	6.36	49.61	1.20
T2-23B	6.10	48.32	1.16
T2-23C	7.38	45.53	1.19
T2-23D	5.64	47.23	1.18

Recalculated results

	Mass g	Total susceptibility $k_T \times 10^{-8} \text{ m}^3$	Mass susceptibility $\chi \times 10^{-8} \text{ m}^3 \text{ kg}^{-1}$	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 %
T2-1	12.07	21.11	1749	0.33	28	1.6
T2-2	4.46	3.99	894	0.04	9	1.0
T2-3	4.32	2.68	620	0.02	6	0.9
T2-4	1.60	1.26	785	0.02	10	1.3
T2-5	40.47	21.72	537	0.18	4	0.8
T2-6	37.01	29.88	807	0.42	11	1.4
T2-7	115.04	105.09	913	0.37	3	0.4
T2-8	10.88	3.99	367	0.02	2	0.4
T2-9	5.90	2.01	341	0.02	3	1.0
T2-10	91.82	101.28	1103	1.01	11	1.0
T2-11	76.38	347.52	4550	2.45	32	0.7
T2-12	3.36	7.23	2152	0.05	16	0.8
T2-13	111.86	332.37	2971	1.67	15	0.5
T2-14	58.27	86.70	1488	0.54	9	0.6
T2-15	18.69	50.51	2703	1.79	96	3.5
T2-16	87.07	157.96	1814	4.77	55	3.0
T2-17	54.54	154.76	2838	4.69	86	3.0
T2-18	1.36	5.39	3966	0.29	215	5.4
T2-19	37.63	135.49	3601	3.58	95	2.6
T2-20	80.61	176.53	2190	4.47	55	2.5
T2-21	12.55	18.93	1508	0.68	54	3.6
T2-22	1.11	2.17	1954	0.11	95	4.9
T2-23	25.48	190.68	7484	4.74	186	2.5
Mean	)		2058		48	1.9
Median	) All samples		1749		16	1.3
Standard Deviation	+/-)		1669		58	1.5
Mean	)		1377		11	0.9
Median	) Lining material		904		10	0.8
Standard Deviation	+/-) (1-14)		1174		9	0.4
Mean	)		3117		104	3.5
Median	) Heat affected clay		2703		95	3.0
Standard Deviation	+/-) (15-23)		1829		58	1.0