

TO DETERMINE MASS SUSCEPTIBILITY OF EWECOTE EC03 TRENCH 2 (IRON SMELTING)
ARCHAEOMAGNETIC DATING REMAINDER MATERIAL

<u>Calibration samples</u>	Mass	Bridge reading	Total susceptibility	Mass susceptibility
	g		$K_T \times 10^{-8} \text{ m}^3$	$\chi \times 10^{-8} \text{ m}^3 \text{ kg}^{-1}$
Manganese sulphate	50.00	62.4	4.06	81.2
High alumina cement	50.00	533	35.80	716
<u>Test samples</u>				
T2-1/2A	26.25	172	11.45	436
T2-1/2B	20.00	170	11.32	566
T2-1/2C	16.26	286	19.14	1177
T2-3A	40.97	744	50.03	1221
T2-3B	36.79	748	50.30	1367
T2-3C	21.00	440	29.53	1406
T2-3D	16.19	382	25.62	1582
T2-3E	8.23	118	7.81	949
T2-4A	55.70	1465	98.66	1771
T2-4B	13.00	272	18.20	1400
T2-4C	11.82	291	19.48	1648
T2-5	20.30	1234	83.08	4093
T2-6A	14.57	934	62.85	4313
T2-6B	12.93	750	50.44	3901
T2-6C	29.16	1803	121.46	4165
T2-6D	17.54	1200	80.79	4606
T2-6E	10.64	780	52.46	4930
T2-7	2.75	51.9	3.38	1228
T2-8	1.39	51.9	3.38	2429
T2-9	6.60	181	12.06	1827
T2-10	2.65	57.6	3.75	1414
T2-11	21.32	512	34.38	1613
T2-12	44.55	310	20.76	466
T2-13	53.77	202	13.48	251
T2-14	40.25	503	33.78	839
T2-15	3.23	44.0	2.86	886
Mean	)			1942
Median	)			1410
Standard Deviation	+/-)			1428

Chart data

Total sus.	Meter	Total sus.	Meter
0	0		
4.06	62.4	4.06	62.4
		35.80	533

Slope & constant values as calculated by data trendline:

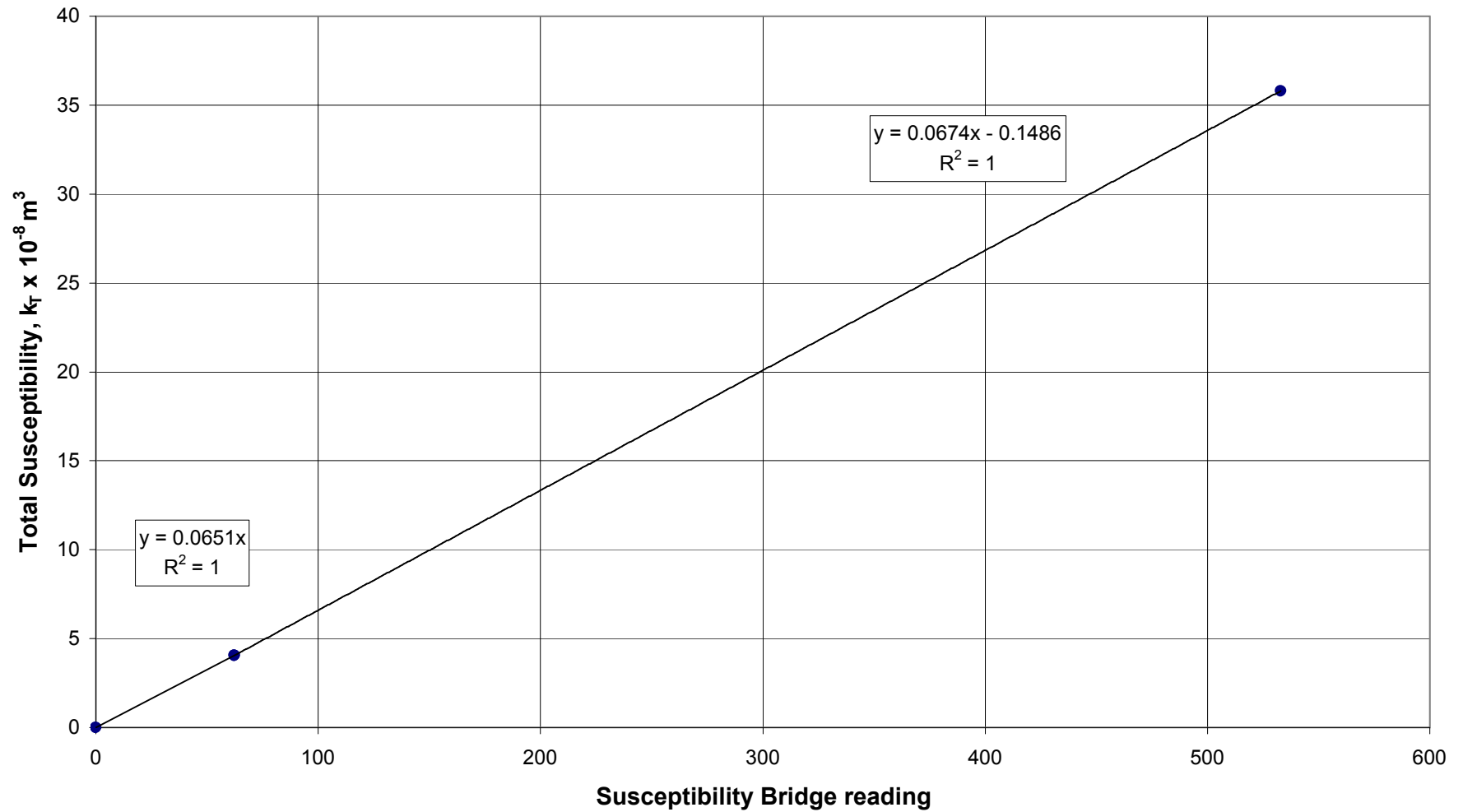
m	c	x	y
0.0651	0	62.4	4.0622
0.0674	-0.1486	62.4	4.0572
0.0674	-0.1486	533	35.7756

Slope & constant values as calculated from raw data:

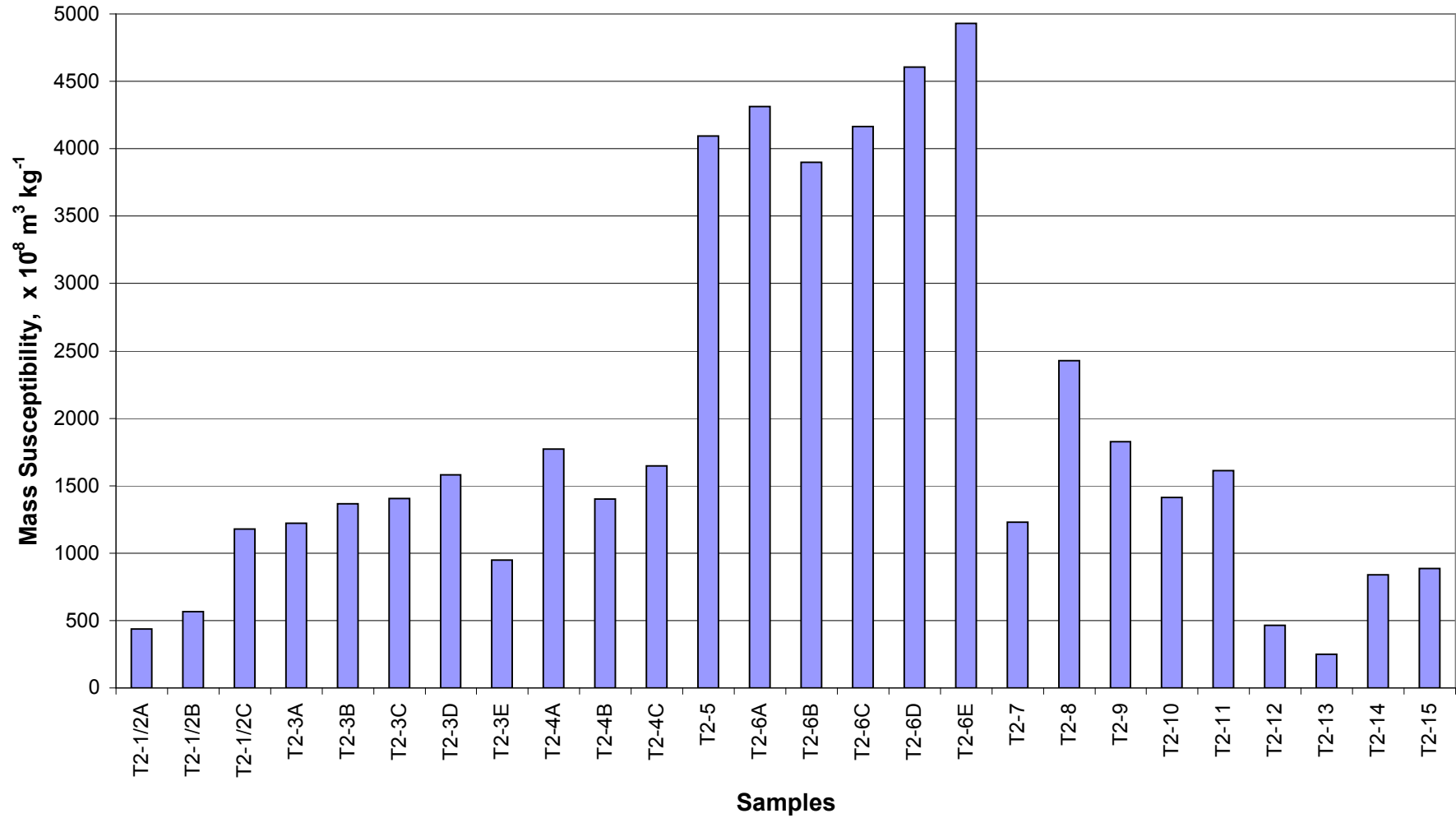
m	c	x	y
0.06506	0	62.4	4.06
0.06745	-0.148619	62.4	4.06
0.06745	-0.148619	533	35.80

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

EC03 TRENCH 2 A.M.D. MATERIAL SUSCEPTIBILITY CALIBRATION CURVE



EC03 TRENCH 2 A.M.D. MATERIAL MASS SUSCEPTIBILITY



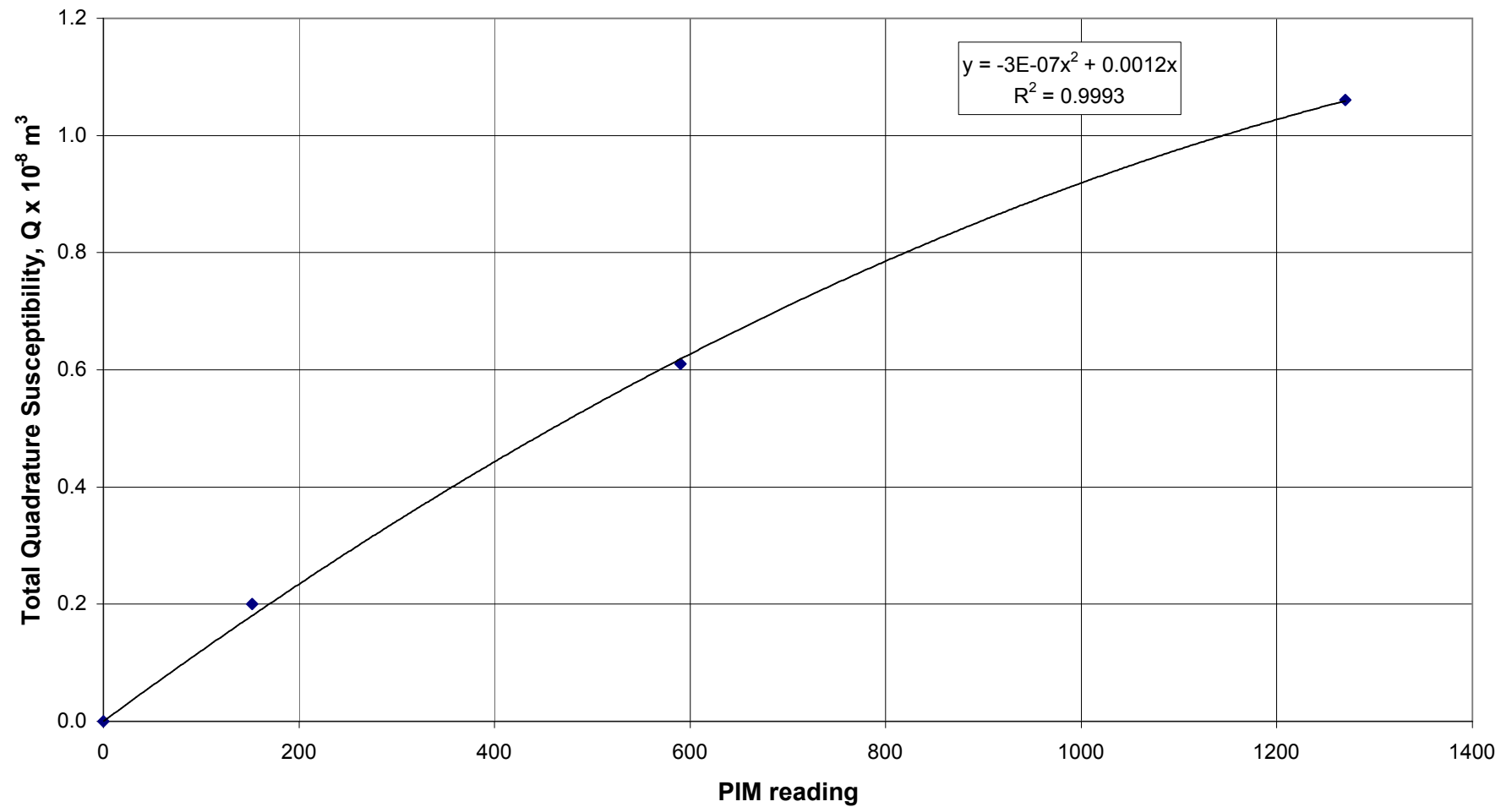
**TO DETERMINE MASS QUADRATURE SUSCEPTIBILITY AND MAGNETIC VISCOSITY OF
EWECOTE EC03 TRENCH 2 ARCHAEO MAGNETIC DATING REMAINDER MATERIAL**

<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	152	0.20	4.0	
BS87	50.00	590	0.61	12.2	
BS62	40.64	1270	1.06	26.1	
<u>Test samples</u>					
T2-1/2A	26.25	56	0.07	3	0.6
T2-1/2B	20.00	36	0.04	2	0.4
T2-1/2C	16.26	56	0.07	4	0.3
T2-3A	40.97				
T2-3B	36.79	146	0.17	5	0.3
T2-3C	21.00	66	0.08	4	0.3
T2-3D	16.19	86	0.10	6	0.4
T2-3E	8.23	30	0.04	4	0.5
T2-4A	55.70	550	0.57	10	0.6
T2-4B	13.00	48	0.06	4	0.3
T2-4C	11.82	100	0.12	10	0.6
T2-5	20.30	1378	1.08	53	1.3
T2-6A	14.57	1678	1.17	80	1.9
T2-6B	12.93	1300	1.05	81	2.1
T2-6C	29.16	1999	1.20	41	1.0
T2-6D	17.54	1999	1.20	68	1.5
T2-6E	10.64	1292	1.05	99	2.0
T2-7	2.75	190	0.22	79	6.4
T2-8	1.39	192	0.22	158	6.5
T2-9	6.60	770	0.75	113	6.2
T2-10	2.65	186	0.21	80	5.7
T2-11	21.32	914	0.85	40	2.5
T2-12	44.55	770	0.75	17	3.6
T2-13	53.77	444	0.47	9	3.5
T2-14	40.25	1166	0.99	25	2.9
T2-15	3.23	104	0.12	38	4.2
Mean	)			41	2.2
Median	)			25	1.5
Standard Deviation	+/-)			43	2.1

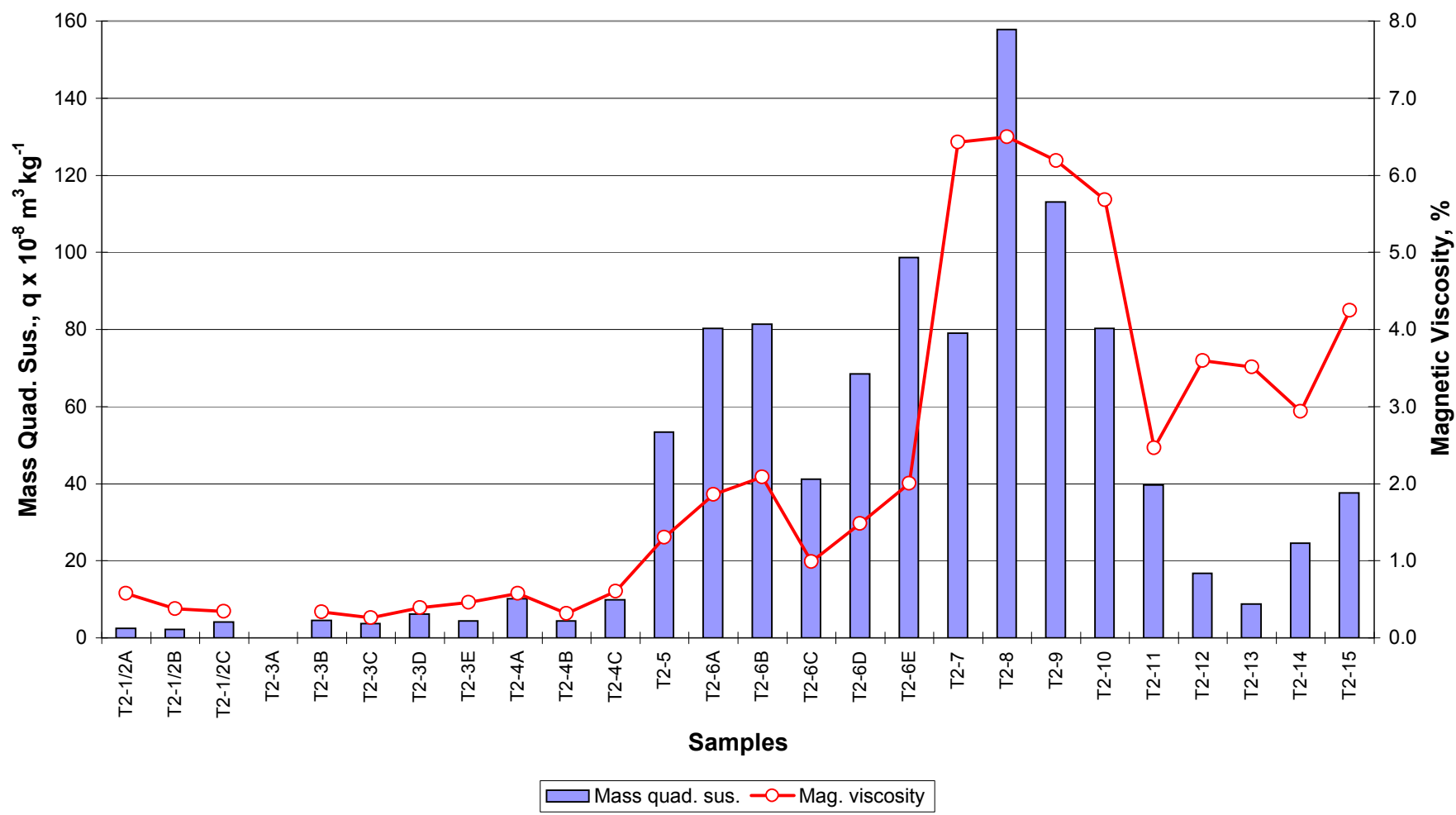
Chart data

Total quad.	PIM
0	0
0.20	152
0.61	590
1.06	1270

EC03 TRENCH 2 A.M.D. MATERIAL QUADRATURE SUSCEPTIBILITY CALIBRATION CURVE



EC03 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. $Q \times 10^{-8} \text{ m}^3$
T2-1/2A	26.25	11.45	0.07
T2-1/2B	20.00	11.32	0.04
T2-1/2C	16.26	19.14	0.07
T2-3A	40.97	50.03	
T2-3B	36.79	50.30	0.17
T2-3C	21.00	29.53	0.08
T2-3D	16.19	25.62	0.10
T2-3E	8.23	7.81	0.04
T2-4A	55.70	98.66	0.57
T2-4B	13.00	18.20	0.06
T2-4C	11.82	19.48	0.12
T2-5	20.3	83.08	1.08
T2-6A	14.57	62.85	1.17
T2-6B	12.93	50.44	1.05
T2-6C	29.16	121.46	1.20
T2-6D	17.54	80.79	1.20
T2-6E	10.64	52.46	1.05
T2-7	2.75	3.38	0.22
T2-8	1.39	3.38	0.22
T2-9	6.6	12.06	0.75
T2-10	2.65	3.75	0.21
T2-11	21.32	34.38	0.85
T2-12	44.55	20.76	0.75
T2-13	53.77	13.48	0.47
T2-14	40.25	33.78	0.99
T2-15	3.23	2.86	0.12

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 %
T2-1/2	62.51	41.91	670	0.18	3	0.4
T2-3	123.18	163.29	1326	0.38	5	0.4
T2-4	80.52	136.33	1693	0.74	9	0.5
T2-5	20.30	83.08	4093	1.08	53	1.3
T2-6	84.84	367.98	4337	5.67	67	1.5
T2-7	2.75	3.38	1228	0.22	79	6.4
T2-8	1.39	3.38	2429	0.22	158	6.5
T2-9	6.60	12.06	1827	0.75	113	6.2
T2-10	2.65	3.75	1414	0.21	80	5.7
T2-11	21.32	34.38	1613	0.85	40	2.5
T2-12	44.55	20.76	466	0.75	17	3.6
T2-13	53.77	13.48	251	0.47	9	3.5
T2-14	40.25	33.78	839	0.99	25	2.9
T2-15	3.23	2.86	886	0.12	38	4.2
Mean	)		1648		50	3.3
Median	) All samples		1370		39	3.2
Standard Deviation	+/-)		1232		46	2.3
Mean	)		1230		6	0.4
Median	) Lining material		1326		5	0.4
Standard Deviation	+/-) (1-4)		518		3	0.1
Mean	)		1762		62	4.0
Median	) Heat affected clay		1414		53	3.6
Standard Deviation	+/-) (5-15)		1361		45	1.9