

**TO DETERMINE MASS SUSCEPTIBILITY VARIATION WITH TEMPERATURE
FOR STINGAMIRES SM04 TRENCH 1 NATURAL CLAY 112**

<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	62.0	4.06	81.2
High alumina cement	50.00	528	35.80	716
<u>Test samples</u>				
150°C	20.62	9.5	0.62	30
250°C	21.18	54.8	3.59	169
350°C	20.78	565	38.32	1844
450°C	20.36	504	34.17	1678
550°C	20.65	462	31.30	1516
650°C	20.48	395	26.74	1306
750°C	21.47	231	15.57	725

Chart data

Total sus.	Meter	Total sus.	Meter
0	0		
4.06	62.0	4.06	62.0
		35.80	528

Slope & constant values as calculated by data trendline:

m	c	x	y
0.0655	0	62.0	4.0610
0.0681	-0.1629	62.0	4.0593
0.0681	-0.1629	528	35.7939

Slope & constant values as calculated from raw data:

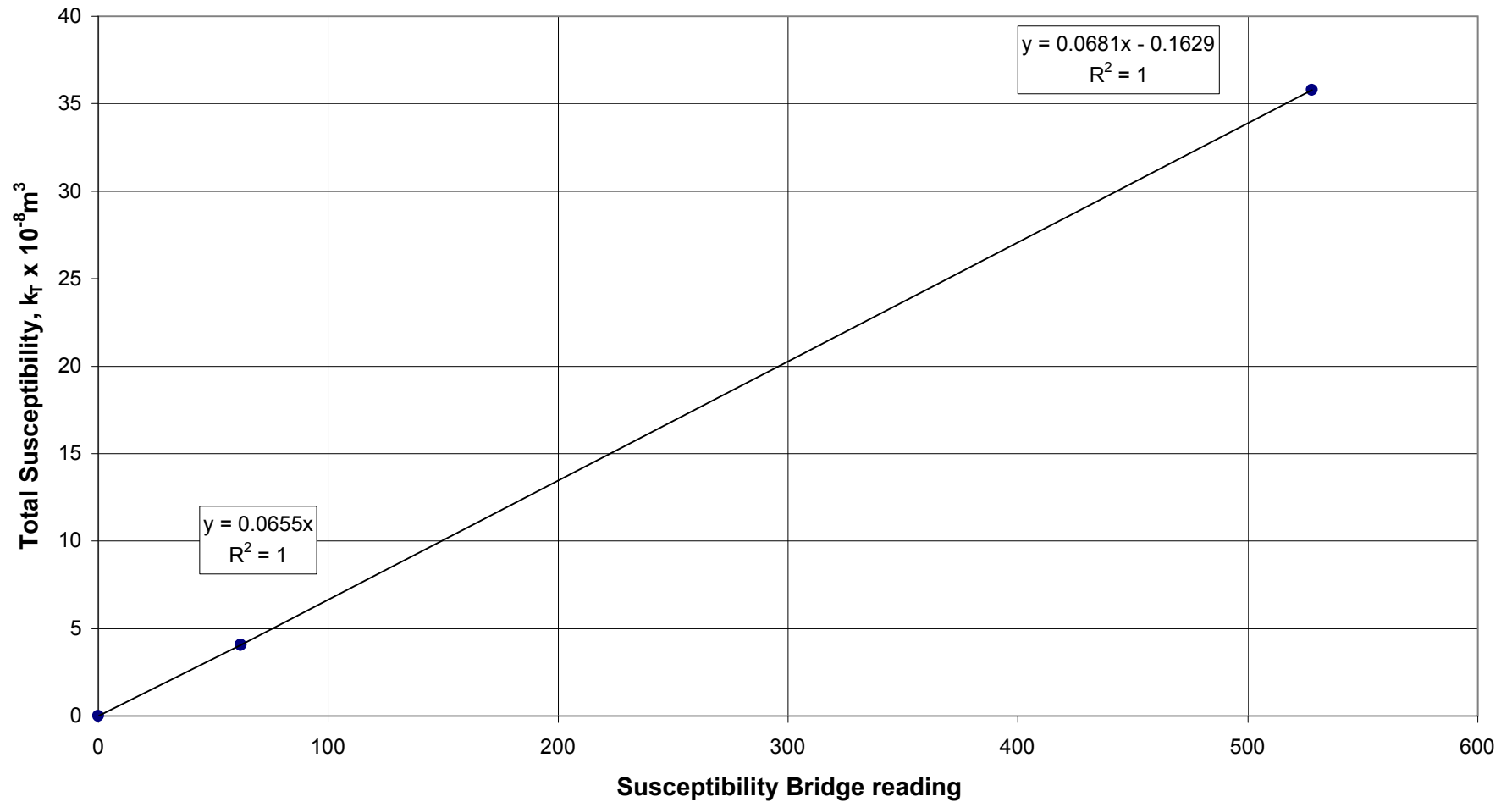
m	c	x	y
0.06548	0	62.0	4.06
0.06811	-0.16292	62.0	4.06
0.06811	-0.16292	528	35.80

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

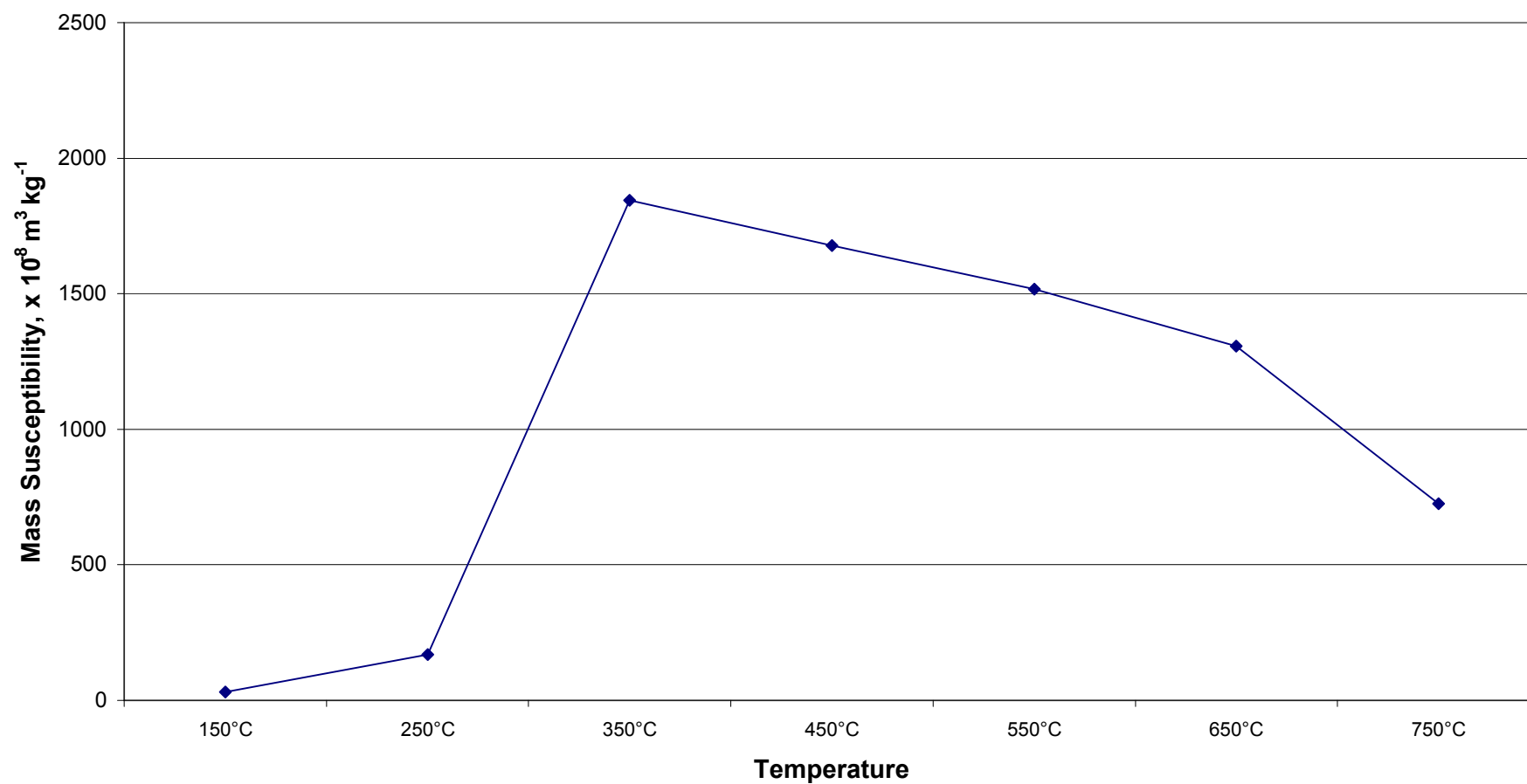
MASS SUSCEPTIBILITY VARIATION WITH TEMPERATURE

	ORIGINAL	ADDITIONAL	ORIGINAL		ADDITIONAL		% DIFF. RE cf. OR	
			-3%	3%	-3%	3%		
50°C	32							
100°C	31							
150°C	32	30	31	33	29	31	-6	overlap
200°C	31							
250°C	71	169	68	73	164	175	140	no overlap
300°C	1565							
350°C	1820	1844	1765	1874	1789	1899	1	overlap
400°C	1680							
450°C	1621	1678	1572	1670	1628	1728	4	overlap
500°C	1530							
550°C	1455	1516	1411	1499	1470	1561	4	overlap
600°C	1266							
650°C	994	1306	964	1024	1267	1345	31	no overlap
700°C	754							
750°C	505	725	490	520	703	747	44	no overlap

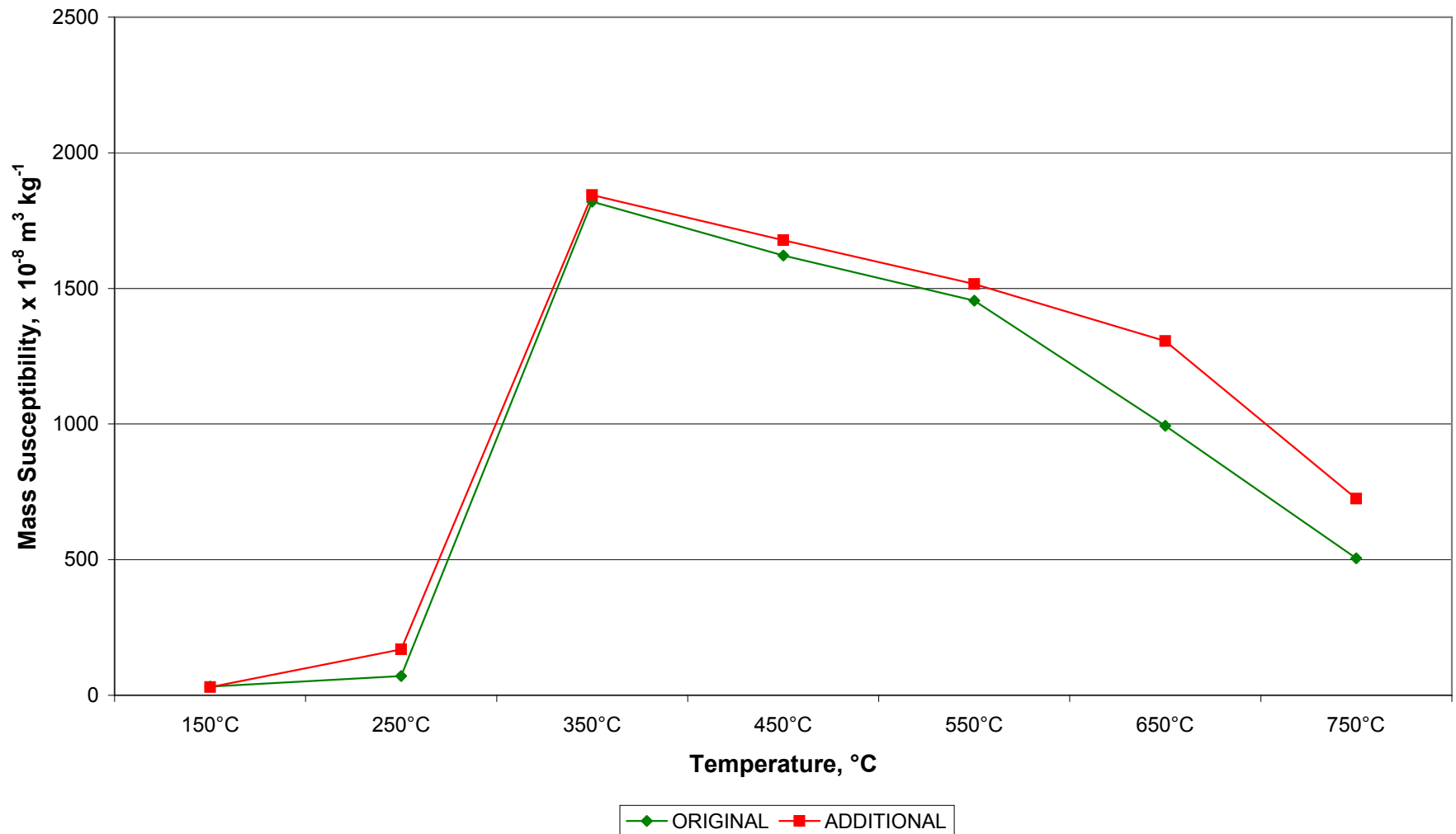
SM04 TRENCH 1 NATURAL CLAY SUSCEPTIBILITY VARIATION WITH TEMPERATURE: SUSCEPTIBILITY CALIBRATION CURVE



SM04 TRENCH 1 NATURAL CLAY
MASS SUSCEPTIBILITY VARIATION WITH TEMPERATURE

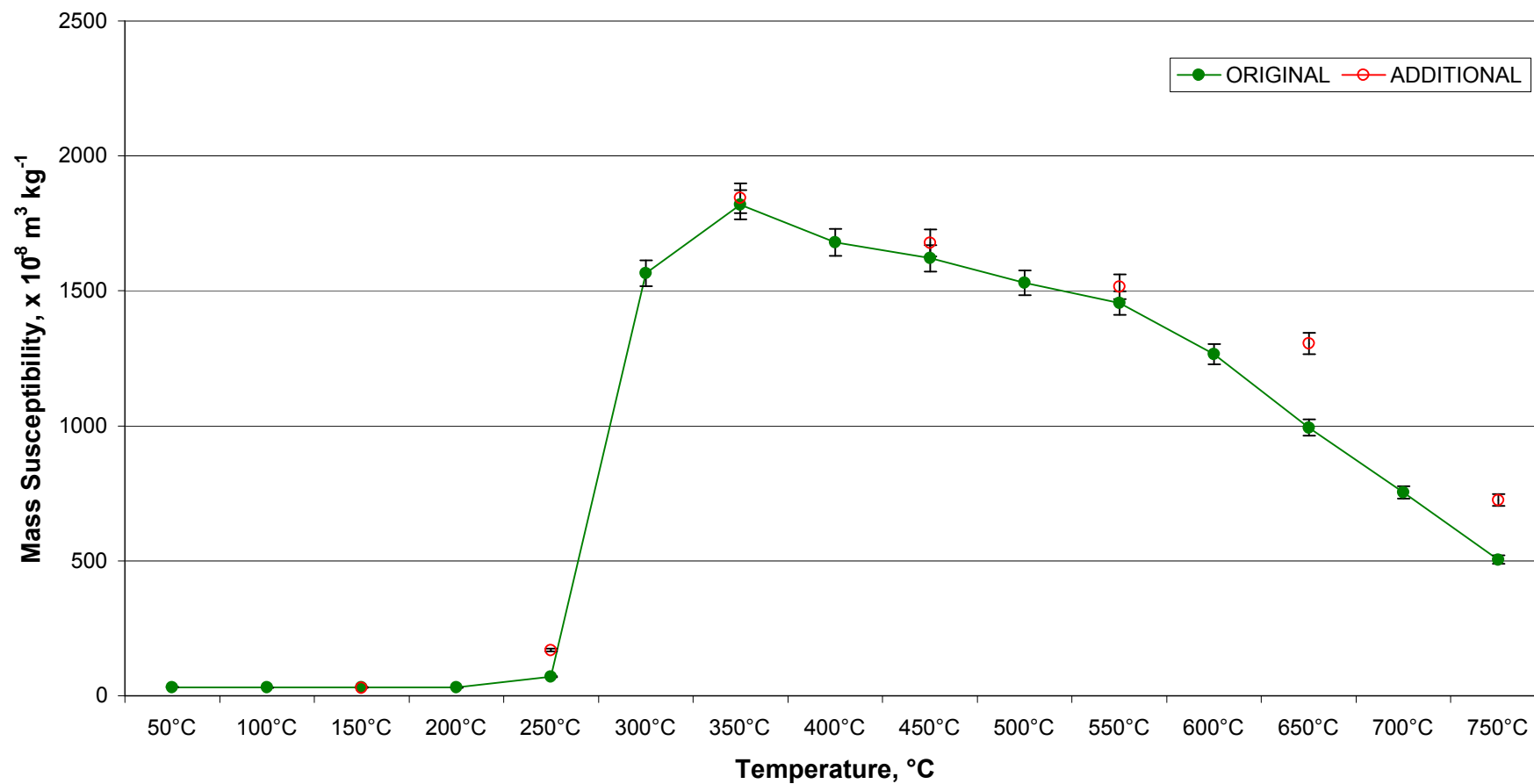


SM04 TRENCH 1 NATURAL CLAY MASS SUSCEPTIBILITY VARIATION WITH TEMPERATURE



SM04 TRENCH 1 NATURAL CLAY

MASS SUSCEPTIBILITY VARIATION WITH TEMPERATURE



**TO DETERMINE MASS QUADRATURE SUSCEPTIBILITY AND MAGNETIC VISCOSITY VARIATIONS
WITH TEMPERATURE FOR STINGAMIRES SM04 TRENCH 1 NATURAL CLAY 112**

<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	
BS87	50.00	586	0.61	12.2	
BS62	40.64	1298	1.06	26.1	
<u>Test samples</u>					
150°C	20.62	44	0.05	2.5	8.4
250°C	21.18	218	0.25	11.7	6.9
350°C	18.56	1782	1.19	63.9	3.5
450°C	15.45	1910	1.20	77.5	4.6
550°C	20.65	1648	1.16	56.3	3.7
650°C	20.48	1465	1.11	54.4	4.2
750°C	21.47	1112	0.96	44.9	6.2

Chart data

Total quad.	PIM
0	0
0.20	152
0.61	586
1.06	1298

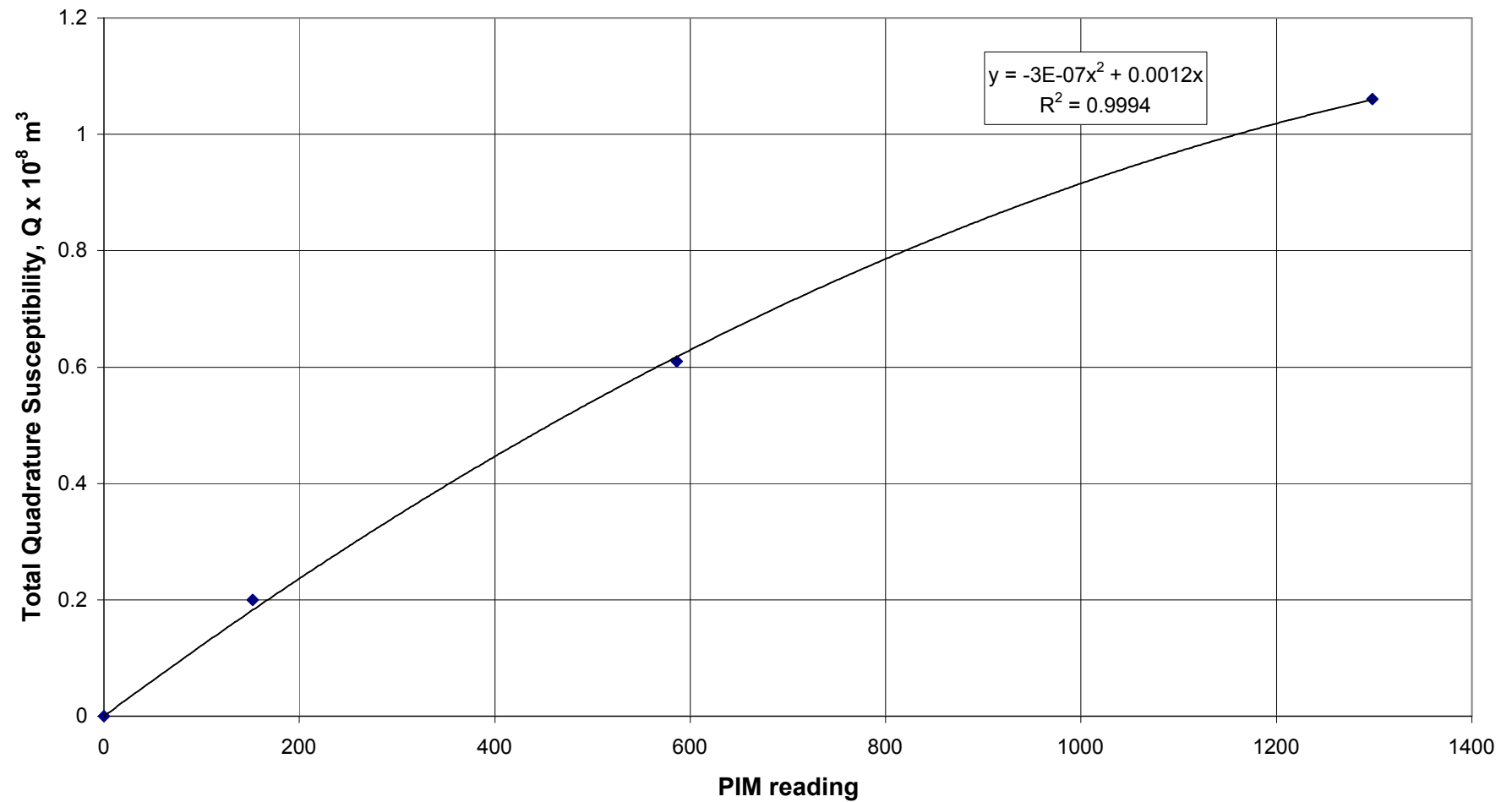
MASS QUADRATURE SUSCEPTIBILITY VARIATION WITH TEMPERATURE

	ORIGINAL	ADDITIONAL	ORIGINAL		ADDITIONAL		% DIFF. RE cf. OR	
			-3%	3%	-3%	3%		
50°C	2.1							
100°C	2.5							
150°C	2.5	2.5	2.4	2.5	2.5	2.6	3	overlap
200°C	2.3							
250°C	2.8	11.7	2.7	2.9	11.3	12.0	314	no overlap
300°C	87.8							
350°C	83.1	63.9	80.6	85.5	62.0	65.8	-23	no overlap
400°C	108.5							
450°C	66.8	77.5	64.8	68.8	75.2	79.8	16	no overlap
500°C	64.4							
550°C	62.8	56.3	60.9	64.7	54.6	58.0	-10	no overlap
600°C	58.0							
650°C	51.7	54.4	50.1	53.2	52.8	56.0	5	overlap
700°C	48.9							
750°C	39.2	44.9	38.1	40.4	43.5	46.2	14	no overlap

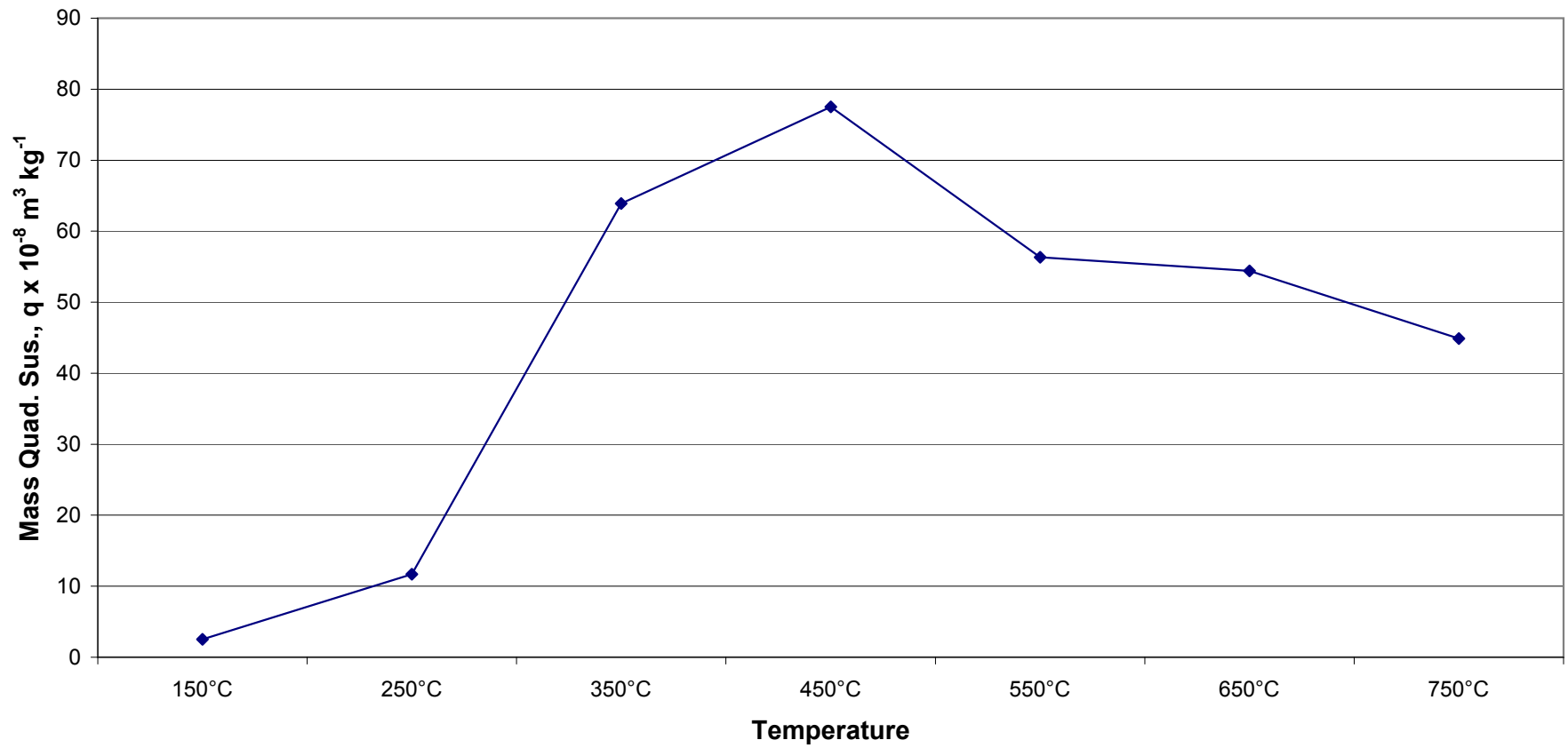
MAGNETIC VISCOSITY VARIATION WITH TEMPERATURE

	ORIGINAL	ADDITIONAL	ORIGINAL		ADDITIONAL		% DIFF. RE cf. OR	
			-3%	3%	-3%	3%		
50°C	6.6							
100°C	8.1							
150°C	7.6	8.4	7.4	7.9	8.1	8.6	10	no overlap
200°C	7.4							
250°C	4.0	6.9	3.9	4.1	6.7	7.1	73	no overlap
300°C	5.6							
350°C	4.6	3.5	4.4	4.7	3.4	3.6	-24	no overlap
400°C	6.5							
450°C	4.1	4.6	4.0	4.2	4.5	4.8	12	no overlap
500°C	4.2							
550°C	4.3	3.7	4.2	4.4	3.6	3.8	-14	no overlap
600°C	4.6							
650°C	5.2	4.2	5.0	5.4	4.0	4.3	-20	no overlap
700°C	6.5							
750°C	7.8	6.2	7.5	8.0	6.0	6.4	-20	no overlap

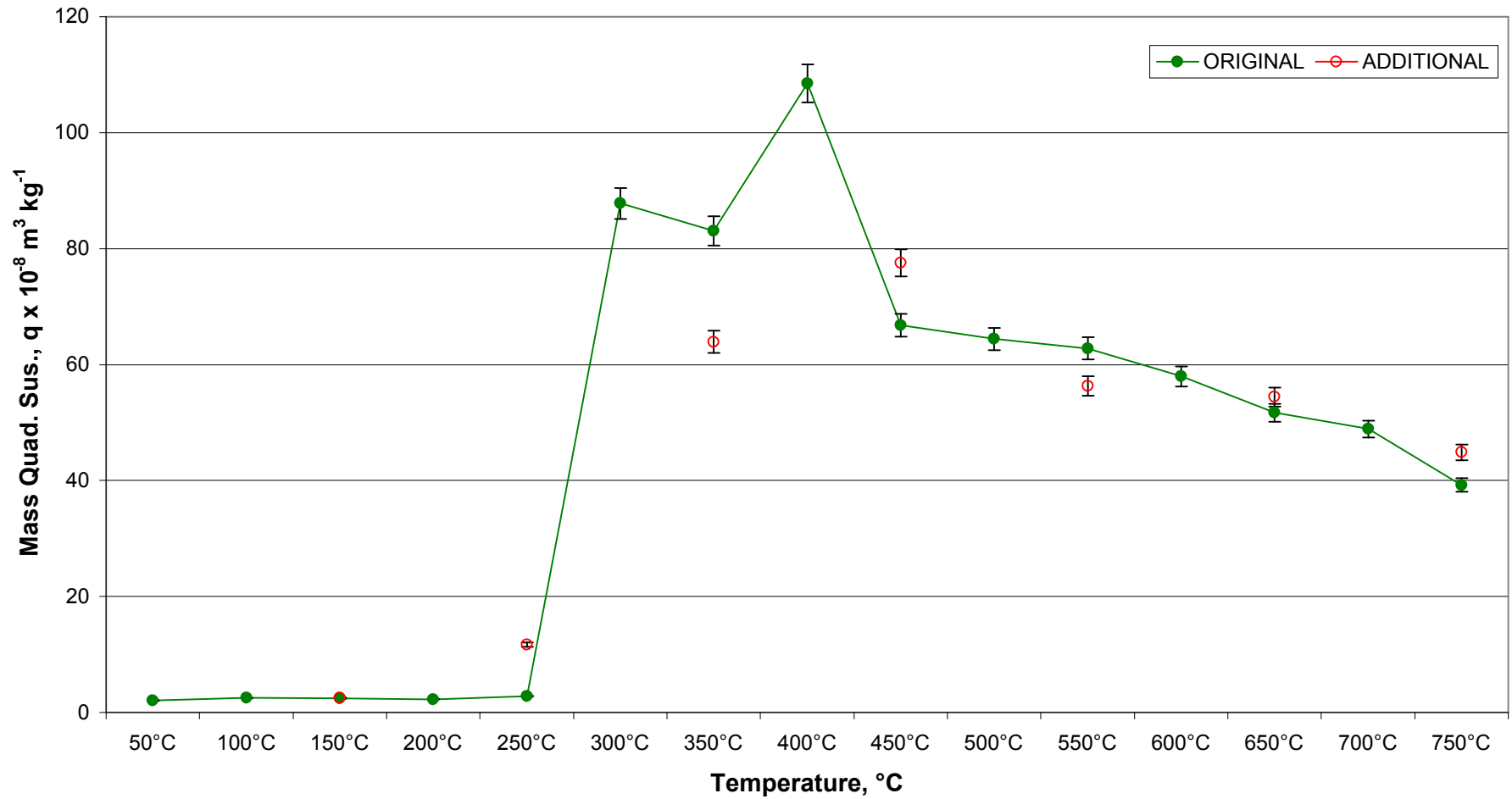
SM04 TRENCH 1 NATURAL CLAY SUSCEPTIBILITY VARIATION WITH TEMPERATURE: QUADRATURE SUSCEPTIBILITY CALIBRATION CURVE



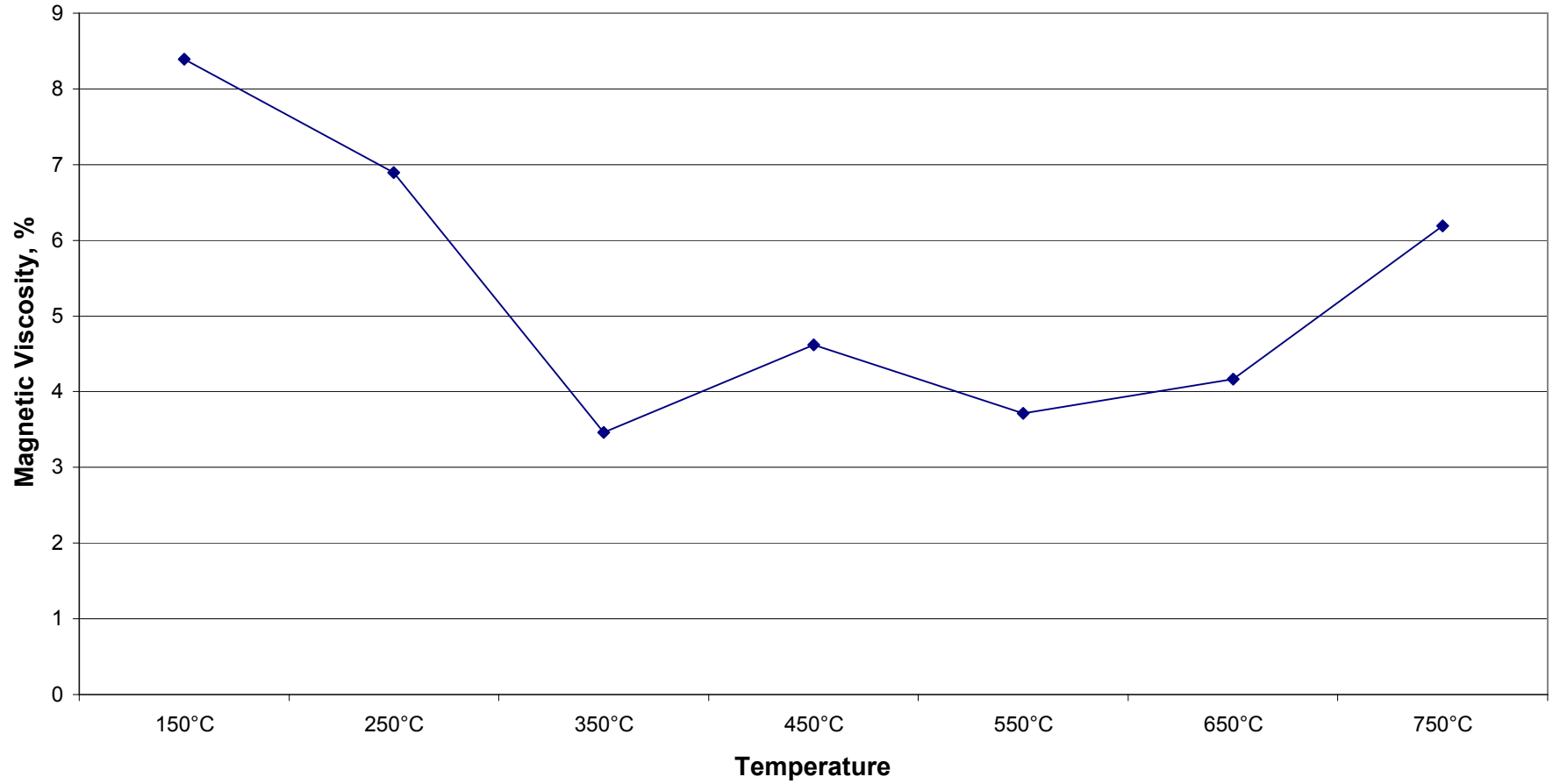
SM04 TRENCH 1 NATURAL CLAY
MASS QUADRATURE SUSCEPTIBILITY VARIATION WITH TEMPERATURE



SM04 TRENCH 1 NATURAL CLAY
MASS QUADRATURE SUSCEPTIBILITY VARIATION WITH TEMPERATURE



SM04 TRENCH 1 NATURAL CLAY
MAGNETIC VISCOSITY VARIATION WITH TEMPERATURE



SM04 TRENCH 1 NATURAL CLAY

MAGNETIC VISCOSITY VARIATION WITH TEMPERATURE

