

Appendix I

XRD and XRF Data for Test-2 Day-30 Sediment and Fiberglass in Birdcage

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This appendix shows XRD and XRF results for Test-2 Day-30 sediment and submerged birdcage fiberglass samples. XRD analysis provided the identity of the existing crystalline materials in the samples, and XRF gave the elemental composition of the samples. The purpose of these analyses is to provide the morphology and the composition of the sediment and the fiberglass samples, in order to understand the chemical reactions that may have occurred during the ICET tests.

The sediment and the birdcage fiberglass samples were collected from the tank on the date Test 2 was terminated (March 7, 2005). These samples were dried in air at room temperature. XRD and XRF analysis were performed on April 26 and April 28, 2005, respectively. Based on XRD results, Test-2 Day-30 sediment sample contained some amount of quartz. However, the Test-2 Day-30 birdcage fiberglass sample was mostly amorphous. XRF results show that both the sediment and the fiberglass contained significant amounts of silicon.

Table I-1. XRF Results for Test-2 Day-30 Sediment and Birdcage Fiberglass

Project name:- ICP - XRF Conversion

(LANL)

Instrument:-

XRF

Analyst:- Mehdi & Blake

Analysis Date:- 4/28/05 Sample ID: Test-2 Day-30 sediment and Test-2 Day-30 fiberglass in birdcage

Sample ID	Ratio	XRF (%)	ICP (%)	ICP (mg/Kg)
	Si/SiO ₂	SiO ₂	Si	Si

Test-2 Sediment	0.467	37.38	17.4	174440
T2D30				
Fiberglass in				
Birdcage	0.467	50.42	23.5	235293

Sample ID	Ratio	XRF (%)	ICP (%)	ICP (mg/Kg)
	Al/Al ₂ O ₃	Al ₂ O ₃	Al	Al

Test-2 Sediment	0.529	16.06	8.50	85024
T2D30				
Fiberglass in				
Birdcage	0.529	4.6	2.44	24353

Sample ID	Ratio	XRF (%)	ICP (%)	ICP (mg/Kg)
	P/P ₂ O ₅	P ₂ O ₅	P	P

Test-2 Sediment	0.437	10.01	4.37	43697
T2D30				
Fiberglass in				
Birdcage	0.437	2.78	1.21	12136

Sample ID	Ratio	XRF (%)	ICP (%)	ICP (mg/L)
	Na/Na ₂ O	Na ₂ O	Na	Na

Test-2 Sediment	0.742	3.96	2.94	29382
T2D30				
Fiberglass in				
Birdcage	0.742	12.29	9.12	91188

Sample ID	Ratio	XRF (%)	ICP (%)	ICP (mg/Kg)
	Ca/CaO	CaO	Ca	Ca

Test-2 Sediment	0.714	5.08	3.63	36286
T2D30				
Fiberglass in				
Birdcage	0.714	6.83	4.88	48786

Sample ID	Ratio	XRF (%)	ICP (%)	ICP (mg/Kg)
	Mn/MnO	MnO	Mn	Mn

Test-2 Sediment 0.775 0.110 0.085 852
T2D30

Fiberglass in Birdcage 0.775 0.030 0.023 232

Sample ID	Ratio	XRF (%)	ICP (%)	ICP (mg/Kg)
	Mg/MgO	MgO	Mg	Mg

Test-2 Sediment 0.603 1.42 0.857 8566
T2D30

Fiberglass in Birdcage 0.603 2.62 1.580 15805

Sample ID	Ratio	XRF (%)	ICP (%)	ICP (mg/Kg)
	K/K ₂ O	K ₂ O	K	K

Test-2 Sediment 0.830 0.720 0.598 5978
T2D30

Fiberglass in Birdcage 0.830 0.570 0.473 4732

Sample ID	Ratio	XRF (%)	ICP (%)	ICP (mg/Kg)
	Fe/Fe ₂ O ₃	Fe ₂ O ₃	Fe	Fe

Test-2 Sediment 0.700 0.780 0.546 5457
T2D30

Fiberglass in Birdcage 0.700 0.550 0.385 3848

Sample ID	Ratio	XRF (%)	ICP (%)	ICP (mg/Kg)
	Ti/TiO ₂	TiO ₂	Ti	Ti

Test-2 Sediment 0.600 0.100 0.060 600
T2D30

Fiberglass in Birdcage 0.600 0.030 0.018 180

Sample ID	H₂O(-)	H₂O(+) CO ₂	Total (%)
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Test-2 Sediment 5.73 21.1 102
T2D30

Fiberglass in Birdcage 3.26 11.2 95

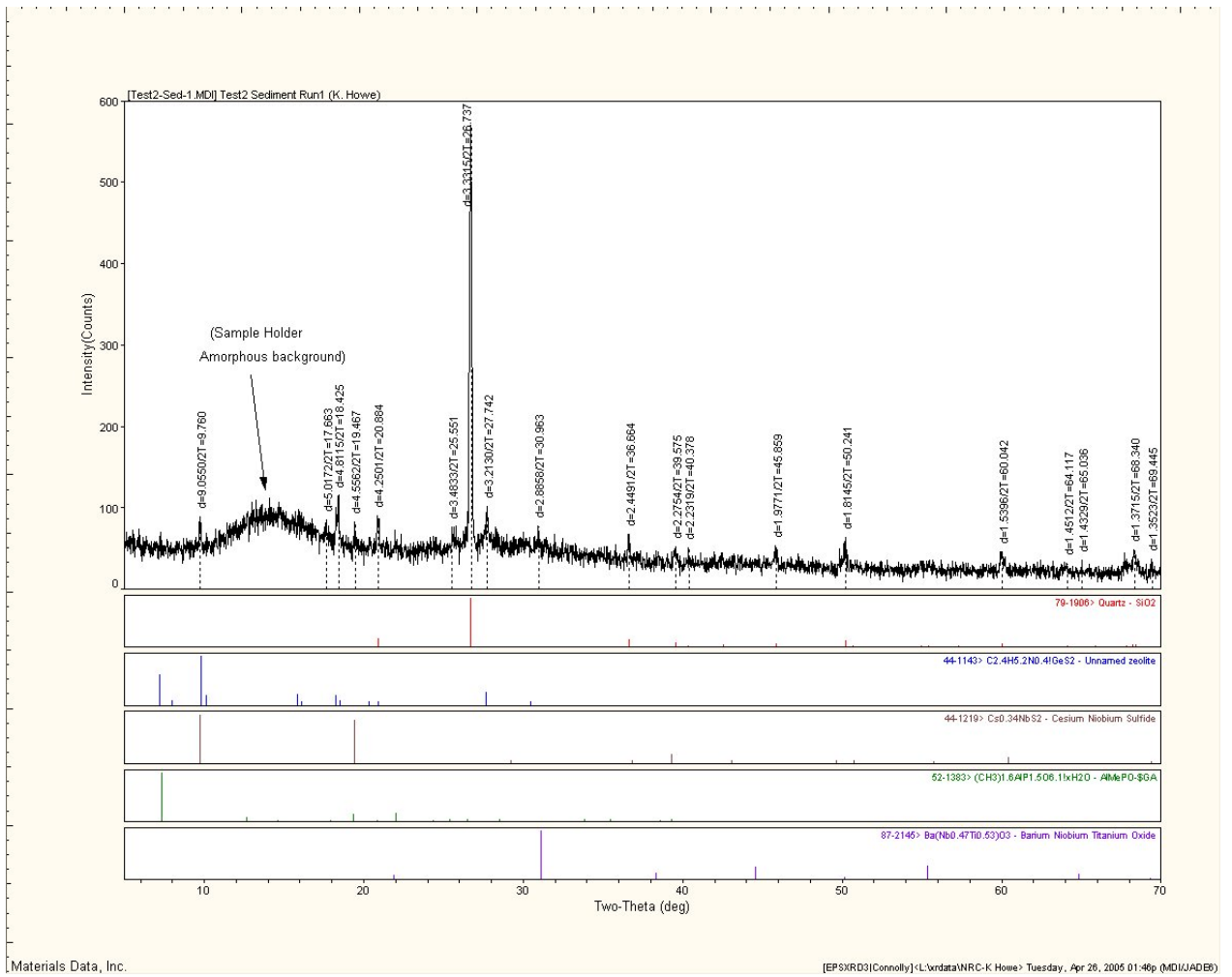


Figure I-1. XRD Results for Test-2 Day-30 Sediment.

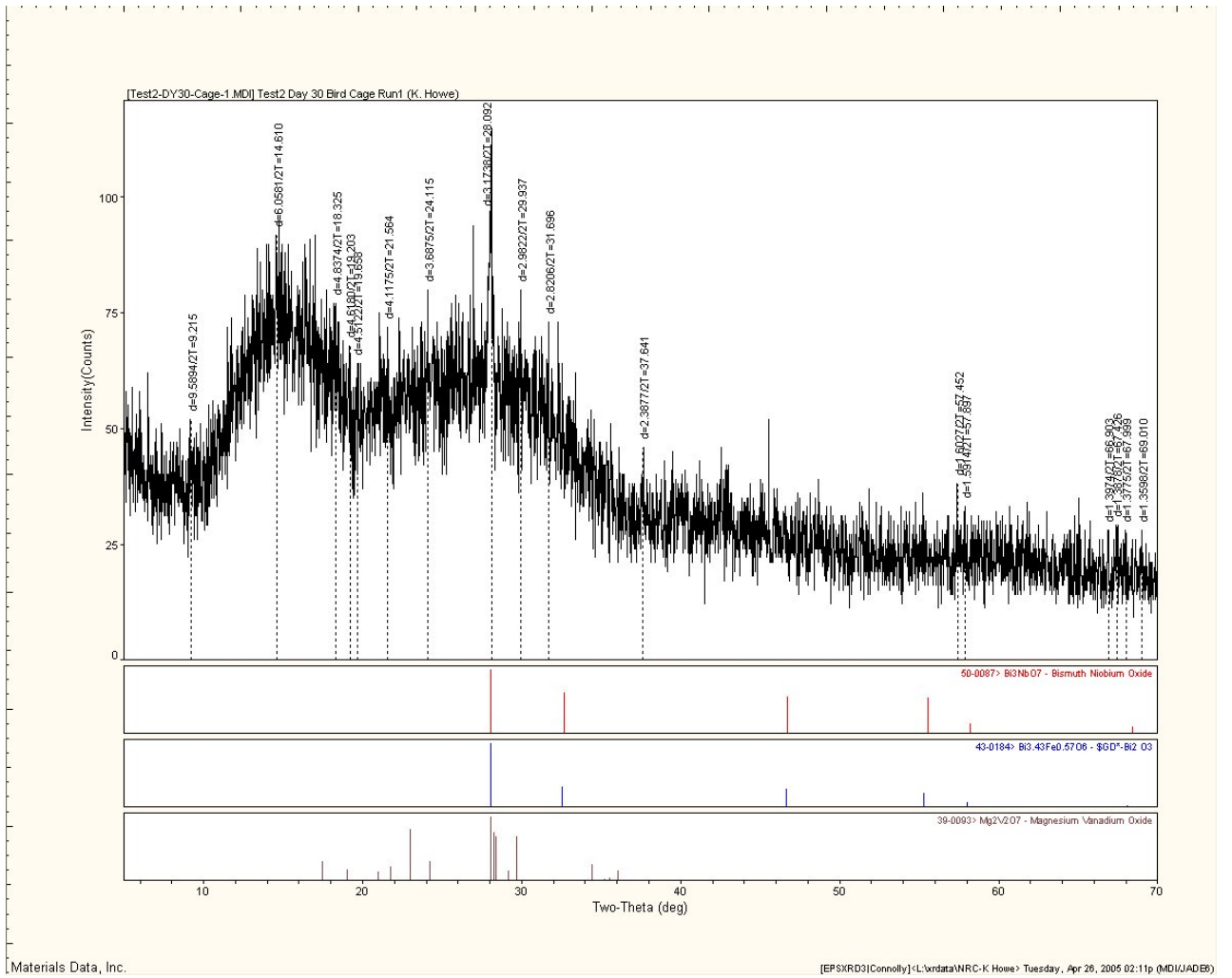


Figure I-2. XRD Results for Test-2 Day-30-Cage-1-Match.

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