Company X – TGA Results

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1. PURPOSE

This report aims to provide TGA results of graphite-bearing materials. Six samples were submitted to Volt for analysis by Company X.

2. TEST OVERVIEW

The following procedure is used to test the composition of graphite-bearing samples in accordance with ASTM E1131:

Table 2.1: TGA Testing Procedure

Step #	Starting Temp (°C)	Ending Temp (°C)	Duration (mins)	Gas / Purge (mL/min)	Purpose
1	25.0	600.0	11.5	Nitrogen / 40	Burn off/evaporate moisture and volatiles in the sample
2	600.0	1000.0	40	Air / 40	Burn off any combustible material and graphite present in the sample
3	1000.0	1000.0	30	Air / 40	Burn off any inorganic filler material in the sample

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3. RESULTS

Table 3.1: Sample Mass Lost at Each Step of the TGA Experiment (except for the total mass of ash left over at the end of the experiment) – All values are in mg

Sample Name	Initial Mass at 25°C	Ambient to 550°C (Moisture and Volatiles)	550°C to 800°C (Combustibles)	800°C to 1000°C (Graphite)	*Ash Left over at 1000°C*	**Total Mass Loss + Remaining Ash**
Sample 1	16.53	0.04	0.34	15.88	*0.27*	16.53
Sample 2	30.90	0.02	0.74	28.62	*1.53*	30.90
Sample 3	20.73	0.02	0.96	19.18	*0.58*	20.73
Sample 4	22.83	0.04	1.27	20.96	*0.56*	22.83
Sample 5	16.70	0.02	0.90	15.33	*0.45*	16.70
Sample 6	18.20	0.04	1.46	15.55	*1.16*	18.20

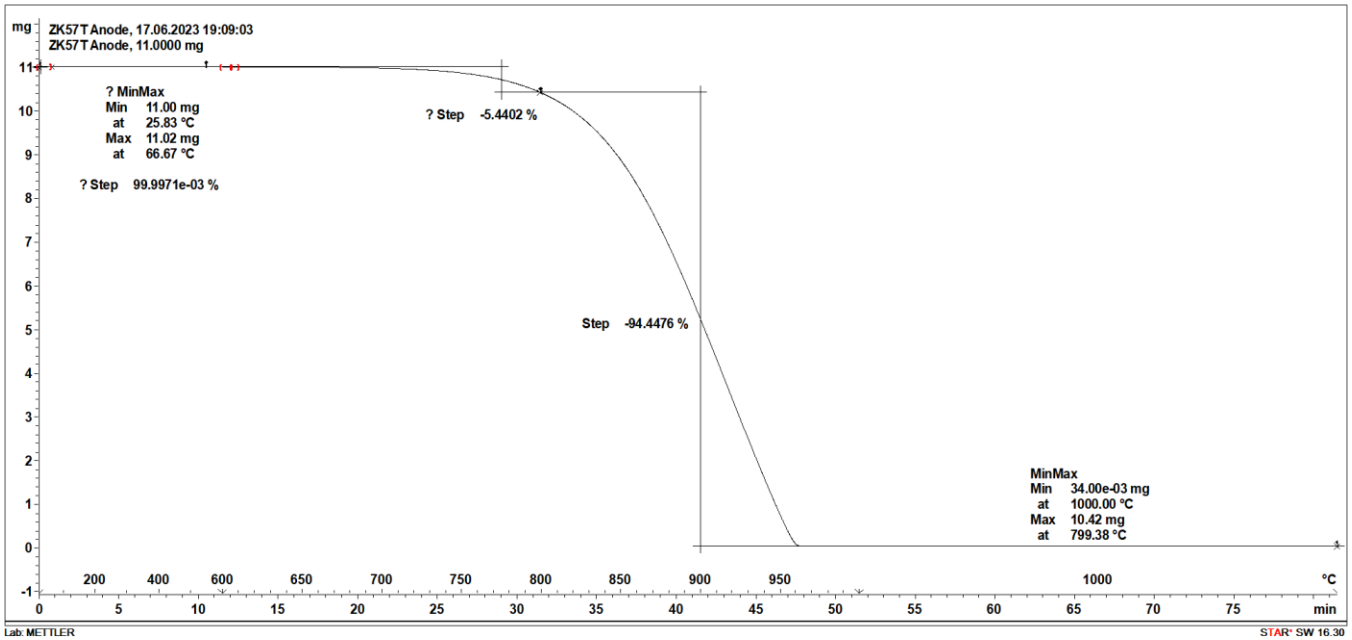
Table 3.2: Summary of Rock Sample Composition, arranged by highest to lowest graphite percentage

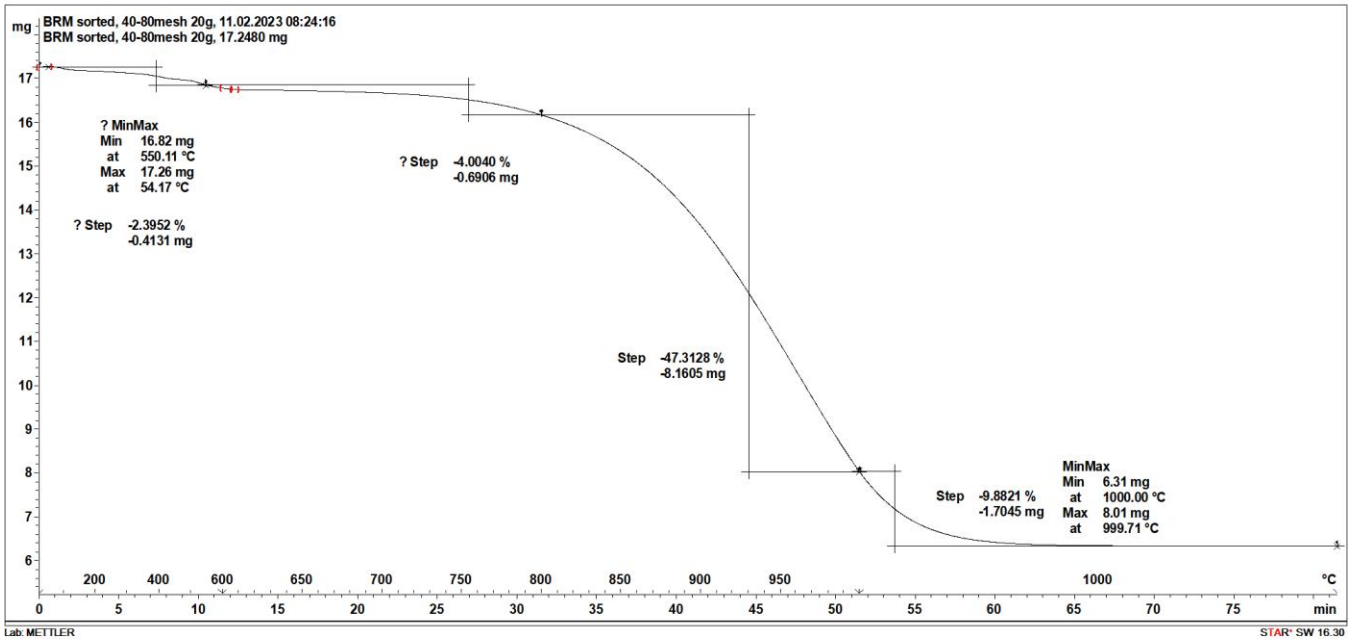
Sample Name	Ambient to 550°C (Moisture and Volatiles)	550°C to 800°C (Combustibles)	800°C to 1000°C (Graphite)	Ash at 1000°C
Sample 1	0.3%	2.0%	**96.1%**	1.6%
Sample 2	0.1%	2.4%	**92.6%**	4.9%
Sample 3	0.1%	4.6%	**92.5%**	2.8%
Sample 4	0.2%	5.5%	**91.8%**	2.5%
Sample 5	0.1%	5.4%	**91.8%**	2.7%
Sample 6	0.2%	8.0%	**85.4%**	6.3%

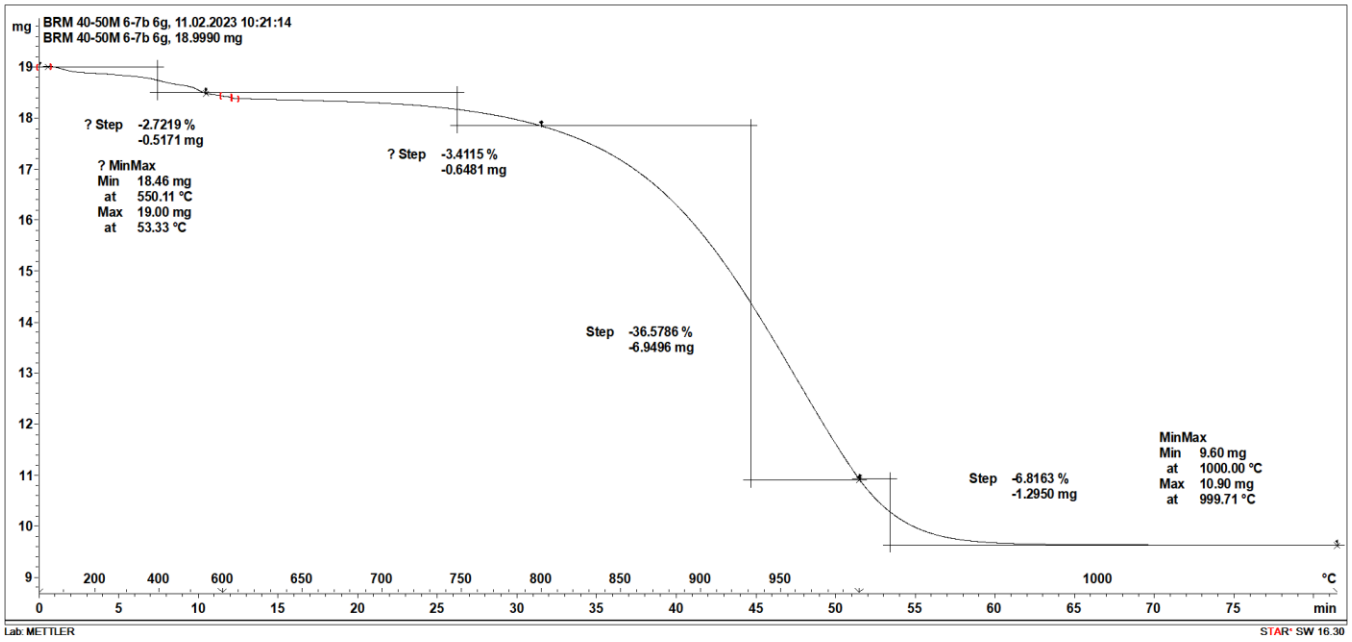
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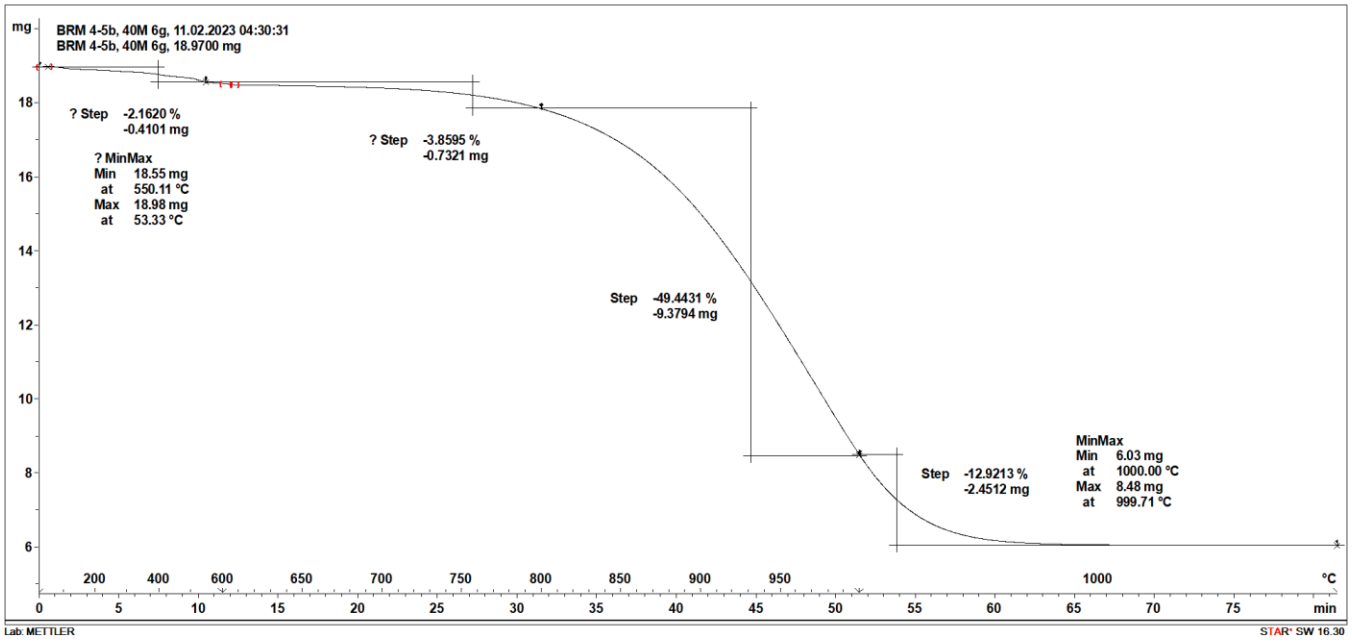
	1.4%	10.5%	**21.2%**	66.9%

Figures 7.1-7.6: TGA Test Result Curves

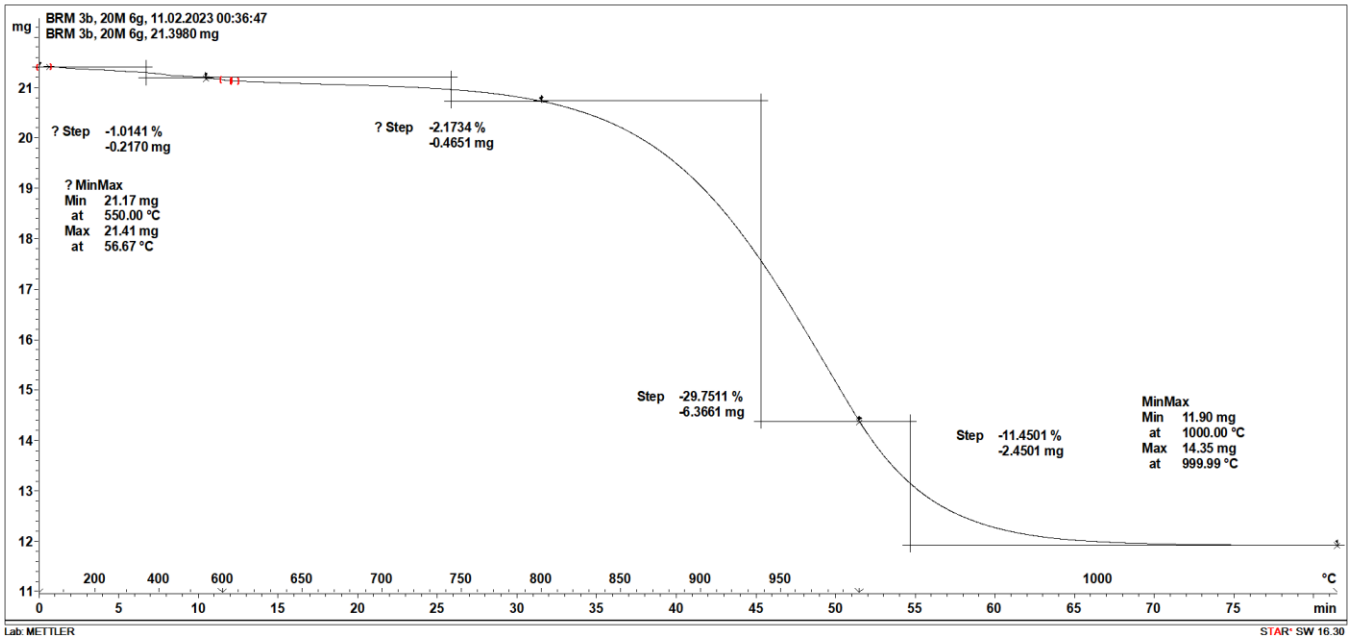


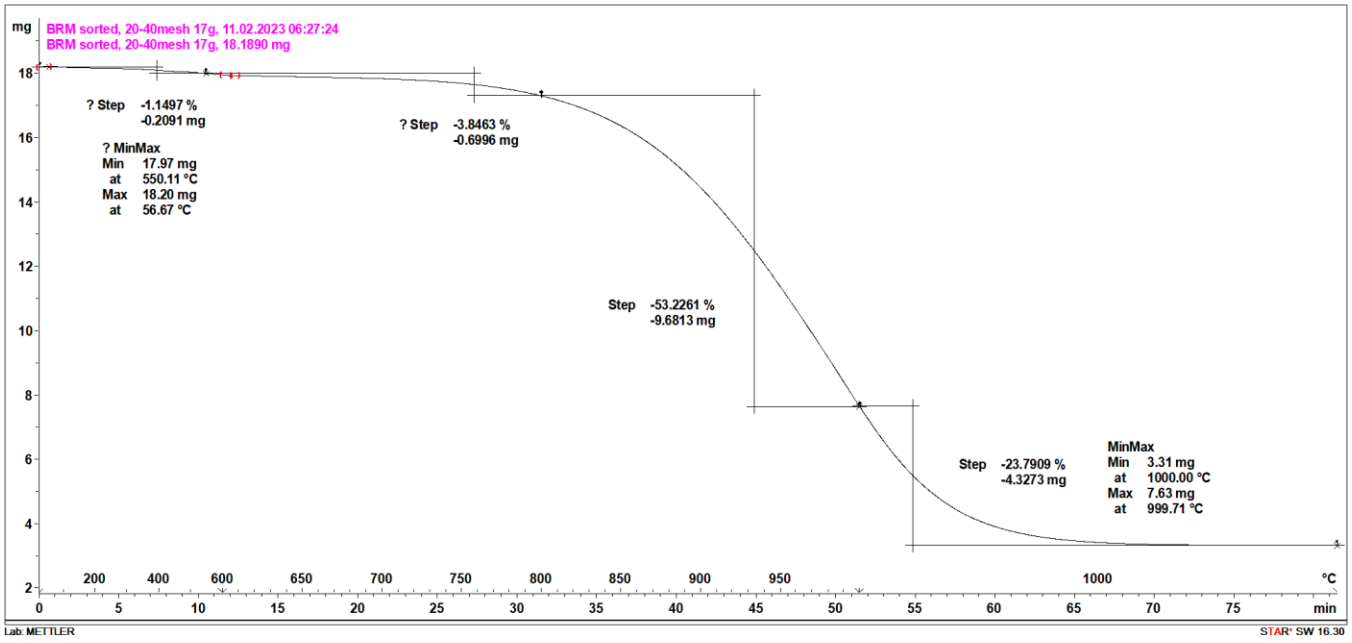






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