

# Progress on Aluminum Production from Lunar Regolith Simulants through Molten Salt Electrolysis

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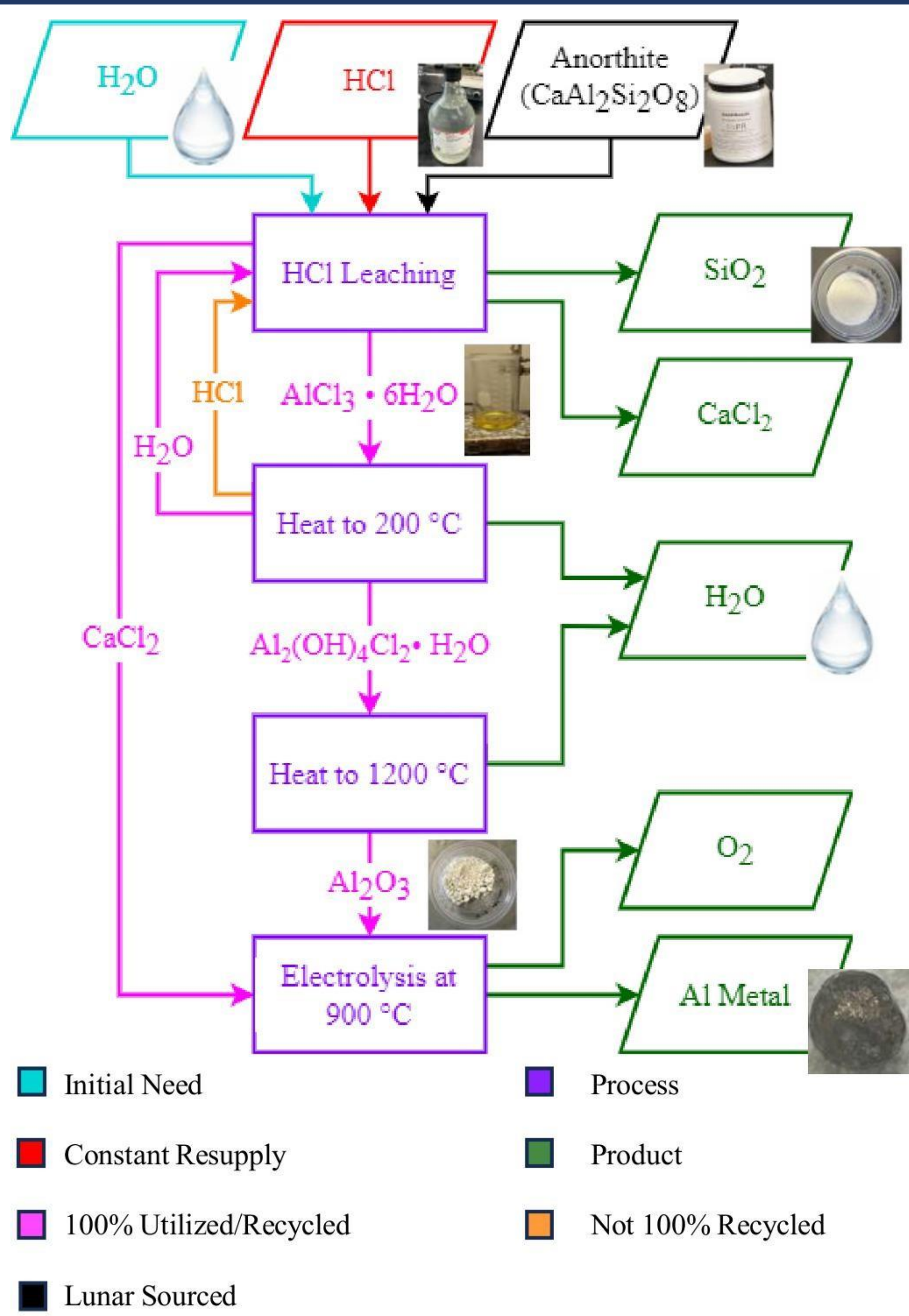


Figure 1: LISAP-MSE Processing Method

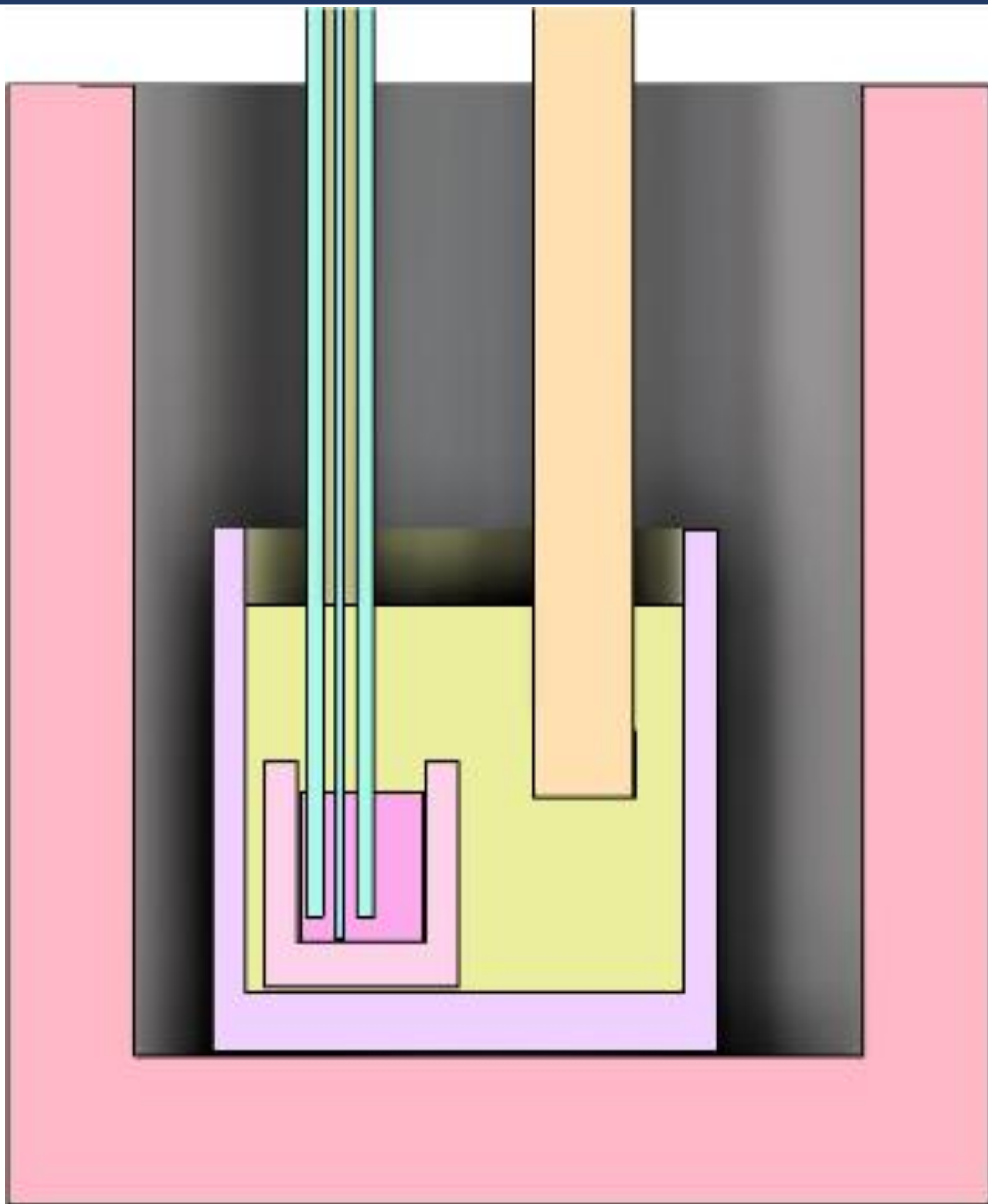


Figure 2: Drawing of the Electrolytic Cell



Figure 3: Metallic Spheroid Products

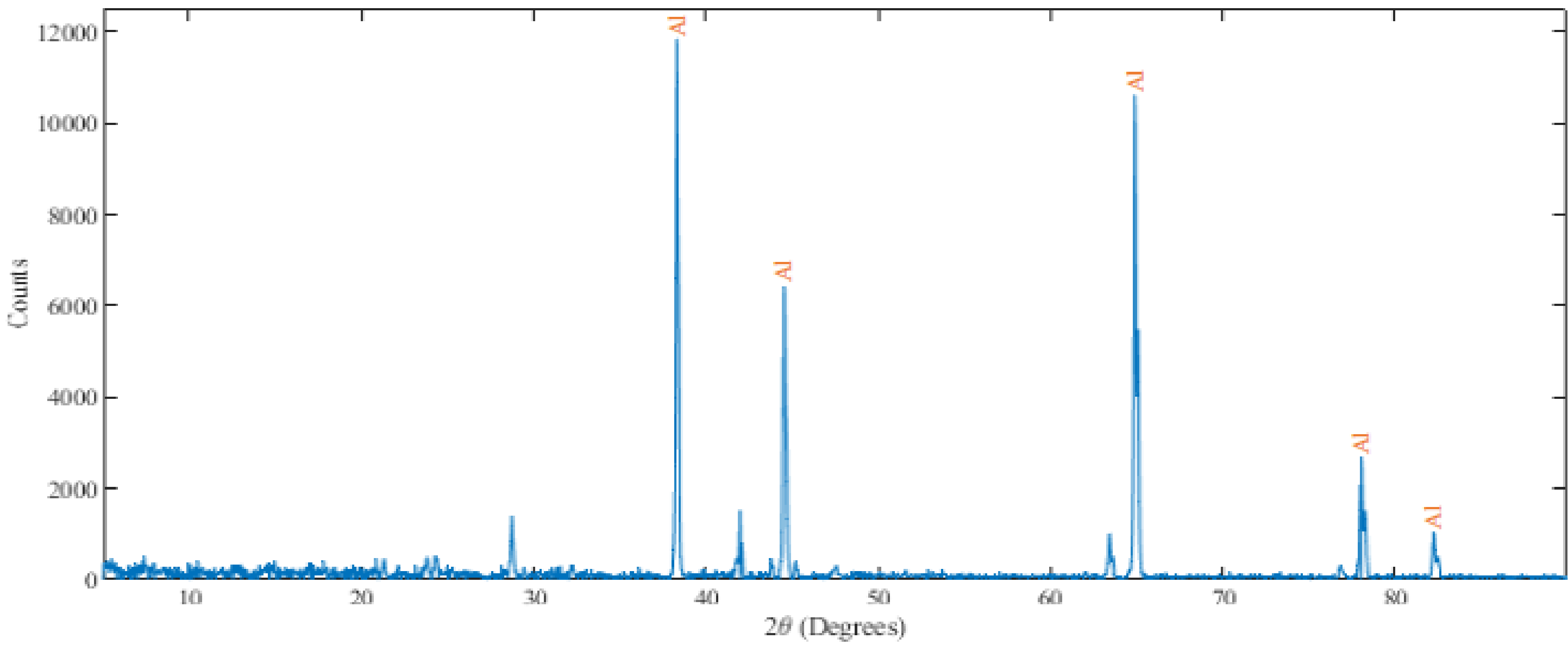


Figure 4: XRD of Metallic Spheroid using Pt Cathode

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Table 1: Semi-Quantitative Results of SEM-EDS Spectra

Element	Mass (%)	Atom (%)	Abs. Error (%)	Rel. error (%)
Carbon	30.2	49.7	1.9	6.4
Aluminum	59.2	43.3	1.7	3.0
Oxygen	4.6	5.7	0.4	7.8
Calcium	1.6	0.8	0.1	5.9
Platinum	4.4	0.4	0.4	9.2

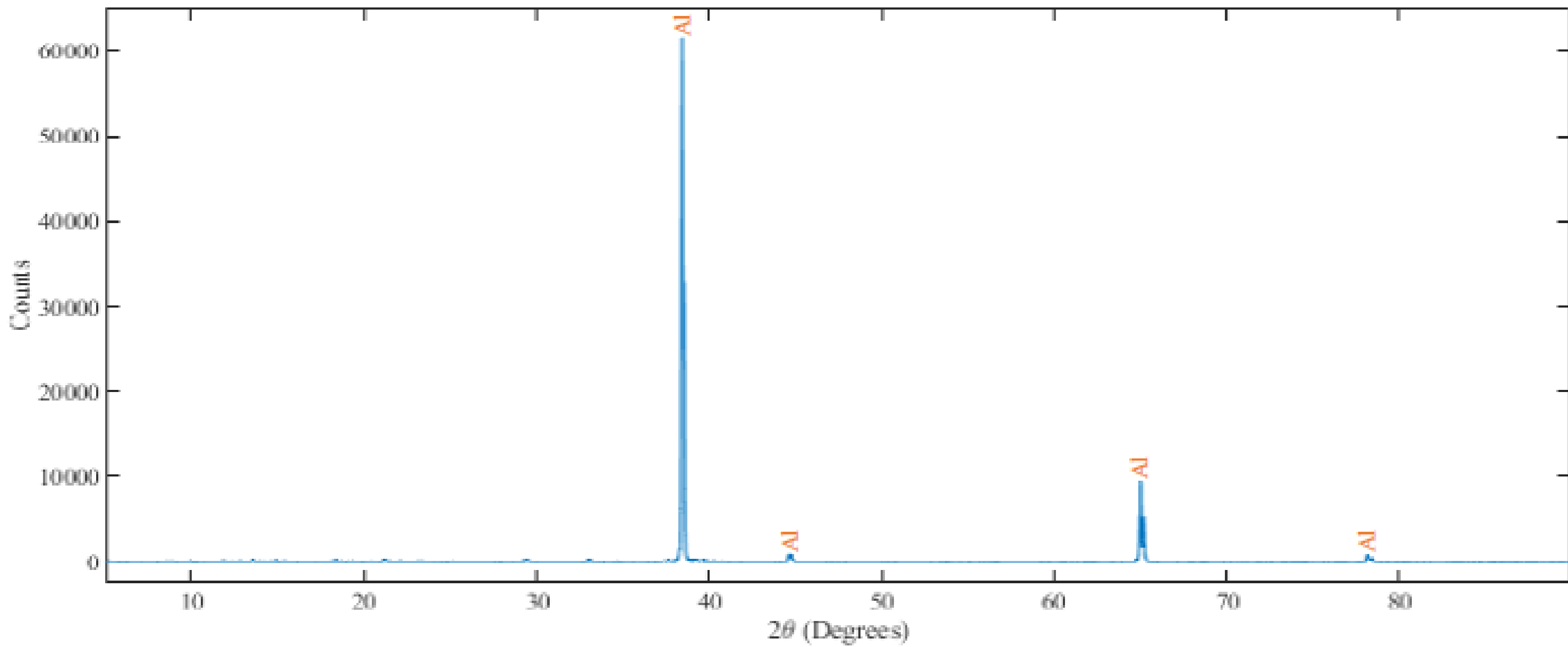


Figure 5: XRD of Metallic Spheroid using Mo Cathode

Table 2: ICP-OES of Metallic Spheroid using Mo Cathode

	Sample Id	QC Status	Al 396.153 (ppm)	Ca 317.933 (ppm)	Mo 202.031 (ppm)
1	Blank		0	0	0
2	0.1 ppm STD		0.1	0.1	0.1
3	0.5 ppm STD		0.5	0.5	0.5
4	1 ppm STD		1	1	1
5	10 ppm STD		10	10	10
6	25 ppm STD		25	25	25
7	50 ppm STD		50	50	50
18	Reagent blk		0.2048	0.1066	-0.1071
19	10 ppm QC	Passed	9.3384	9.6679	9.8653
20	ST-2 10ppm		9.6124	0.1916	-0.0723
21	ST-6 10ppm		9.7461	0.1603	-0.0848
22	Blank		0.2074	0.1023	-0.1058



### Acknowledgments

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