RTI PAST PERFORMANCE		
RTI Tracking Number:	1010275	Date:10/12/2010
Core Task:	Metallurgical Testing	
Analytical Techniques	SEM/EDS	

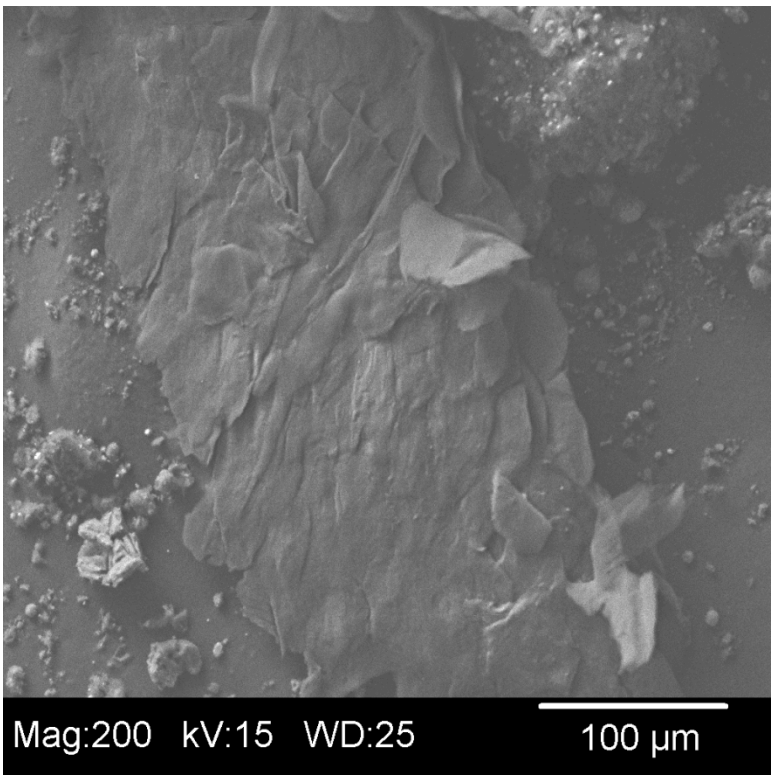
- Report of Analytical Services -

RTI Lab#: 1010275-001A **Sample Receipt Date:** 10/11/2010

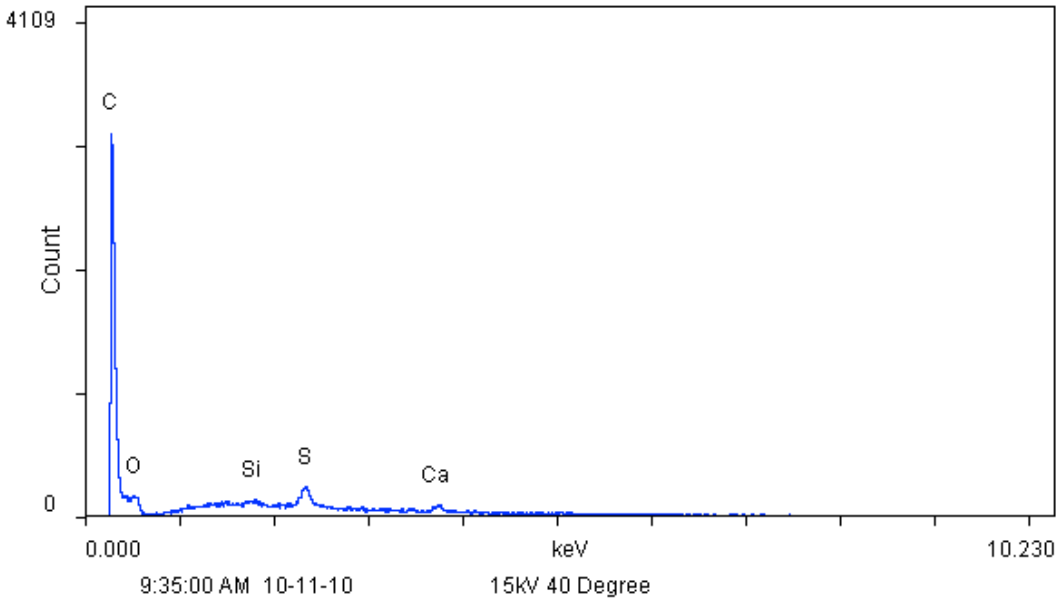
Several samples were examined for analysis and were identified as follows:

1 – Broken end white large particle (received on SEM mount)
2 – Broken end small particles (received on same SEM mount as sample 1)
3 – Capacitor end white particle (received on SEM mount)
4 – Capacitor end white particle 2 (received on same SEM mount as sample 3)
5 – Broken small piece inside filter (received in plastic bag)
6 – Bubbles on wire connector end (extracted from end connector insulator)
7 - White powder from end connector groove (extracted from end connector at conductor insert groove)
8 – Black powder from end connector (extracted from end connector at conductor)
9 – Free black powder on wire (extracted from connector insulator surface)
10 – Black powder from inside filter (received in plastic bag)

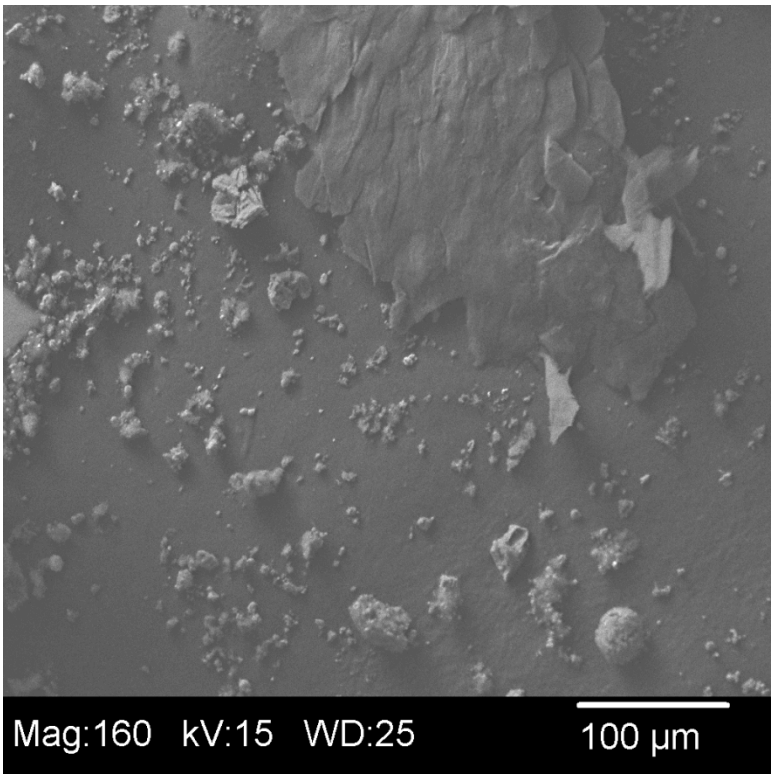
The target of the analysis was to characterize the materials using techniques of SEM (Scanning Electron Microscopy) and EDS (Energy Dispersive X-ray Spectroscopy). The resulting SEM photomicrographs and EDS spectra are attached on the following pages.



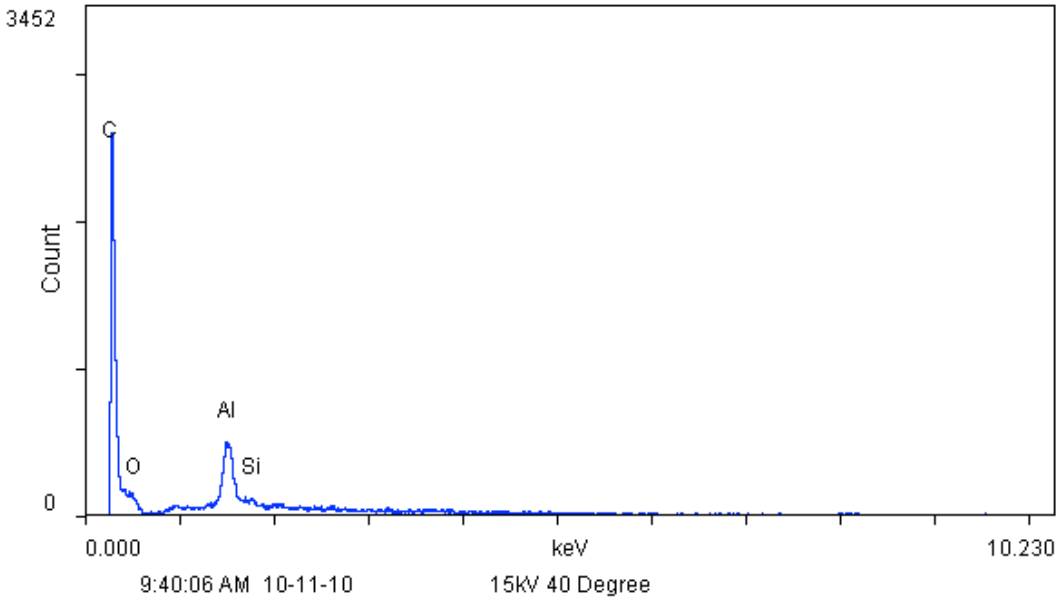
SEM photomicrograph obtained from sample 1 at 200X magnification



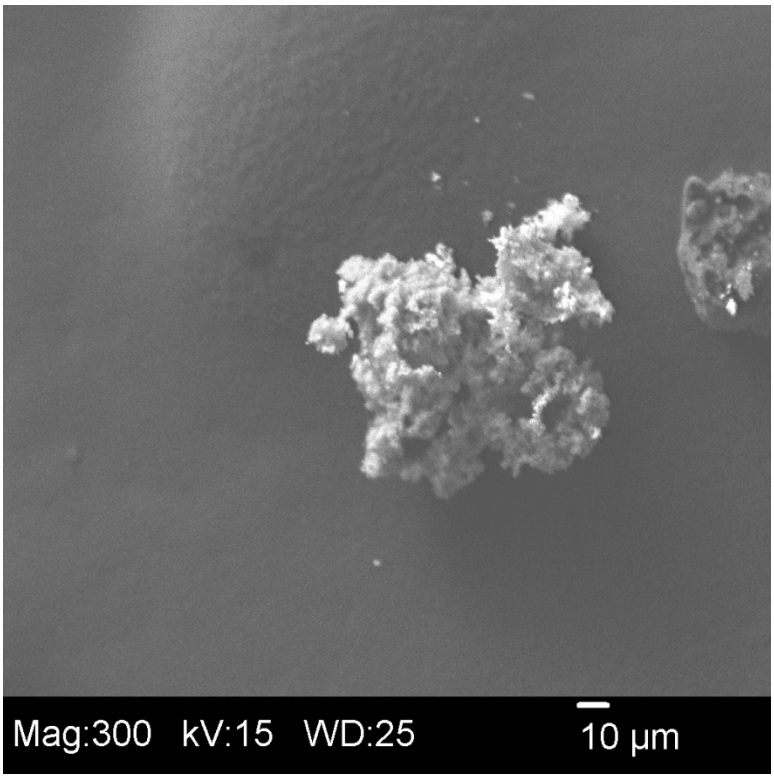
EDS spectrum obtained from the particle imaged above – Major elements (>10%) – carbon; Moderate elements (2-10%) – oxygen; Minor elements (0.2-2%) – calcium, sulfur, silicon



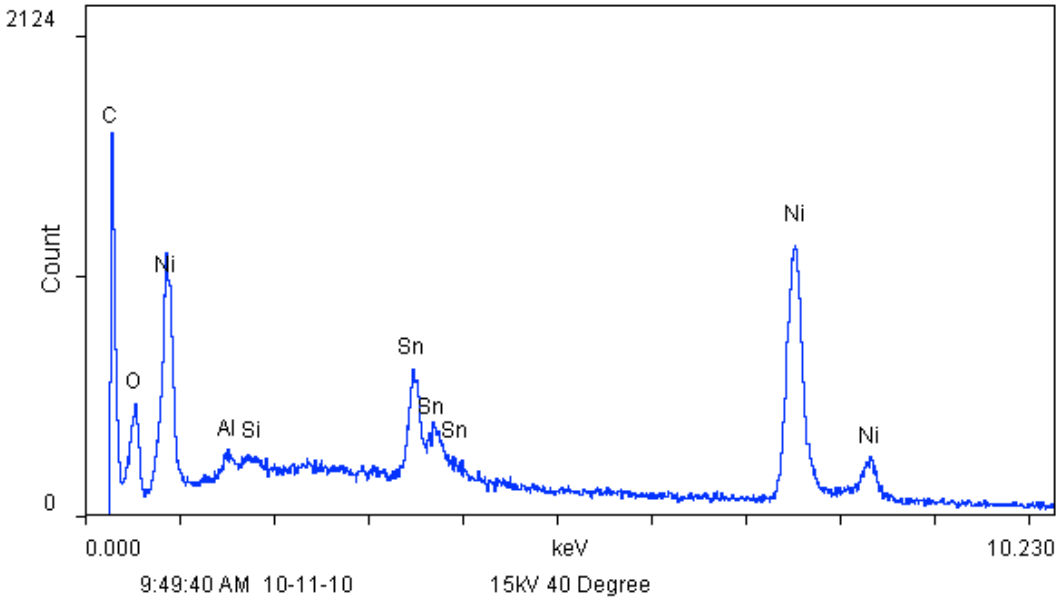
SEM photomicrograph obtained from sample 2 at 160X magnification



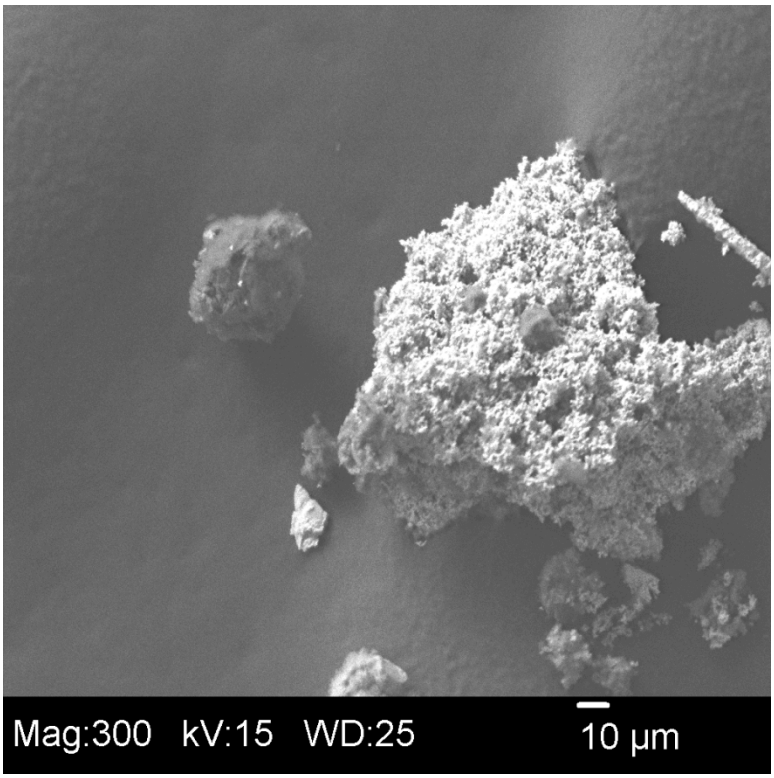
EDS spectrum obtained from the particle imaged above – Major elements (>10%) – carbon; Moderate elements (2-10%) – aluminum, oxygen; Minor elements (0.2-2%) – silicon



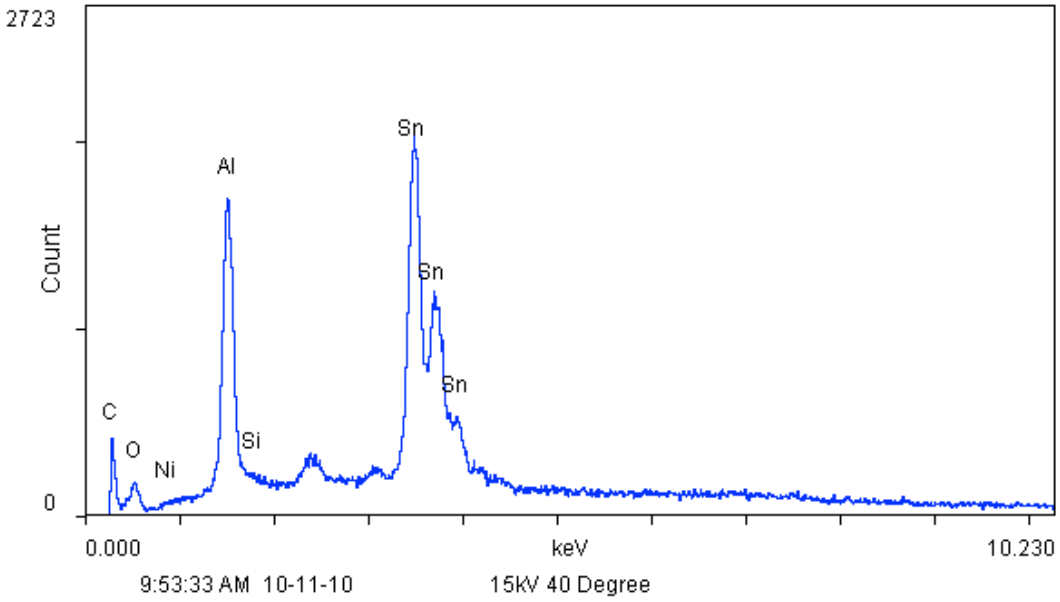
SEM photomicrograph obtained from sample 3 at 300X magnification



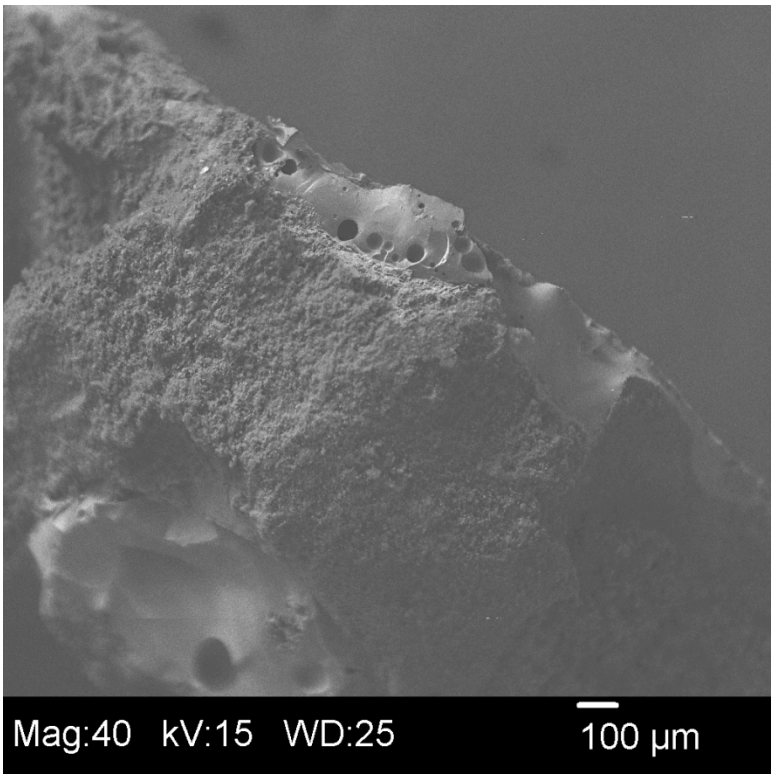
EDS spectrum obtained from the particle imaged above – Major elements (>10%) – carbon, nickel, oxygen; Moderate elements (2-10%) – tin; Minor elements (0.2-2%) – aluminum, silicon



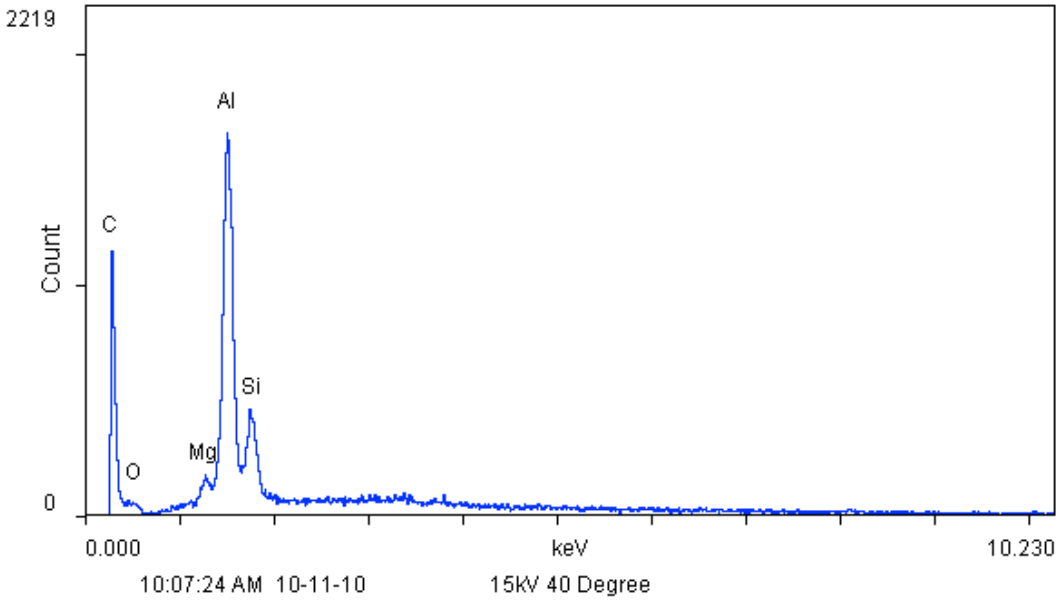
SEM photomicrograph obtained from sample 4 at 300X magnification



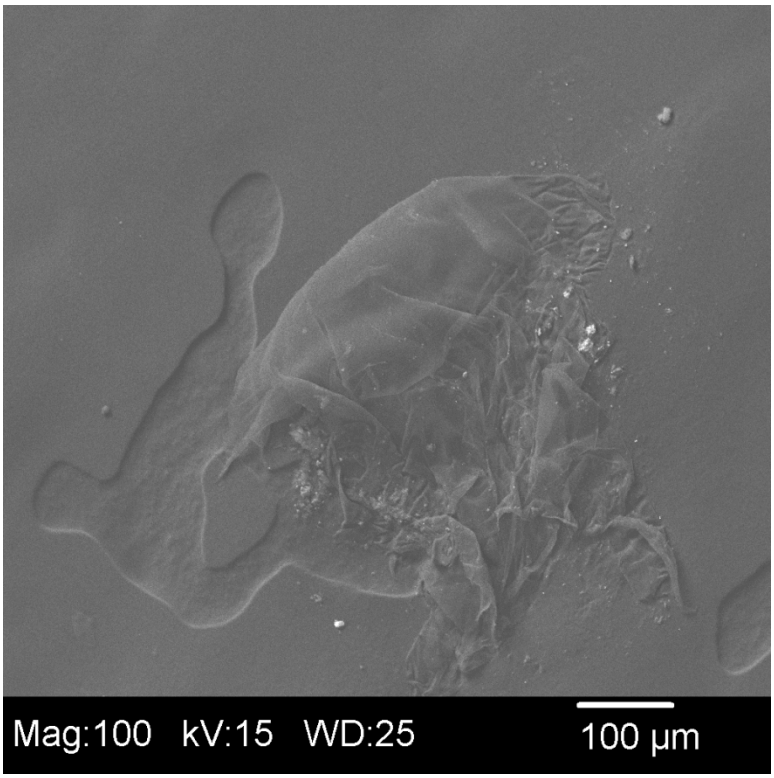
EDS spectrum obtained from the particle imaged above – Major elements (>10%) – tin, aluminum; Moderate elements (2-10%) – carbon, oxygen; Minor elements (0.2-2%) – silicon



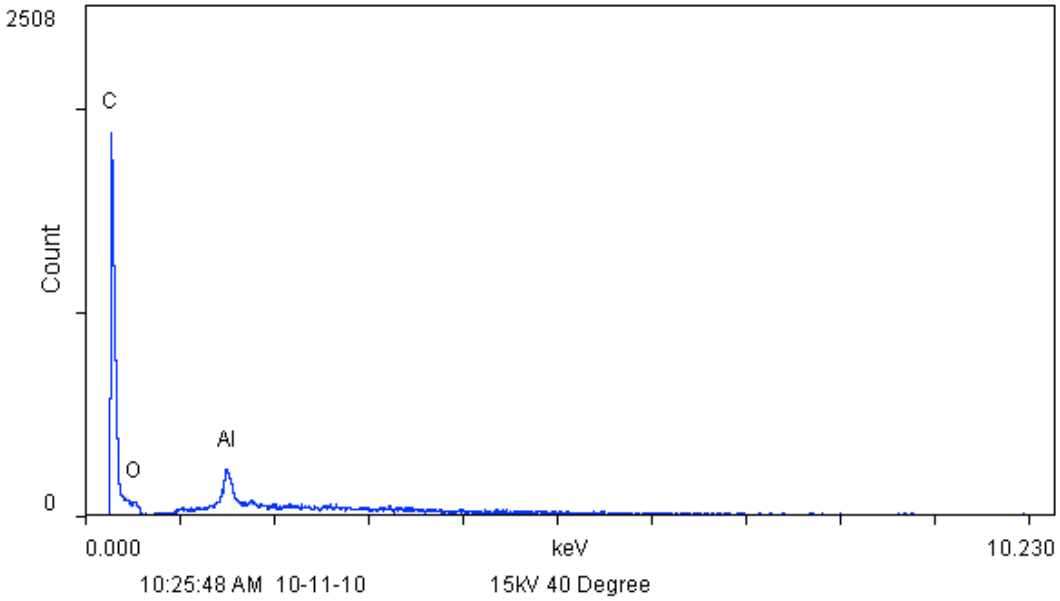
SEM photomicrograph obtained from sample 5 at 40X magnification



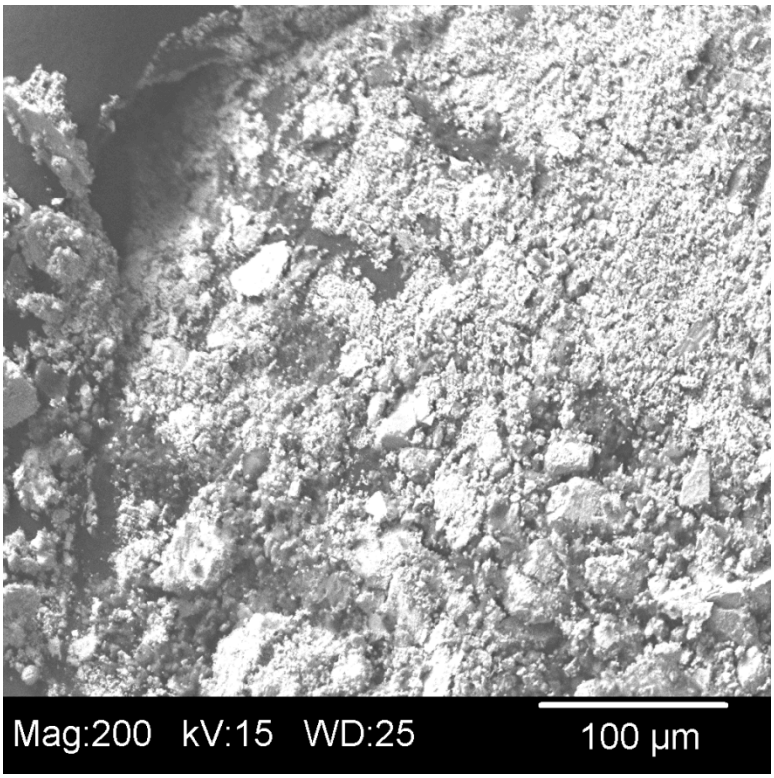
EDS spectrum obtained from the particle imaged above – Major elements (>10%) – carbon, aluminum; Moderate elements (2-10%) – oxygen, silicon; Minor elements (0.2-2%) – magnesium



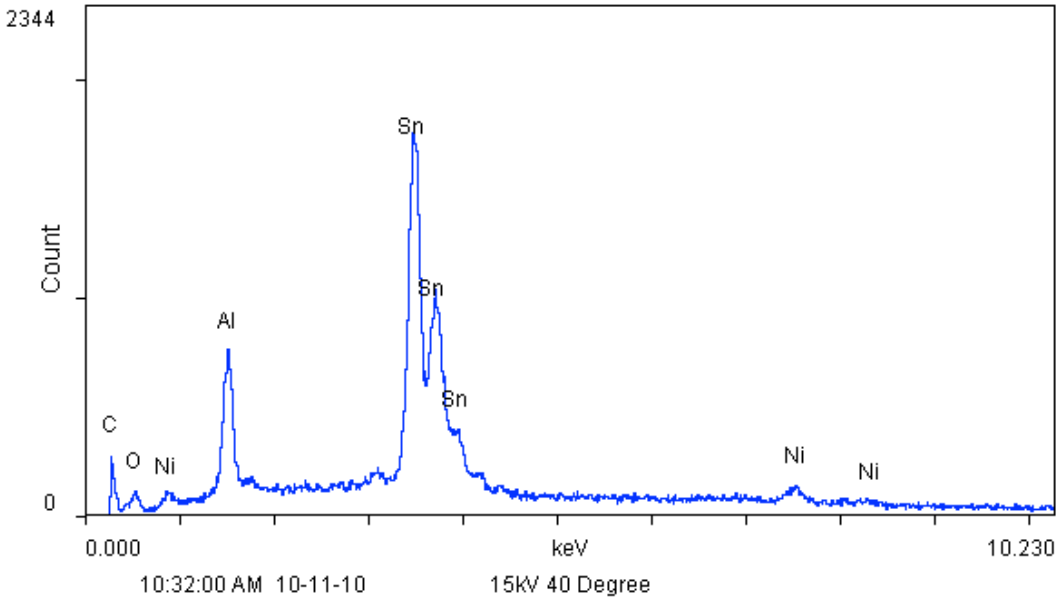
SEM photomicrograph obtained from sample 6 at 100X magnification



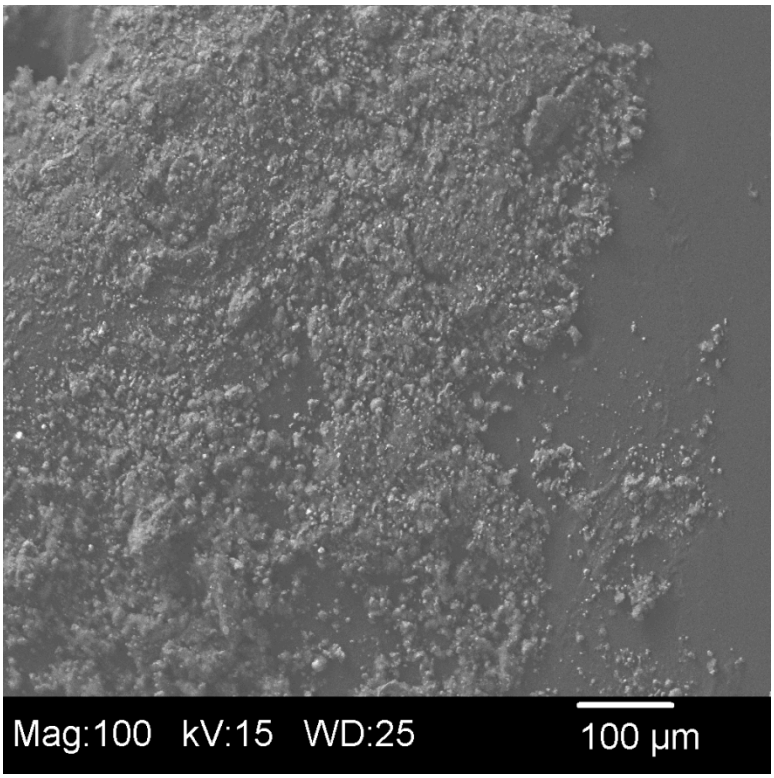
EDS spectrum obtained from the particle imaged above – Major elements (>10%) – carbon; Moderate elements (2-10%) – aluminum, oxygen; Minor elements (0.2-2%) – none



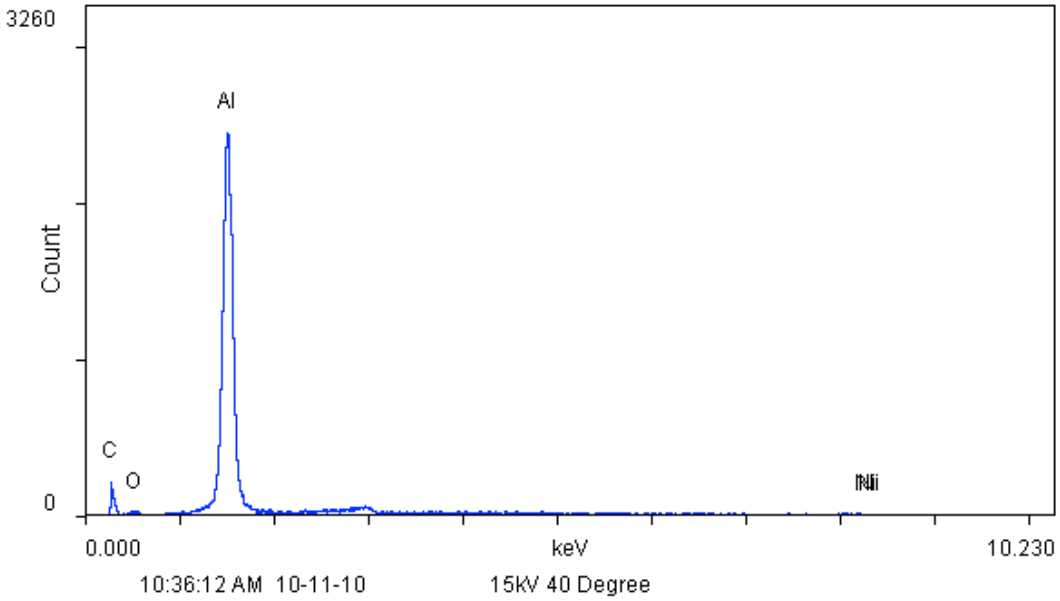
SEM photomicrograph obtained from sample 7 at 200X magnification



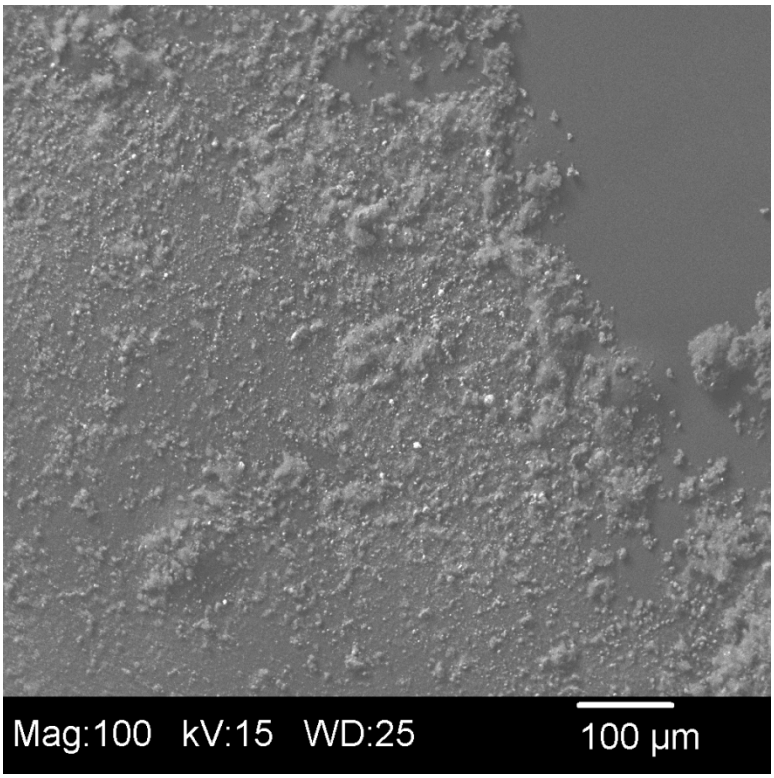
EDS spectrum obtained from the particle imaged above – Major elements (>10%) – tin; Moderate elements (2-10%) – aluminum, carbon, oxygen; Minor elements (0.2-2%) – nickel



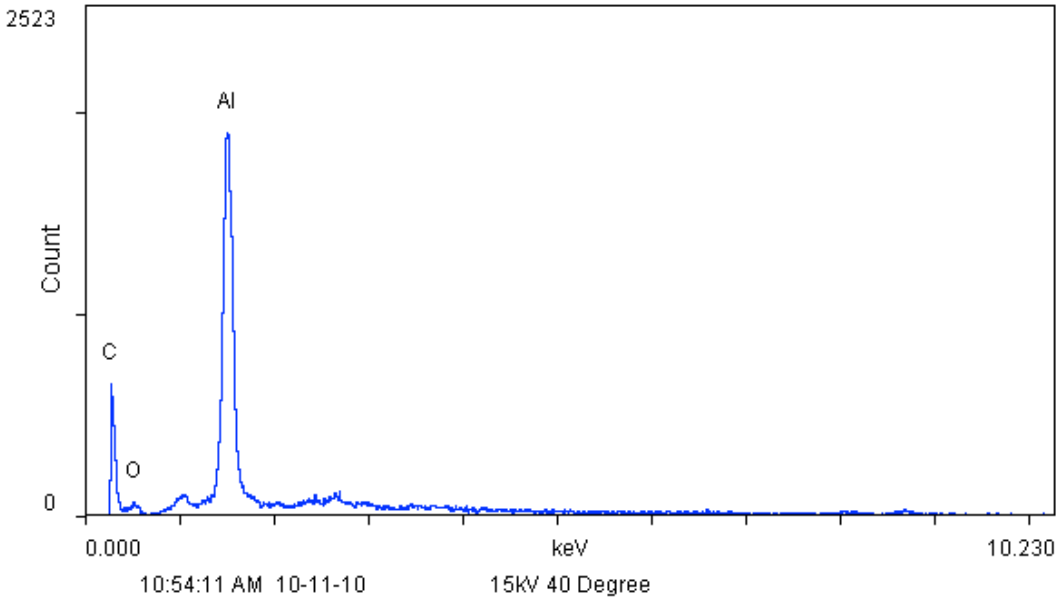
SEM photomicrograph obtained from sample 8 at 100X magnification



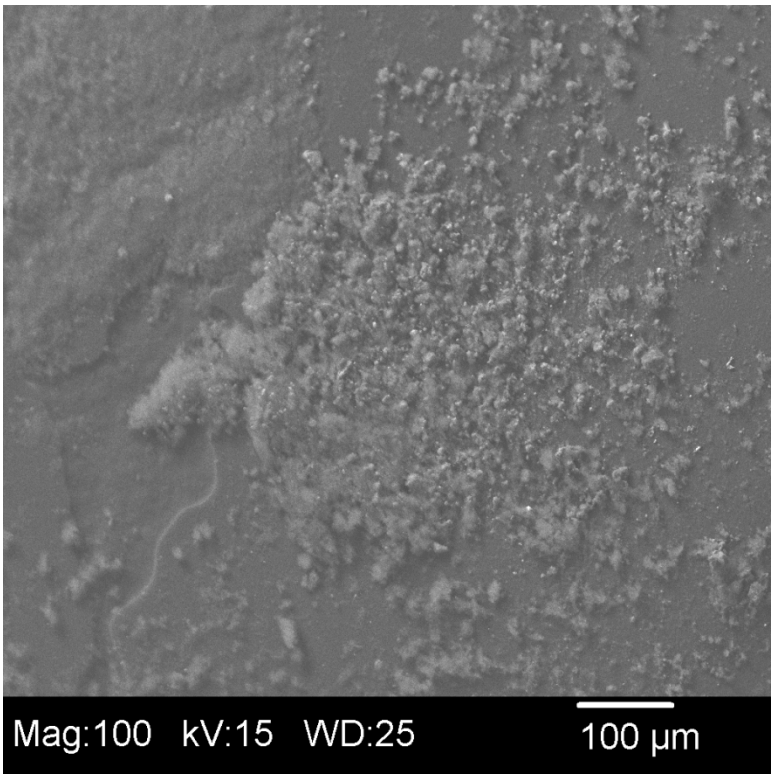
EDS spectrum obtained from the particle imaged above – Major elements (>10%) – aluminum; Moderate elements (2-10%) – oxygen; Minor elements (0.2-2%) – carbon



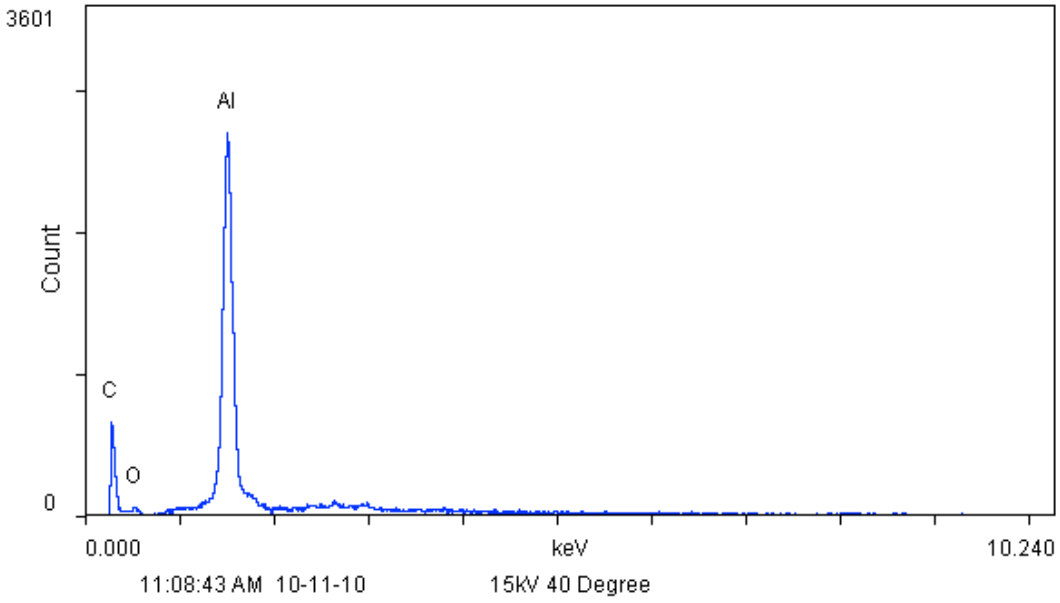
SEM photomicrograph obtained from sample 9 at 100X magnification



EDS spectrum obtained from the particle imaged above – Major elements (>10%) – aluminum; Moderate elements (2-10%) – carbon, oxygen; Minor elements (0.2-2%) – none



SEM photomicrograph obtained from sample 10 at 100X magnification



EDS spectrum obtained from the particle imaged above – Major elements (>10%) – aluminum; Moderate elements (2-10%) – carbon, oxygen; Minor elements (0.2-2%) – none