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PRODUCT TEST REPORT

Graphene Oxide (GO)

Equipment's used

XPS : Thermo Scientific™ ESCALAB™ Xi+ X-ray Photoelectron Spectrometer
RAMAN : BRUKER SENTERRA II -Confocal Raman Microscope
XRD : BRUKER D8 Focus X-ray diffractometer
FTIR : BRUKER Vertex80 FTIR microscope (Hyperion)

Sample Details

Start-up Graphite : C99+ Vein Graphite, Particle size range: 63-125 µm
Appearance : Brown color dry powder

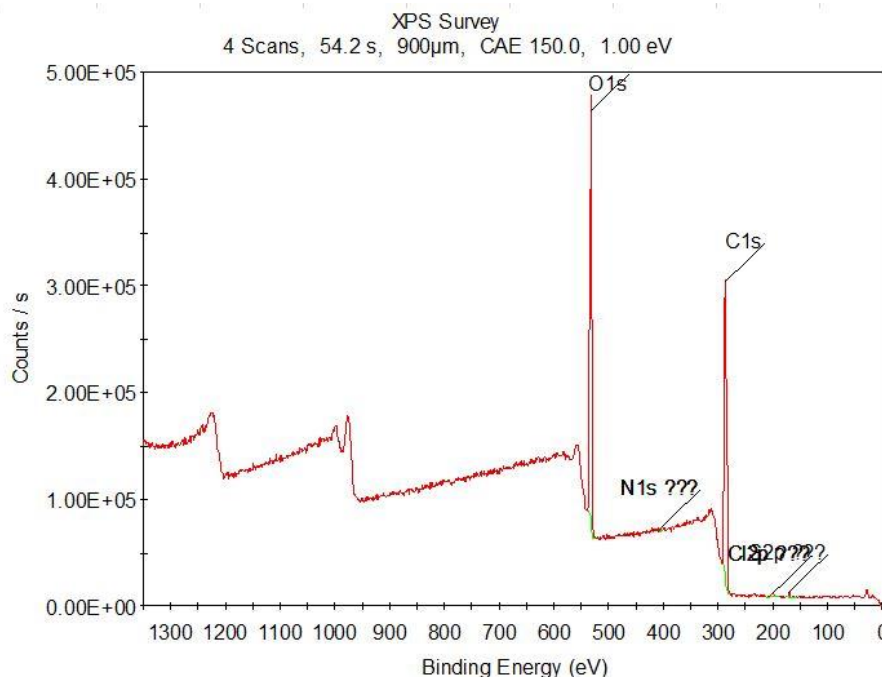
Analysis and Results

X-ray Photoelectron Spectroscopy (XPS)

The sample was mounted on a glass substrate using double tape. Three different spots per sample were analyzed. Parameters were set as follows, X-Ray source: Monochromatic Al Kα (1486.6 eV), Spot size: 900 µm. Survey scans and high resolution scans were collected with pass energies of 150 and 20 eV and with a step size of 1.0 and 0.05 eV. Detailed spectra processing was performed by Thermo Avantage (5.982) software

Results

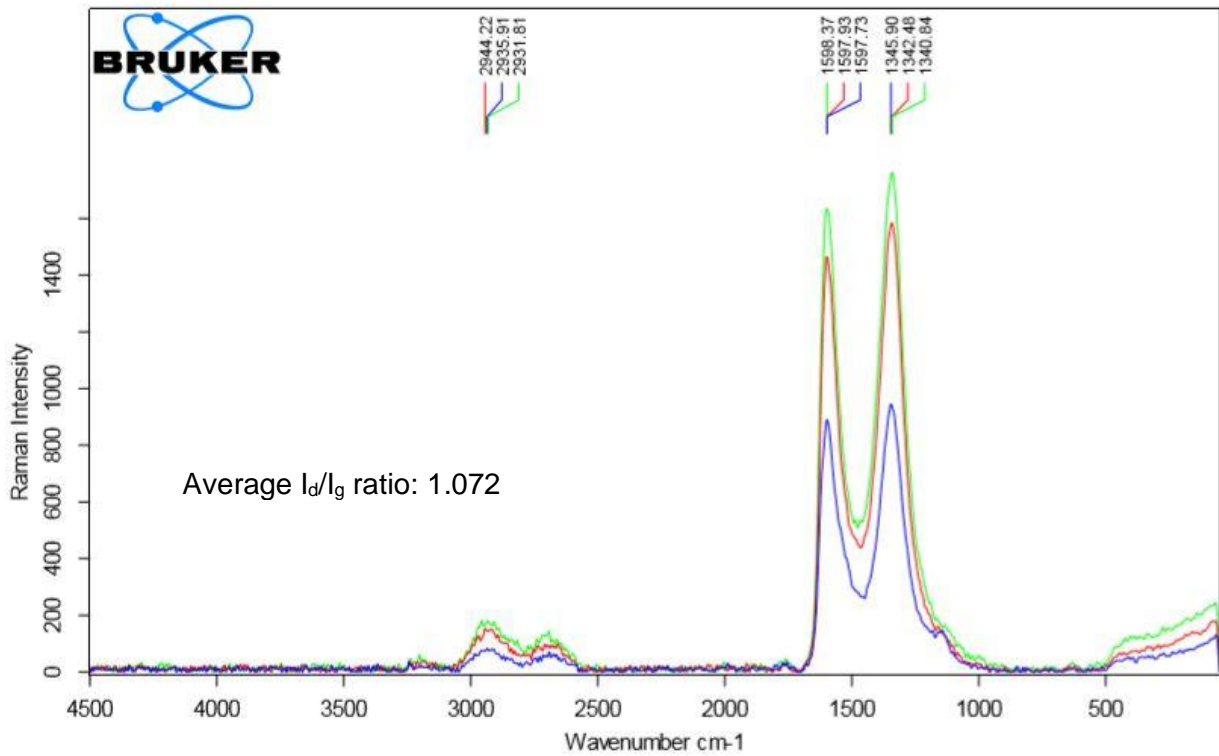
Name	Peak BE	Atomic %			Avg. %
		scan 1	scan 2	scan 3	
O1s	532.02	28.68	28.16	26.86	27.9
C1s	284.88	71.32	71.2	72.52	71.68
S2p	168.24	0.00	0.64	0.62	0.42
Cl2p	-	0.00	0.00	0.00	0.00
N1s	-	0.00	0.00	0.00	0.00



*C/O ratio: 2.57

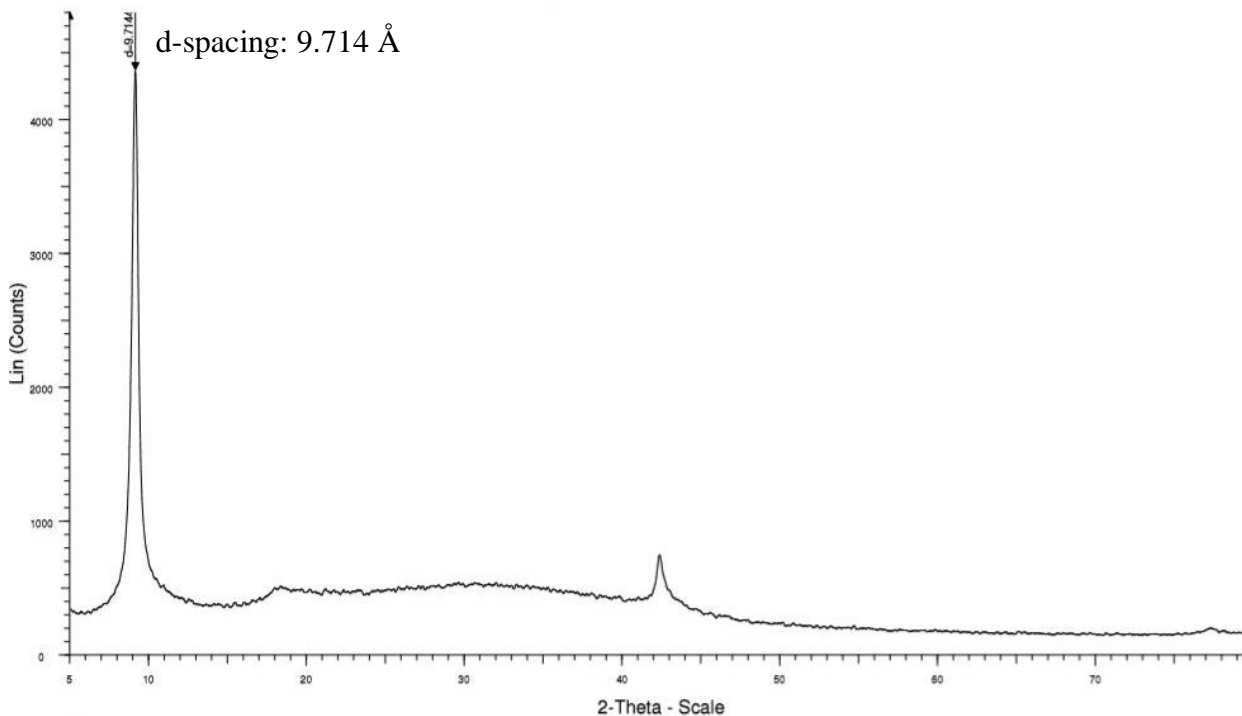
RAMAN Analysis

The sample was drop casted on the microscopic glass slides. Four different spots were analyzed. Parameters were set as follows, 532 nm, green laser was used with 20X optical zooming.



X-ray powder diffraction (XRD)

The sample was mounted on sample holder. Parameters were set as follows, Cu K α radiation ($\lambda=0.154$ nm) over a 2θ range of 5–60° with a step size of 0.02° and a step time of 1 s.



Fourier-transform infrared spectroscopy (FTIR)

Attenuated total reflection Fourier transform infrared (ATR-FTIR) spectra of the graphene oxide were recorded in the region 800 to 4000 cm^{-1} at a resolution of 4 cm^{-1} .

