Outermost Technology

Subject: XPS analysis of Anode Materials

Job

Date: March 30, 2023

Innovation Together

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Approved by S. Lee, PhD

www.outermost-tech.com

Equipment and Experimental

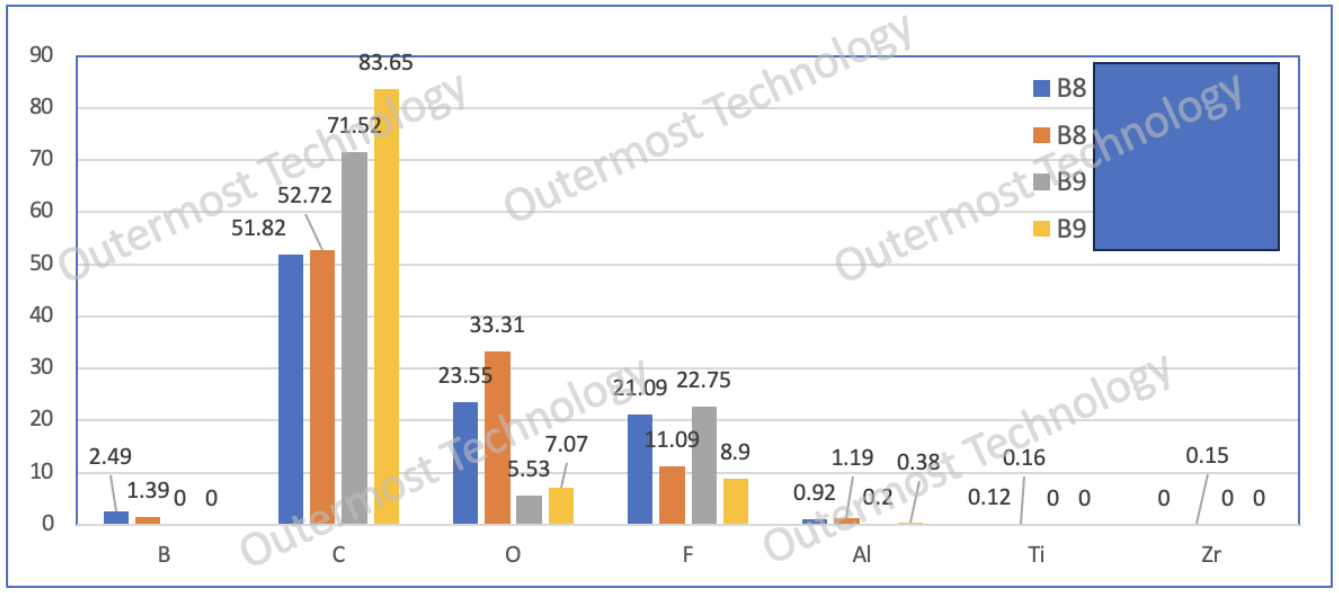
K-Alpha X-ray Photoelectron Spectrometer (XPS) System

Classification	Details	
Sample Information	# of Samples	
	Key Composition	
	Phase	
	Type	
	Conductivity	Conductor
Analysis Mode	1. Surface survey and window scans 2. Post Ar+ etching followed by survey and window scans	
X-ray Source	200um	
Note	Ar+ beam etching: 10nm equivalent	

Summary

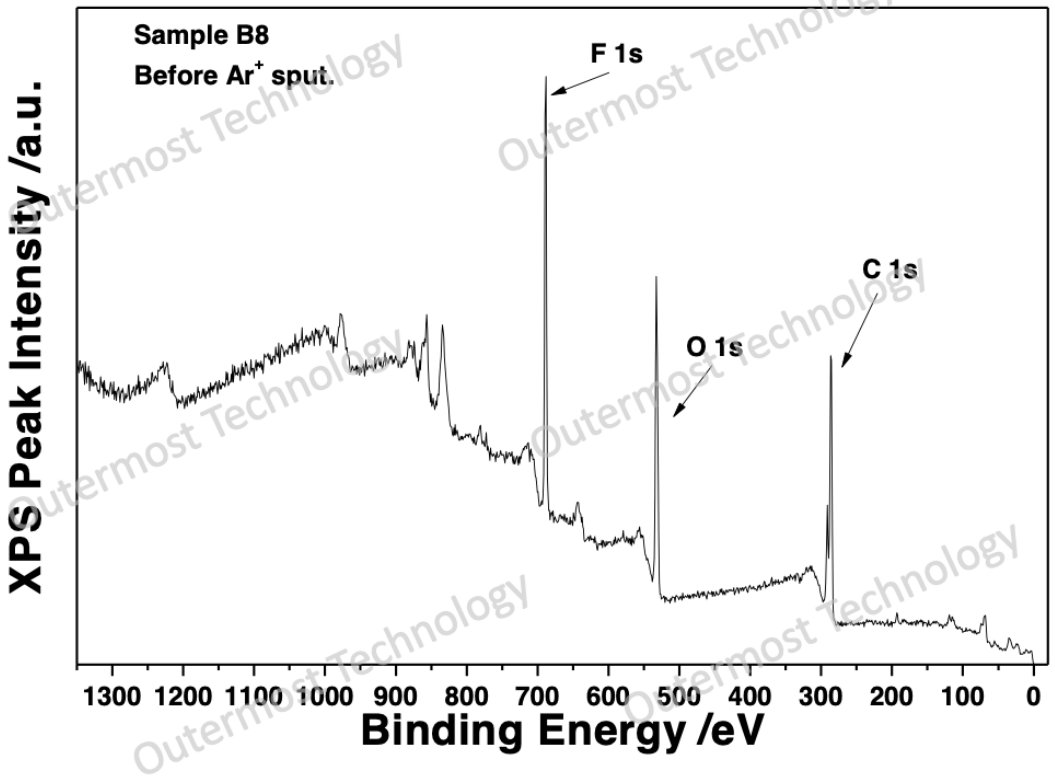
(unit: Atomic%)

Sample ID	Condition	B	C	O	F	Al	Ti	Zr
B8								
B9								

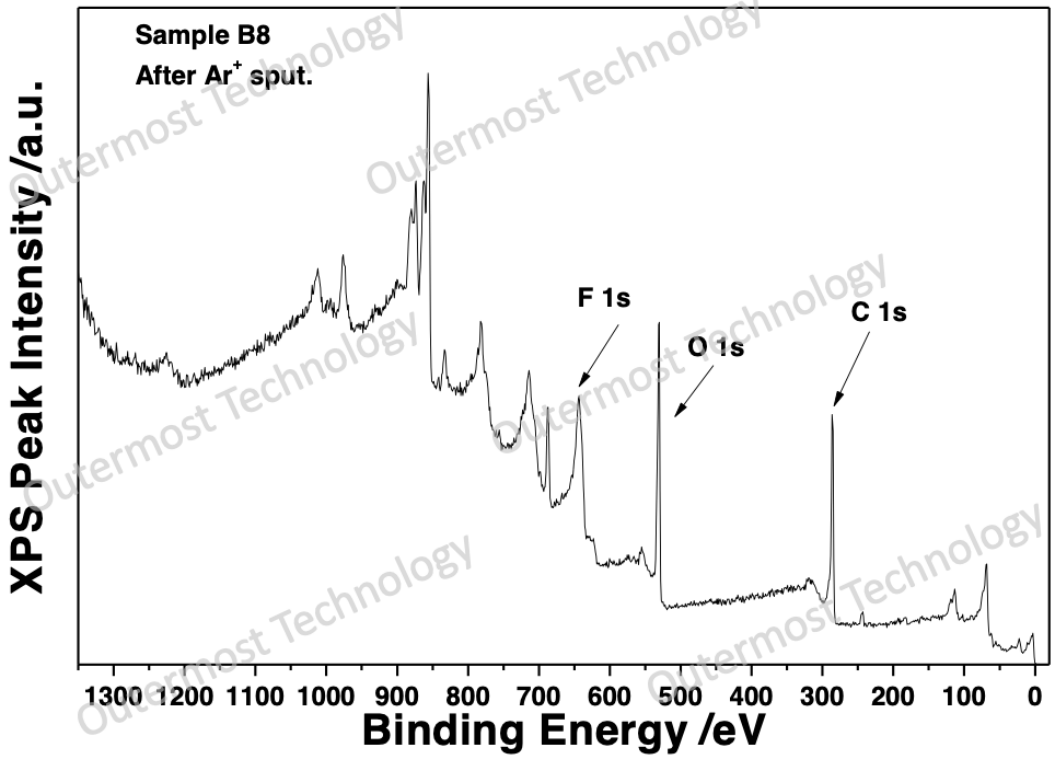


Results: X - Survey Scans

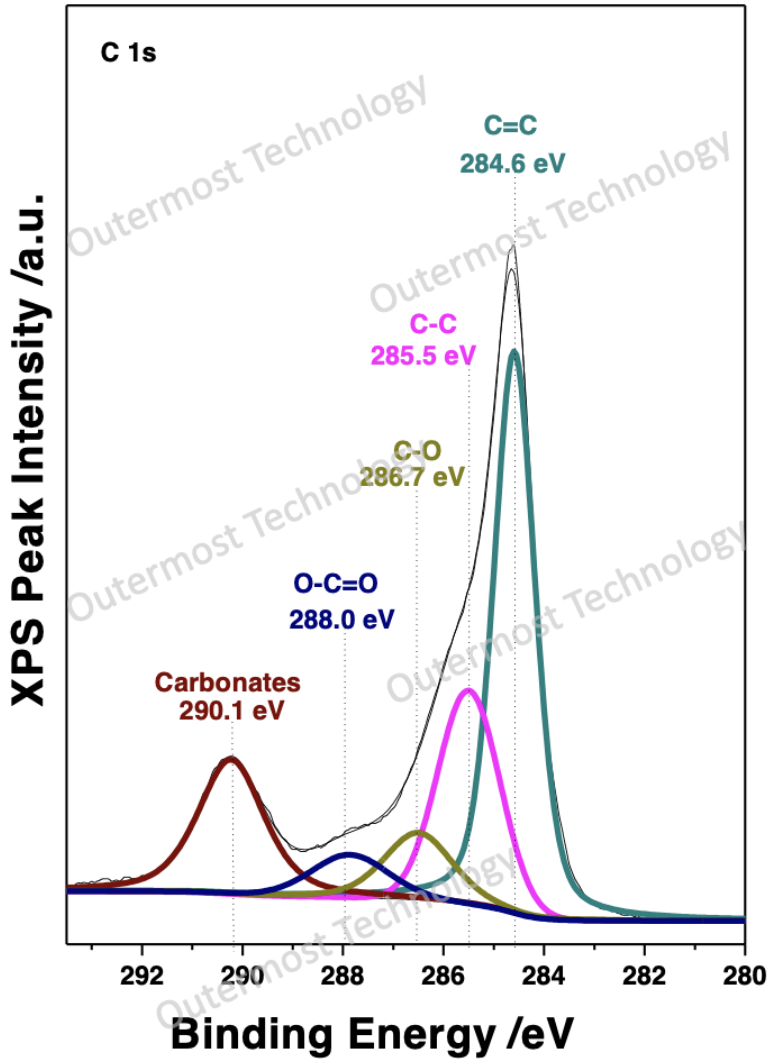
As received



After etch

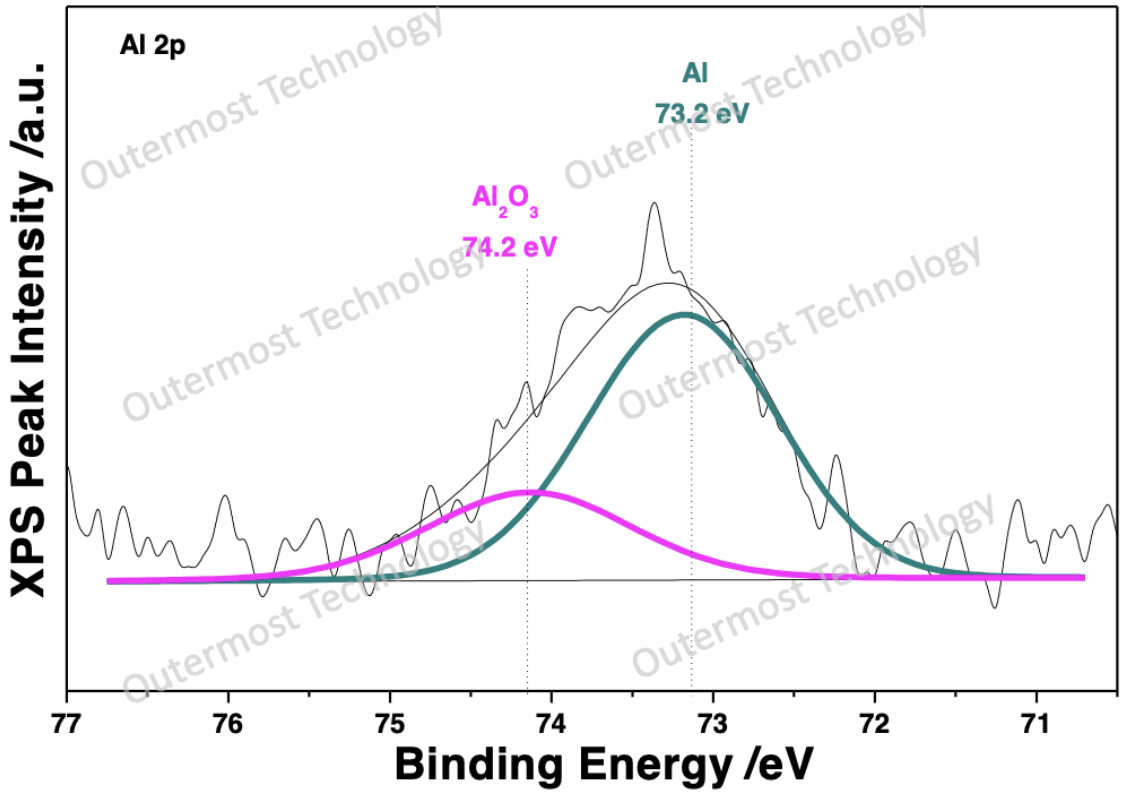


Results: X, as received - Deconvolution Analysis of C 1s



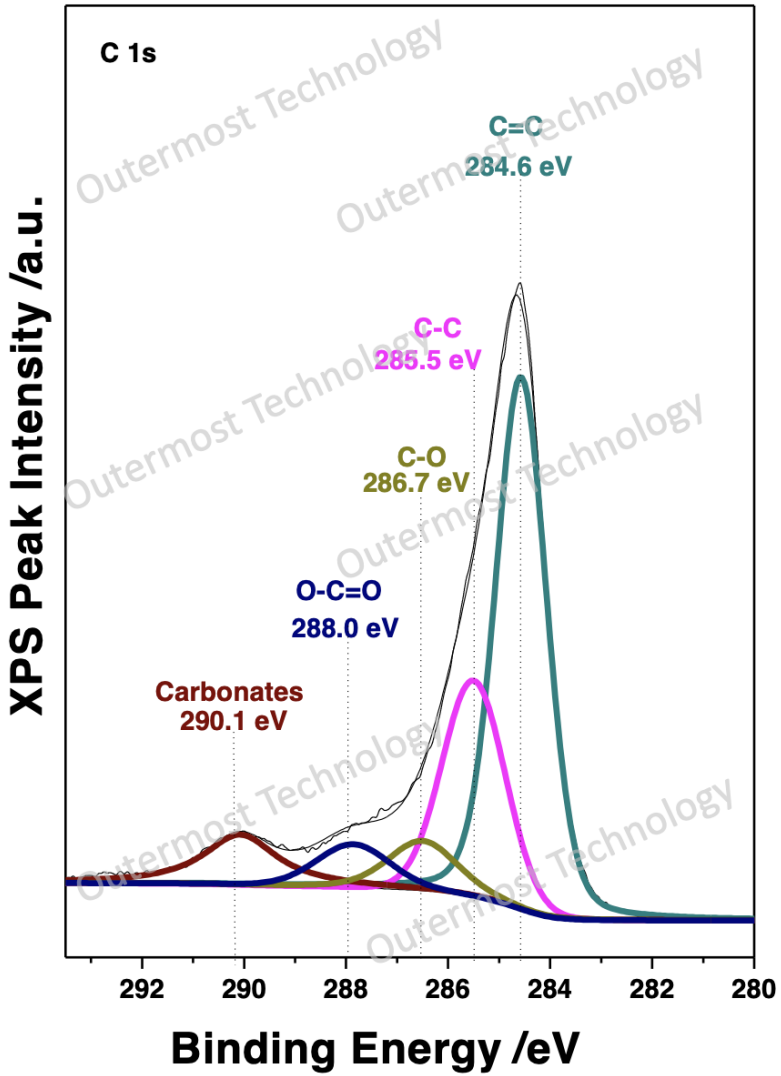
	% ratio	FWHM
C=C (Sp2)		
C-C (Sp3)		
C-O		
O-C=O		
Carbonates		

Results: X, as received - Deconvolution Analysis of Al 2p



	% ratio	FWHM
Al (metallic)		
Al_2O_3		

Results: X, post etching - Deconvolution Analysis of C 1s



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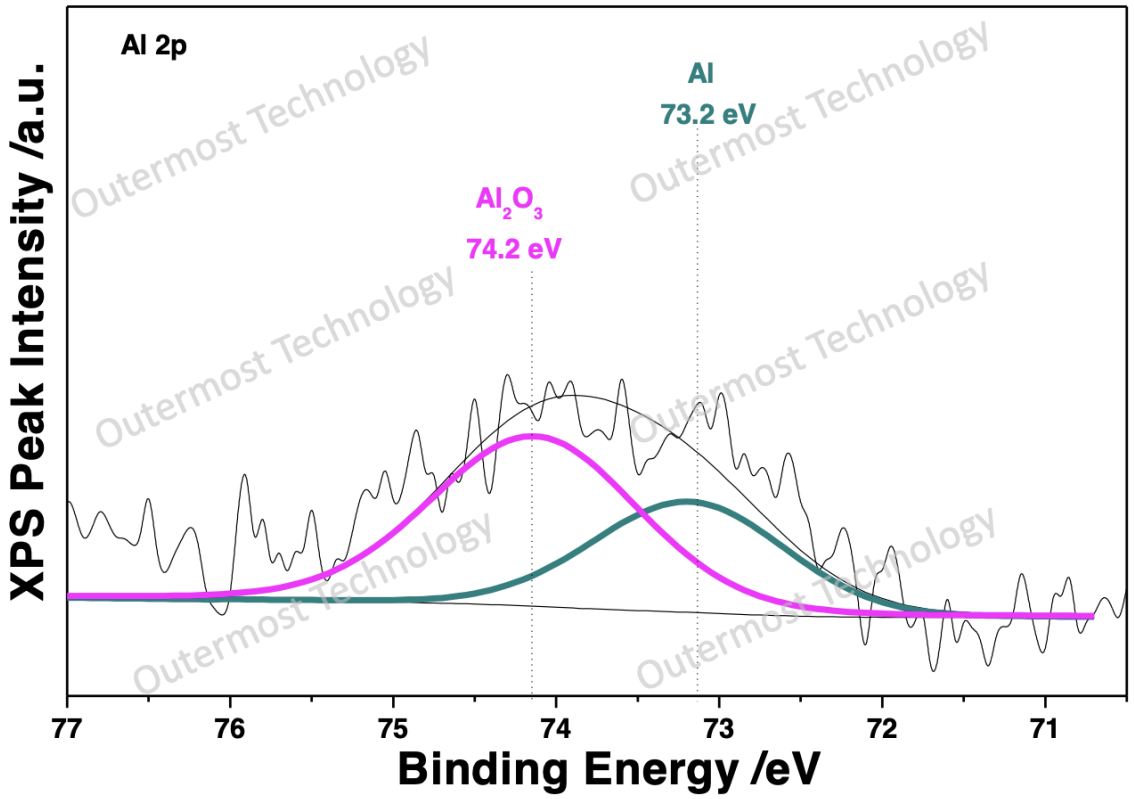

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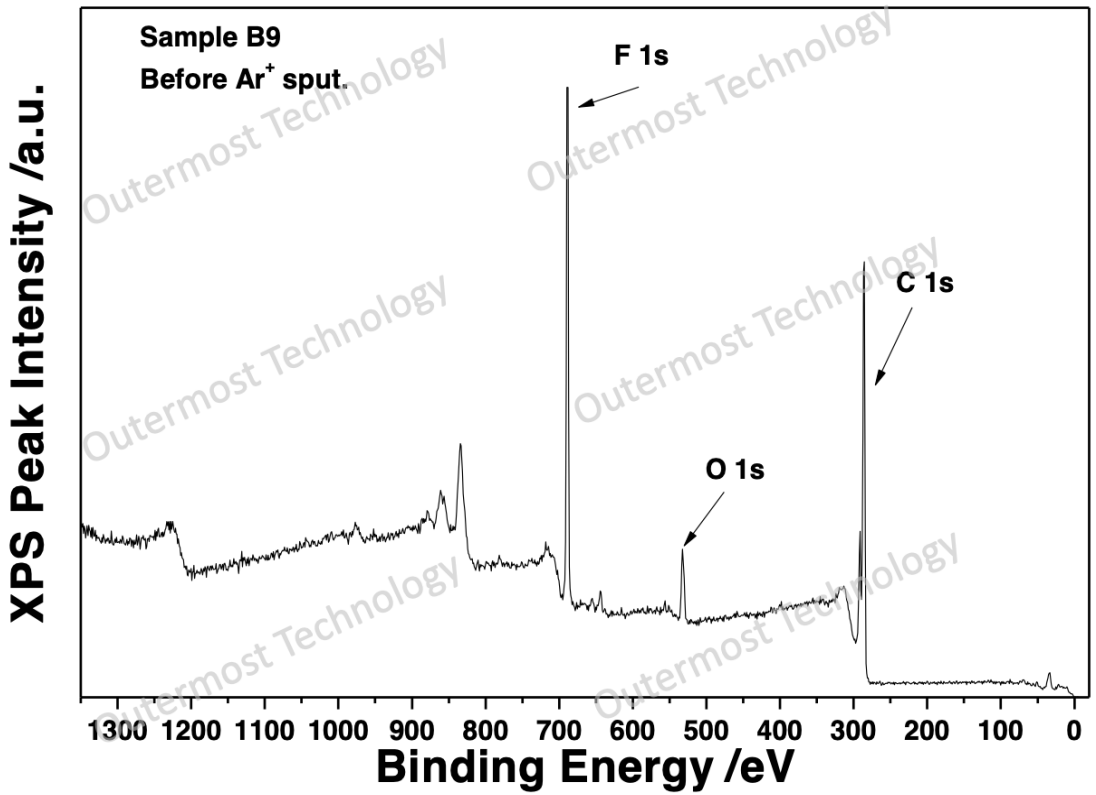
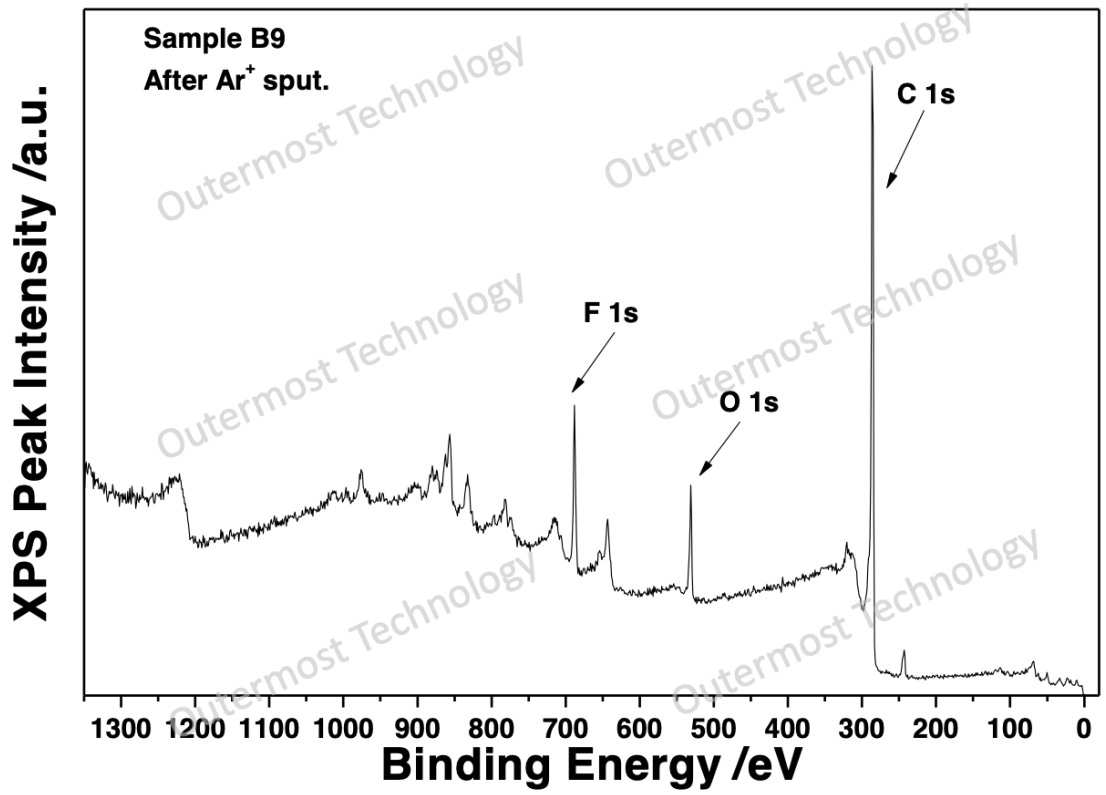
As received



After etch



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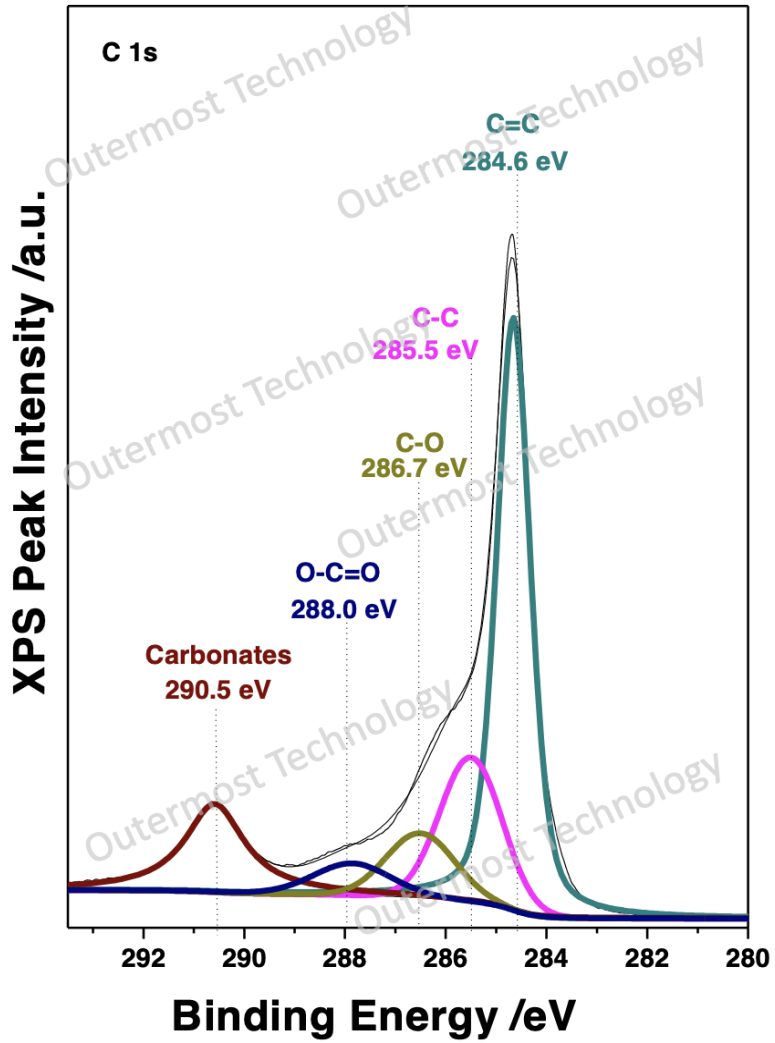

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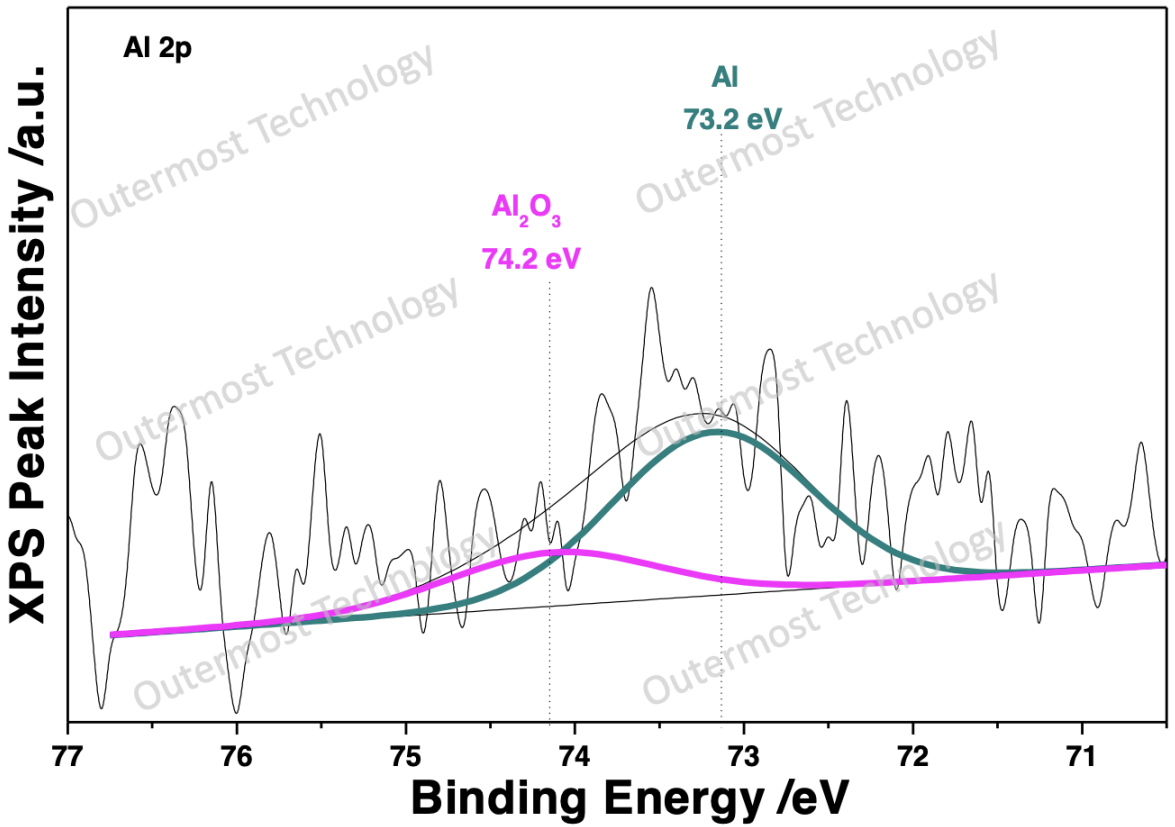
C-C (Sp3)		
C-O		
O-C=O		
Carbonates		

Results: BX as received - Deconvolution Analysis of Al 2p



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Al_2O_3		

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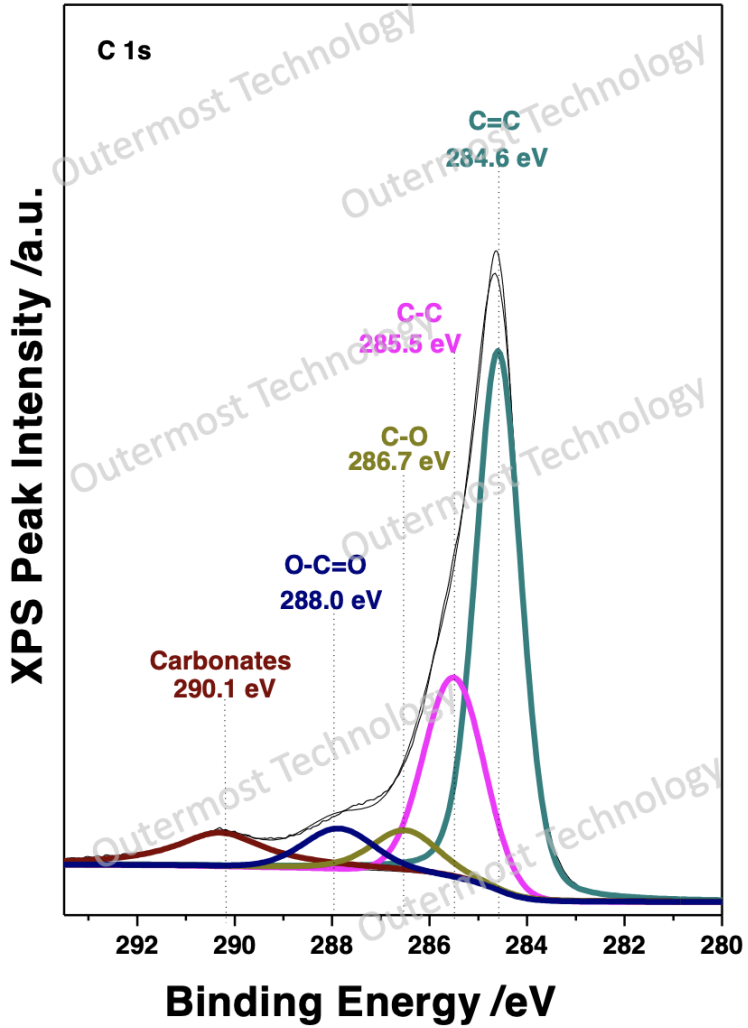

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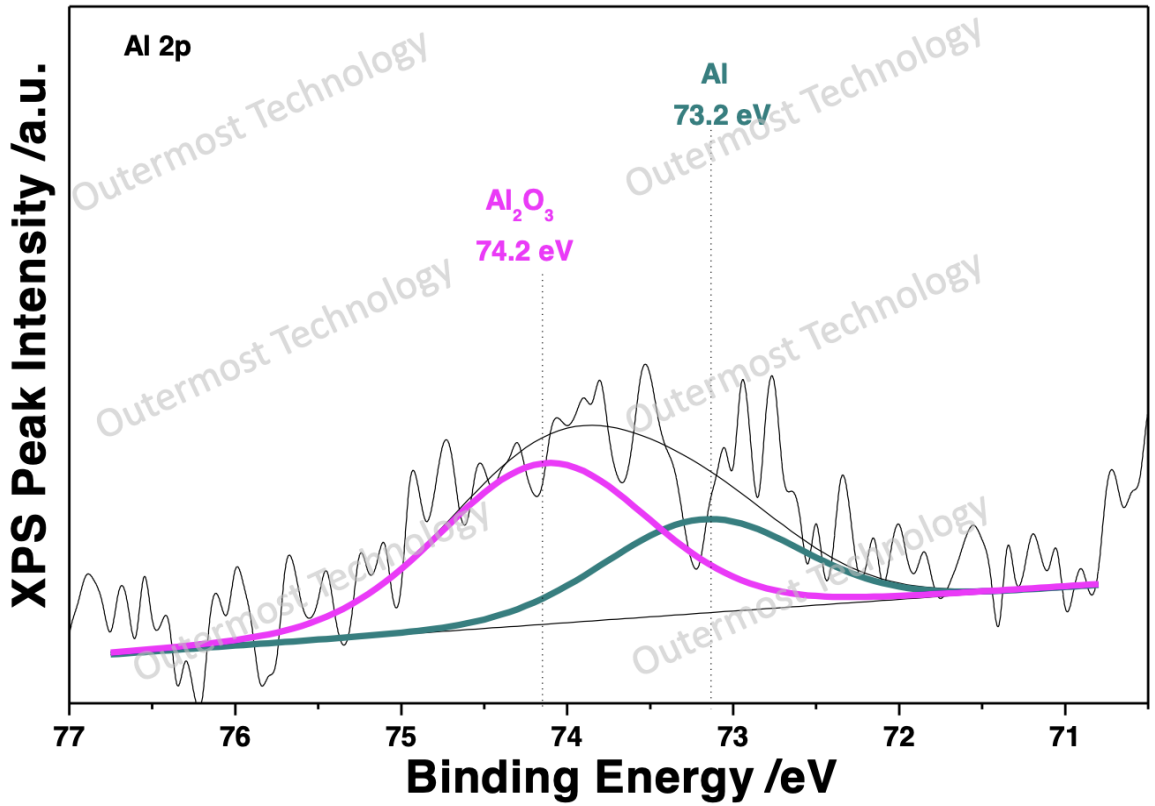

	% ratio	FWHM
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Al_2O_3		

Thank you!

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