

CHECK LIST - Operation of X-ray Photoelectron Spectroscopy K-Alpha (XPS)

Rev 1.8 Revision Date: 10 FEB 2012 Revised By: Ranjan Roy, Department of Chemical Engineering
Carefully follow the SOP, fill out this check list, sign and place it in the binder each time you use the XPS

Name: _____ Signature: _____ Date: _____
 Training 1st, 2nd, 3rd, Operation : Supervisor: _____

SOP 1: Sample Verification

Task	Reminders	Check List /Comments
Sample	Is the sample free of VOC (Volatile Organic Components) oil or grease? Is the sample susceptible of heavy degassing (porous)? The sample should never have been handled with bare hands.	<input type="checkbox"/>
Type	Is the sample liquid free	<input type="checkbox"/>

➤ SOP 2: Set-up

1: Instrument Verification before Run

Task	Reminders	Check List /Comments
N ₂	Bottle Pressure: Min: 500 psig Line Pressure: 10-15 psig	<input type="checkbox"/> <input type="checkbox"/>
Air	Valve Open Line Pressure: 65 psig	<input type="checkbox"/> <input type="checkbox"/>
Chiller	Temperature: 20°C	<input type="checkbox"/>
Argon	Bottle Pressure: Min: 500 psig Line Pressure: 10-15 psig	<input type="checkbox"/> <input type="checkbox"/>
Load Lock	Empty (look in instrument)	<input type="checkbox"/>

2: Preparing Work Area

Task	Reminders	Check List /Comments
Gloves	Wear gloves	<input type="checkbox"/>
Prep Table	Place Aluminum foil on table	<input type="checkbox"/>
Tape	NEVER LEAVES THE LAB (Cu and C)	<input type="checkbox"/>
Plate	Surface Clean- NEVER LEAVES THE LAB	<input type="checkbox"/>
Log-in	Log-in to the log book	<input type="checkbox"/>

➤ SOP 3: Prepare Sample

Task	Reminders	Check List /Comments
Gloves	Put gloves back on	<input type="checkbox"/>
Plate	Pin sample on holder	<input type="checkbox"/>
Screw	See if they are loose	<input type="checkbox"/>
Height	Check Sample Height (min and max)	<input type="checkbox"/>

➤ SOP 4: Preparing Instrument

Task	Description	Check List /Comments
Load Sample	Verify Software instructions Load sample in LOAD LOCK	<input type="checkbox"/>
Position	Verify TOP LEFT PANEL on screen Ensure sample holder is in correct orientation A top Right and B below it	<input type="checkbox"/>
Command	Verify Current Command: "Vent Entry Lock"	<input type="checkbox"/>

SOP 5: Instrument Run

Task	Description	Check List /Comments
------	-------------	----------------------

CHECK LIST - Operation of X-ray Photoelectron Spectroscopy K-Alpha (XPS)

Rev 1.8 Revision Date: 10 FEB 2012 Revised By: Ranjan Roy, Department of Chemical Engineering

Load Lock	Closed	<input type="checkbox"/>
Parking Position	Pump down "Entry LOAD LOCK"	<input type="checkbox"/>
Analysis Pressure	Check Vacuum below $5-6E^{-9}$ Verify Current Command	<input type="checkbox"/>
Picture	Print Key-takes screen capture (optional)	<input type="checkbox"/>
Moving	Move sample to chamber 1-Keep an eye on pressure $5-6E^{-9}$ (Record it) 2-Current Command-Analysis Pressure ideal ($6 E^{-9}$) 3-If not, it will time out-redo loop two time then stop	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

➤ SOP 6: Experiment

Task	Description	Check List /Comments
Experiment	File New Experiment or Open Experiment	<input type="checkbox"/>
Project	1. Project Root-Set-up file as required 2. Must be XPS Users 3. First Sub Folder Experiment (change as required)	<input type="checkbox"/> Name:
Depth	1. Use icon decide depth profile or not 2. Turn on X-ray-X-ray gun 3. X-ray Spot Size can change 4. Flood Gun: for insulator 5. Type: Point/Line/Area 6. Set-up Spectrum	<input type="checkbox"/> <input type="checkbox"/>
Move	Double click on position	<input type="checkbox"/>

➤ SOP 7: Running

Task	Description	Checklist
Focus	Adjust Camera View	<input type="checkbox"/>
Green	Take spectrum (Run Experiment)	<input type="checkbox"/>

➤ SOP 8: Data Analysis

Task	Description	Checklist
Processing	Click processing view	<input type="checkbox"/>
Move	Move Spectrum data to processing view	<input type="checkbox"/>
Identify	Identify peaks of interests and analyze	<input type="checkbox"/>

➤ SOP 9: Shutdown

Task	Description	Checklist
Gun	"Shut Down" all guns	<input type="checkbox"/>
Tab	Close all gun tabs	<input type="checkbox"/>
Move	Move sample from Analysis Chamber to Load Lock	<input type="checkbox"/>
Sample	Remove sample from Load Lock and return instrument to Park position	<input type="checkbox"/>
Data	Recover all data and Processing views	<input type="checkbox"/>
Avantage	Exit Avantage software and log out (never switch users)	<input type="checkbox"/>
Problem	Record, Report any problems in the logs and by emailing	<input type="checkbox"/>