

X-ray Diffraction Calibration Procedures

Calibration of the X-ray Diffractometer will be performed a minimum of once per month. However, calibration is not limited to once per month and can be performed as needed.

Load quartz standard slide into sample chamber.

Using “**X-ray Diffraction Operation Guidelines**”, acquire a diffraction pattern for the quartz standard. For calibration purposes, ensure that the following variables are set as follows:

kV=30.0 mA=20.0

axes to scan: coupled

2 theta start = 5.0 2 theta end = 65.0 step size = 0.05 deg/min = 6.0

scan mode: continuous scan

The auto file ID should be named by typing “cb” followed by the numerical abbreviation for the date on which the calibration is performed. For example if the calibration procedure is performed on May 7, 2000 then the auto file ID should be named “cb050700”.

Once the diffraction pattern is acquired, use “**X-ray Diffraction Operation Guidelines**” and the “**Materials Data JADE XRD Pattern Processing**” manual in conjunction with the **MDI JADE 5.0** software in order to identify the diffraction pattern. Use the **Analyze** and **Find Peaks** options to locate major phases in the diffraction pattern (the default variables are suitable for finding peaks). Use the **Identify** and **Search/Match** options to identify the diffraction pattern (search the **Inorganics Subfile** - all other default variables are suitable for identification purposes).

Print the Search/Match hit list.

Print the diffraction pattern.

Staple these printouts together and file them in the XRD Calibration Folder.

Record the date, calibration standard, search/match results, and user initials in the XRD Calibration Log.

NOTE: “X-ray diffraction Operation Guidelines”, “Materials Data JADE XRD Pattern Processing” manual, XRD Calibration Log and Folder, and other XRD reference materials and Logs are located at the XRD user station.

Approved_____Date_____