

# Planning for Paris-Edinburgh Cell Sample Loading for Remote Measurements at HPCAT

By HPCAT Staff, September 3<sup>rd</sup>, 2020

## Overview

The Limited Operations phase of Argonne's return to work plan allows for non-COVID related sample material to be shipped to the APS for measurement. Starting November 1<sup>st</sup>, HPCAT will accept Paris-Edinburgh (PE) sample cells that have been properly loaded, shipped, and scheduled to be measured on the 16-BMB beamline. HPCAT will provide standard cell parts for the sample loading. In order to assure the highest probability for success in these measurements, several key procedures must be followed during cell preparation, handling and scheduling.

## Cell Preparation

- At this time, the APS allows samples categorized as low hazard level, as well as some materials that have been categorized as medium hazard level. If your material has been classified as medium hazard level on previous ESAFs, it is recommended that you submit an ESAF five weeks ahead in order to confirm that the sample will be allowed.
- In discussion with beamline staff, carefully consider the number of samples to be measured and the need for any back-up copies of sample cells.
- Once the number and configuration of the sample cells have been determined, please allow a week for fabrication and shipping of the cell parts. For users outside U.S., this could be two weeks.
- The cell parts that HPCAT will provide and ship to you include the graphite heater and all parts external to it. The sample capsule assembly inside the heater should be discussed with your local contact. In many cases, HPCAT will be able to supply the sample capsule as well. If this option is possible for your samples, please measure samples precisely and relay any variations in sample height and diameter to the beamline staff. The samples themselves are the responsibility of the individual user.
- Please allow an additional week (or longer for users outside U.S.) for cell loading and return shipment to the APS.

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## Cell Preparation

- Carefully consider the number of samples, discuss the need for any back-up copies with beamline staff.
- Sample dimensions are crucial, please measure samples precisely and relay any variations in sample height and diameter to beamline staff.
- Plan on a week to ten days for fabrication and shipping of the cell parts.
- Please allow an additional week for cell loading and return shipment to the APS.

## Shipping and handling

- Cells must be individually packaged and labeled. Please send a summary sheet with a full description of the sample material and the intended pressure/temperature conditions for each cell.
- Safety Data Sheets (SDS) for the sample material must be supplied by the user (an emailed PDF file is sufficient). This will facilitate return shipping if post-experiment analysis is required for a particular sample, and disposal by APS personnel if the cell is to be discarded.
- PE sample cells for remote experiments must be addressed to:  
Curtis Kenney-Benson  
9700 S. Cass Ave., Bldg. 434E  
Lemont, IL 60439  
Ph: 630-252-0495 Cell: 815-514-4278  
Email: curtkb@anl.gov

## Scheduling

Due to limitations on the number of staff allowed on site on any given day, as well as the need to share critical fabrication equipment with other staff, extra time must be allocated for machining cell parts, packing and unpacking cell assemblies, and prepping the assembled cells to go into the press. The timeline for a successful PE experiment during remote operations begins at least a month before the scheduled beamtime. A week, or more, should be devoted to communications with the beamline scientist to finalize the experimental parameters. A week to ten days will be spent on fabricating parts at the APS and shipping them to the user's home institution. Several days should be devoted to loading, depending on the type of cell used, and two more for returning the loaded cells to the APS. Completed cells must arrive at HPCAT at least two business days before the beginning of the scheduled beamtime.

