

## Instrument Hazards and Best Practices: XPS

This document will cover the inherent hazards when utilizing this piece of equipment as well as the best practices and procedures to avoid danger.

**Lab coats are to be provided by the user.**

### Hazards:

- Chemical exposure
- Vacuum chamber
- X-ray exposure

### 1. Required PPE

Appropriate laboratory attire is required at all times in the AMSEC laboratories. Whenever chemicals are being used, an additional requirement of a lab coat is required. Lab coats are to be provided by the user.

Whenever a user is in the AMSEC labs, the minimum requirement for eye protection is wrap around impact glasses. Anytime liquid chemicals are present in the same room as the user without a direct barrier, all users in the lab must wear chemical splash goggles. Splash goggles must be approved by State of Washington Administrative Code (WAC 296-155-215).

If chemicals being used are considered toxic, caustic, corrosive, flammable solvents, carcinogenic, mutagenic, or teratogenic, a minimum of disposable nitrile gloves is required. Avoid chemical transfer by taking off gloves when using anything other than the chemical(s).

### 2. Vacuum chamber

The XPS utilizes a vacuum chamber which is under control of the user. It is possible for the vacuum chamber to fail catastrophically. If this event occurs, the user may hear a loud sucking noise and/or pump malfunctions which will most likely be loud and sound like metal grating or colliding. If any of these symptoms of catastrophic failure are observed, evacuate the lab as soon as possible notifying any other lab occupants. Notify the lab manager immediately.

### 3. X-ray exposure

The XPS utilizes X-rays in normal operation. Due to the nature of the X-ray gun, it is nearly impossible for a user to be exposed to them. At no time should anyone tamper with or attempt to dismantle or repair any part of the instrument. All users of the XPS are required to participate in the X-ray radiation safety training course on Canvas. No user may have access to the instrument without passing the quiz at the end of the course with an 80% or higher. Contact the lab manager to access the quiz if you have not done so. If you already have access to the instrument but have never taken and/or passed the course, you must do so immediately.