Working Safely with Toxic Powders

Use the Hierarchy of Controls to manage risk:

Elimination, Substitution, Engineering Controls, Administrative Controls and PPE

Exposure to Toxic Powders

- Powders can be inhaled if they become airborne.
- Powders can be ingested if they settle on surfaces or contaminate your hands or food.

Prevent Exposure to Toxic Powders by Following these Steps:

- Use Engineering Controls to handle these materials safely: work in a certified chemical fume hood, exhausted biosafety cabinet (BSC), or other exhausted hood. Required when working with particularly hazardous substances (PHS's) in powder form.
- Do not handle toxic, harmful or irritating powders near someone's desk or near where food is prepared or consumed (Administrative Control).

If you need to weigh a toxic, harmful or irritating powder but cannot position the balance inside a fume hood or exhausted BSC, consider using one of the following alternatives:

- Purchase the material in liquid form to avoid handling the powder altogether (Elimination), or
- Purchase in pre-weighed amounts, preferably in a sealed vial with a septum so the diluent can be injected directly into s vial (Administrative Control – Safe Work Practice), or
- Purchase an exhausted balance enclosure (Engineering Control), or
- Follow the steps below to safely weigh the material using a balance that is not in a hood or BSC.

Safe Weighing of Powders When your Balance is not in the Hood

- Tare (pre-weigh) an empty container with a lid.
- Go to fume hood or exhausted BSC, add approximate amount of powder to container, and close lid.
- Return to the balance and determine mass of powder.
- Return to the fume hood or exhausted BSC to prepare your solution using a proportional formula to reach the proper concentration/dose. There should be no leftover powder.

NOTE: There are only a few exhausted BSC's on campus, most are Class II A2 models which are not exhausted. Do not use a Class II A2 BSC for work with Particularly Hazardous Substances (PHS).