

Standard Operating Procedure
for work with

Chemical name/class: <u>Reagents for SPR Assays</u>	CAS #: <u>Various</u>
PI: <u>Mark Walters</u>	Date: <u>June 3, 2024</u>
Building: <u>Fitzpatrick CIEMAS</u>	Room #: <u>Sample Prep and Optical Lab</u>
Designated Work: <u>Surface Plasmon Resonance (SPR) Assays</u>	

1. **Circumstances of Use:**

Reagents used with the Surface Plasmon Resonance (SPR) instrument in SMIF include: Ethanolamine, Ethylenediaminetetraacetic Acid (EDTA) Solution, Glycerol Solution, Glycine Buffer, HEPES Buffer, and Nickel(II) Chloride Solution. These reagents are used in SPR assays for surface deactivation, regeneration, and chelation on the sensor chip.

Note: this list does not include reagents for amine coupling – see SOP “Amine Coupling Reagents for SPR”

2. **Potential Hazards:**

Consult the Safety Data Sheet (SDS) for the particular reagent you are using

Be aware of these specific hazards:

- Contact with skin and eyes may cause irritation. Harmful if swallowed.
- Ethanolamine (pH 8.5) and glycine buffer (pH 1.5 – 2.5) are corrosive, and contact with skin and eyes can cause serious irritation, burns, and damage.
- Nickel(II) chloride solution may cause an allergic skin reaction and sensitization.

Glycerol (70%) solution (“BIANormalizing Solution”) and HEPES buffer are not categorized as hazardous.

3. **Engineering Controls:**

- An eyewash and safety shower are available nearby.

4. **Work Practice Controls:**

- Keep containers closed as much as possible. Only open a container when you are wearing the proper PPE (section 5).
- Contaminated items are to be disposed of properly as hazardous waste, following SMIF’s hazardous waste policy (see section 7).

5. **Personal protective equipment (PPE):**

Sample Prep Lab and Optical Lab

- Fastened lab coat
- Nitrile gloves
- Safety glasses or goggles

6. **Transportation and Storage:**

- Reagents must be in sealed shatter-resistant containers at 2-8°C, protected from direct sunlight in a dry, cool and well ventilated area. HEPES buffer may be stored at 4-30°C.
- Wear the designated PPE (section 5) when transporting a container.

7. **Waste Disposal:**

Liquid Waste

Pour waste into the acid hood sink drain for proper disposal. These drains lead into a house acid waste neutralization system.

- Press the **Drain** button to open the drain
 - The drain will not open if chemicals are above 50°C
 - The drain has a water dilution in it to reduce the chemical waste concentration
- Rinse the sink with water from the gooseneck or water sprayer after draining chemicals to wash out any residues
- Press the **Drain** button to close the drain. **Do not leave the drain open if it is not needed.**

Solid Waste

Solid materials that are contaminated with waste (such as wipes, dispensers, etc.) should be packed into a zip lock bag and properly labeled with the type of waste, your name, and date. The waste bag should be completely sealed.

- Bagged and labeled solid waste can be left in the back of the acid hood for pickup by SMIF staff
- Empty reagent bottles should be rinsed in the sink and left in the acid hood for pickup by SMIF staff

8. **Exposures/Unintended contact:**

Contact Employee Occupational Health and Wellness (EOHW) at 919-684-3136 for medical advice on occupational chemical exposures. For an actual chemical exposure

- Flush exposed eyes or skin with water for at least 15 minutes.
- If there is respiratory irritation associated with exposure, remove all persons from the contaminated area and contact the OESO spill team.
- Exposed persons should seek immediate medical attention at the nearest emergency department/
- Call 911 from a campus phone or 919-684-2444 from any phone to request assistance if needed. Contact Employee Occupational Health and Wellness at 919-684-8115 for exposure-related advice.

The work-related injury or illness report found at: <http://www.hr.duke.edu/benefits/medical/workcomp/report.php> should be completed within 24 hours. Follow-up medical attention should be sought through Duke Employee Occupational Health and Wellness (919-684-3136).

9. **Spill Procedure:**

In the event of a spill, follow SMIF spill procedures and immediately contact SMIF staff. Only SMIF staff and/or appropriate OESO personnel should clean up spills

Spills Contained Inside a Chemical Hood

- Avoid breathing vapors from the spill and leave the immediate area of the chemical hood
- Alert people in the immediate area of the spill
- Notify SMIF immediately by calling emergency numbers posted near the phone
- Wait for instructions from SMIF or for SMIF personnel to arrive to complete the clean-up of the affected area.

Spills Outside of a Chemical Hood

- Attend to injured or contaminated persons and remove them from exposure
- Press the closest manual alarm button (blue box) and evacuate the lab
- Make yourself available to the SMIF staff and/or emergency responders and be prepared to tell the following:
What chemical(s) are involved, how much was spilled, where the spill is located, nature of any injuries

10. **Training of personnel:**

- All personnel are required to complete the SMIF General Lab Safety session and the SMIF Chemical Safety and Wet Hood training session.
- All personnel shall read and fully adhere to the *Wet Hood Operating Procedure* and the *SMIF Lab Safety and Procedures Manual*