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| **Duke OESO Guidelines for Safe Use of**  **Sulfuric acid**  ***Complete Lab-Specific Safety Information on page 2*** | | | | |
| **Hazards** | **Potential Hazards** | * **Corrosive** - causes **severe** skin **burns** and serious **eye damage**. Corrodes metals. * **Reacts** with most **metals** to produce **hydrogen gas**, which is **flammable** and **explosive**. * Can **react** with many substances to **generate highly toxic products**. Reactions may be violent. * Possible **carcinogen** and particularly hazardous substance. * OSHA Permissible Exposure Limit (PEL) is 1 mg/m3 over 8 hours. * For more information, see the SDS and the [Lab Chemical Safety Summary for Sulfuric Acid](https://pubchem.ncbi.nlm.nih.gov/compound/1118#datasheet=lcss&section=Top). | | |
| **Hazard Controls** | **Selection & Purchase** | * Purchase the smallest, shatter resistant containers (such as PVC-coated glass), at **the lowest concentration possible.** * Consider alternate methods and **use a less dangerous acid if possible**. * Buy inert absorbent or spill pads that can be used to absorb small spills of sulfuric acid. | | |
| **Storage & Transport** | * 03-439, 03-439AStore in **secondary containment** in a **well ventilated area.** * **Store away from incompatibles** such as organics, bases,   halides, nitrates, chlorates, reducing agents, and others.   * **Transport in secondary containment**, preferably a   Polyethylene or other non-reactive acid/solvent bottle carrier.   * Store **below eye level** but **not on the floor**. * Store **away from metal** and **do not** store under the sink. | | |
| **Engineering Controls** | * **Eyewash/drench hose** is **required** in **immediate work area.** * **For large quantities a safety shower will also be needed.** * Work in a **clean** **chemical fume hood** free of incompatible materials. | **Eye Shower, Eye Wash, Rinse Eyes, First Aid, Sign**Safety Shower, Shower, Douche, HelpChemical Fume Hood Flow Diagram | |
| **Work Practice Controls** | * **When diluting, add acid to water slowly**, in small amounts. (Never add water to acid!) * *Work with the smallest practicable amount and lowest practicable concentration.* * **Decontaminate work area** by wiping it down with a soap and water solution. | | |
| **Personal Protective Equipment**  **(PPE)** | * Wear **closed-toed shoes** and **clothing covering the legs**. * **nitrile glovesnitrile gloves**Ansell Disposable Glove: Neoprene, M Size, 5.1 mil Glove Material Thickness, 9 1/2 in Glove Lg, Textured, Green, 100 PK**Minimum PPE:**   or   * + Buttoned lab coat   + Safety **goggles**   + 5 mil **NEOPRENE** gloves or **2** pairs of 4 mil **NITRILE** gloves for   10 - 30 minutes of protection. *Change immediately if splashed*. | | lab coat2North Silver Shield® Gloves, Silver, 29" Long, Size 8  If glove contact is expected  or |
| * **Risk of splash/work with >100 ml** add: face shield, impervious   apron & sleeves (or coverall).   * **For expected glove contact** use gloves rated for > 60 minutes with sulfuric acid (e.g., laminate or butyl). * **Wash hands** at time of glove change. | | Image result for butyl gloves8400131-243XE79_AS01?$zmmain$ |
| **Other** | **Emergencies** | * See Emergency Response [webpage](https://www.safety.duke.edu/emergency) or flip chart and/or lab specific chemical hygiene plan. * For clean-up of *small* spills (<200 ml), wear butyl or laminate gloves and neutralize with sodium carbonate from edge to center, then absorb with **inert** material. Do not use combustible materials such as saw dust to absorb sulfuric acid spills! | | |
| **Waste** | See lab-specific chemical hygiene plan, [Lab Chemical Waste Management Practice](https://www.safety.duke.edu/environmental-programs/hazardous-waste/chemical-waste), and [Drain Disposal Practice](https://www.safety.duke.edu/environmental-programs/hazardous-waste/chemical-waste). **DO NOT MIX sulfuric acid waste with incompatible wastes (e.g., organics)!!!** | | |
| **Training** | Sign signature page in lab-specific chemical hygiene plan to indicate review. | | |
| **Questions** | Contact OESO Lab Safety at 919-684-8822 or [labsafety@dm.duke.edu](mailto:labsafety@dm.duke.edu) | | |

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|  | | **Lab-Specific Safety Information for**  **Sulfuric Acid**  ***Supplements the Guidelines for Safe Use of Sulfuric Acid*** | | | |  |
| **Lab** | **PI Name** | Click or tap here to enter PI Name | | | | |
| **Location** | Enter building(s) and room(s) where lab is located | | | | |
| **Lab-Specific Hazard Controls** | **Purchase**  **Details** | Maximum container size | Enter maximum container size purchased | | | |
| Maximum concentration | Enter maximum concentration purchased | | | |
| Container type | Enter the container material | | **Purchase in PVC coated or HDPE “poly” bottle if possible** | |
| Specific product information | Enter supplier name/product number or purity/grade to purchase | | | |
| **Storage** | Specific location | Enter rooms and areas designated for storage | | | |
| **Use Information** | Designated work area  (specific room(s) and area(s)) | Enter rooms and areas designated for use | | | |
| Maximum quantity | Enter maximum quantity to be used at a time | | | |
| Gloves  (Note other PPE requirements in Guidelines) | If glove contact is **NOT** anticipated  5 mil **NEOPRENE** gloves  OR  **2** pairs of 4 mil **NITRILE** gloves | If glove contact **IS** anticipated  Laminate  OR  Butyl | | |
| PPE Storage Location | Enter location where specific PPE above is stored (e.g. specialized gloves, sleeves, apron, etc.) | | | |
| Location of supplies for  spill clean-up | Enter location of spill supplies (sodium carbonate and inert absorbent) | | | |
| **Waste Information** | Details about waste (location, type of container) | Enter location of waste container, type of container used | | | |
| **Details of Process** | 1. Enter steps used in lab process(es) or experiment(s) | | | | |