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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).
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| **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.
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| **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.
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| **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.
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| **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 8If glove contact is expectedor |
| * **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!
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| **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 |

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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[ ]  LaminateOR [ ]  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)
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