

Xing Dai Lab Chemical SOPs

Outlines: This section must describe lab-specific procedures to address the safe use of all highly hazardous chemicals from this band in use in laboratory. These may organized around specific chemicals, specific tasks or the band as a whole. The following minimum requirements must be met:

- (1) Identify designated use areas within the laboratory for highly for following bands--Carcinogens, reproductive toxins, and toxic chemicals
- (2) Identify maximum use quantities for which the procedures in this band apply
- (3) If it is determined that this hazard band SOP is sufficient to address the safe use of all subject chemicals in this lab, then include the following statement in this section:
"Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations."
- (4) If it is determined that this hazard band SOP is not sufficient to address the safe use of all chemicals from that band in the lab, then write a lab-specific procedures for to address these high hazard operations. Such operations are generally indicated by:
 - (a) Tasks requiring the use of specialized PPE
 - (b) Tasks using highly hazardous chemicals outside of the fume hood
 - (c) Tasks using larger quantities of hazardous chemicals
 - (d) Tasks involving the use of particular chemicals considered by UCI EHS to be extremely hazardous
 - (e) Tasks considered to present high risk by lab personnel

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STRONG CORROSIVE CHEMICAL:

TEMED:

-Major lab use: SDS-PAGE gels

-Maximum quantities: Some variation depending on how many gels are simultaneously made but no more than 25uL are used at once.

-Is hazard band SOP sufficient? Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations. To reiterate, it is critical TMED is utilized in the fume hood due to extreme odor and the user has adorned all appropriate PPE.

-Storage location: TMED is stored in the cabinet under the fume hood, right side with other organics.

Ferrous Ammonium Sulfate:

-Major lab use: Protein precipitation, very typical for large scale protein precipitation preparation. Key active component is the ammonium sulfate.

-Maximum quantities: Comes in powder form but large volume of solution is typically made. Procedures can of course be scaled depending on scale of precipitation but it is typical to make various 1L batches of varied molarity of 3-4M requiring ~500g of powder.

-Is hazard band SOP sufficient? Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations.

-Storage location: Ferrous ammonium sulfate is stored as powder on chemical shelf.

Acetic Anhydride:

-Major lab use: A common pre-treatment of acetylation during in situ hybridization when using RNA probes. This helps with reducing background.

-Maximum quantities: Typically added at a low percentage (~0.25%) to triethanolamine and water. Exact amount varies depending on how much bulk solution is made but typically less than 1mL is sufficient in make a bulk solution of 400mL.

-Is hazard band SOP sufficient? Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations.

-Storage location: Acetic anhydride is stored in the cabinet under the fume hood, right side with other organics.

Phenol:

-Major lab use: For RNA or DNA isolation and purification

-Maximum quantities: Exact amount varies depending on how much bulk solution is made but typically less than 100 mL is sufficient in make a bulk solution of 200 mL. Typical day to day usage for DNA/RNA isolations would be under 1mL.

-Is hazard band SOP sufficient? Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity

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limitations. To reiterate, it is critical Phenol is utilized in the fume hood due to extreme odor and the user has adorned all appropriate PPE

-Storage location: Phenol is stored in the cabinet under the fume hood, right side with other organics.

Piperidine: *STORE*

-Major lab use:

-Maximum quantities:

-Is hazard band SOP sufficient? Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations.

-Storage location: Acetic anhydride is stored in the cabinet under the fume hood, right side with other organics.

Sodium Pyruvate: *STORE*

-Major lab use:

-Maximum quantities:

-Is hazard band SOP sufficient?

-Storage location:

Potassium Hydroxide: *STORE*

-Major lab use:

-Maximum quantities:

-Is hazard band SOP sufficient?

-Storage location:

Sodium Hydroxide:

-Major lab use: Typically used for the hydroxide to balance pH levels. A denature solution is also used (NaOH + NaCl combination).

-Maximum quantities: Typical working stocks can vary but are typically between 1-5M and usually in volumes 100-250mL as generally only a few milliliters are used to balance pH. To make a 250mL 5M stock solution, 50g of NaOH pellets would be required. Denature solution is made with 80g of NaOH pellets with NaCl in a 4L solution.

-Is hazard band SOP sufficient? Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations. Note that when dissolving NaOH, this reaction generates heat. It is recommended to place the glass bottle on ice while mixing in order to reduce heat.

-Storage location: Sodium hydroxide is stored as powder on chemical shelf. Solutions of sodium hydroxide used for pH balancing are above the pH meter.

Sarkosyl: *STORE*

-Major lab use:

-Maximum quantities:

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-Is hazard band SOP sufficient?

-Storage location:

Sodium Borohydride: **STORE**

-Major lab use:

-Maximum quantities:

-Is hazard band SOP sufficient? Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations.

-Storage location: In a box on the dry chemical rack under "S".

-Note to user: Safety considerations: Sodium borohydride (NaBH₄) decomposes rapidly in water (especially if acidic). The reaction is exothermic and produces diborane gas (toxic), hydrogen gas (flammable), and boric acid (weak acid).

Imidazole: **STORE**

-Major lab use:

Excellent for buffers in the range of pH 6.2-7.8

-Maximum quantities: Less than 5 g

-Is hazard band SOP sufficient? Do not handle until all safety precautions have been read and understood Use personal protective equipment as required Wash face, hands and any exposed skin thoroughly after handling Do not eat, drink or smoke when using this product Do not breathe dust/fume/gas/mist/vapors/spray Use only outdoors or in the fume hood

-Storage location: on the dry chemical rack under "I"

Phenylmethylsulfonyl Fluoride:

-Major lab use: Protease inhibitor

-Maximum quantities: 10 ul

-Is hazard band SOP sufficient? Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations.

-Storage location: -20 C Xianghui's CHIP box

Formic Acid:

-Major lab use: RNA gels

-Maximum quantities: 100 ml

-Is hazard band SOP sufficient? Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations.

-Storage location: on the dry chemical rack under "F"

Acetic Acid (Glacial):

-Major lab use: Multiple fixation, like Bouin's fixative, Carnoy's Fix.

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-Maximum quantities: Typically added 10% to CHCL₃ and EtOH. Exact amount varies depending on how much bulk solution is made but typically less than 1mL is sufficient in make a bulk solution of 100 mL

-Is hazard band SOP sufficient? Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations. To reiterate, it is critical Acetic Acid is utilized in the fume hood due to extreme odor and the user has adorned all appropriate PPE

-Storage location: It is stored in the cabinet under the fume hood, left side with other organics.

Clarifier 2:

-Major lab use: H/E staining (recommended for use with Hematoxylin 2)

-Maximum quantities: 600 uL (used to dunk slides for 30 seconds to 1 minute)

-Is hazard band SOP sufficient? Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations. To reiterate, it is critical Clarifier 2 is utilized in the fume hood due to odor and the user has adorned all appropriate PPE.

-Storage location: It is stored in the cabinet under the fume hood.

Glacial Acetic Acid:

-Major lab use: Multiple fixation, like Bouin's fixative, Carnoy's Fix.

-Maximum quantities: Typically added 10% to CHCL₃ and EtOH. Exact amount varies depending on how much bulk solution is made but typically less than 1mL is sufficient in make a bulk solution of 100 mL

-Is hazard band SOP sufficient? Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations. To reiterate, it is a good idea Glacial Acetic Acid is utilized in the fume hood.

-Storage location: It is stored in the cabinet under the fume hood, left side with other organics.

1-Butanol: *STORE*

-Major lab use: 1-Butanol is a clear, colorless alcohol that can be used for the removal of ethidium bromide from DNA purified by CsCl gradient ultracentrifugation. It is also suitable for use in the concentration of dilute nucleic acid solutions by repeated extractions, thus improving recovery by ethanol precipitation.

-Maximum quantities: Exact amount varies depending on how much bulk solution is made but typically less than 1mL is sufficient in make a bulk solution of 50 mL

-Is hazard band SOP sufficient? Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations. To reiterate, it is critical 1-Butanol is utilized in the fume hood due to extreme odor and the user has adorned all appropriate PPE

-Storage location: It is stored in the cabinet under the fume hood, right side with other organics.

Trichloroacetic Acid: *STORE*

-Major lab use:

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-Maximum quantities:

-Is hazard band SOP sufficient?

-Storage location:

Zinc Chloride: **STORE**

-Major lab use:

-Maximum quantities:

-Is hazard band SOP sufficient?

-Storage location:

Dimethyl Sulfate: **STORE**

-Major lab use: Dimethyl sulfate is mainly used as a methylating agent in the synthesis of various organic compounds.

-Maximum quantities:

-Is hazard band SOP sufficient? Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations. To reiterate, it is critical Dimethyl Sulfate is utilized in the fume hood due to extreme odor and the user has adorned all appropriate PPE

-Storage location:

Hydrogen Peroxide:

-Major lab use: Immunohistochemistry, in situ, RNAScope

-Maximum quantities: Using <31%, 50mL

-Is hazard band SOP sufficient: Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations.

-Storage location: -20C in 15mL and 50mL aliquots

-Note to user: Peroxides are sensitive to light. High concentrations of hydrogen peroxides (>25%) are known to be extremely reactive and can explode if mixed with incompatible organic compounds.

Silver Nitrate:

-Major lab use: Silver staining

-Maximum quantities: 1 gram (DOUBLE CHECK OUR LAB PROTOCOL)

-Is hazard band SOP sufficient: Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations.

-Storage location: In a box on the dry chemical rack under "S".

-Note to user: Silver nitrate can stain any exposed skin with a black/brown/color. Best to limit exposed skin.

Thymol:

-Major lab use: Preservative for carmine alum for whole mount

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-Maximum quantities: Less than 1g

-Is hazard band SOP sufficient: Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations.

-Storage location: Chemical shelf

EXPLOSIVES AND POTENTIALLY EXPLOSIVES:

Picric Acid:

-Major lab use: Saturated Picric Acid is used in Bouin's fixative.

-Maximum quantities: This reagent is used at various smaller volumes 7.5mL per 10 mL of Bouin's fixative, but usage will not exceed 200mL.

-Is hazard band SOP sufficient: Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations.

-Storage location: In the leftmost cabinet beneath the hood.

-Note to user: This chemical must be used with caution as it is explosive when dry. This reagent must be used in the hood and must be disposed of in the appropriate waste container in the hood. Do not let this item dry out.

PEROXIDE FORMING:

Formaldehyde (16%):

-Major lab use: Fixative diluted to 4% Formaldehyde

-Maximum quantities: 200mL

-Is hazard band SOP sufficient: Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations.

-Storage location: This reagent is stored in the rightmost cabinet beneath the hood.

-Note to user: Formaldehyde is classified as a human carcinogen. Short-term exposure can be fatal. Long-term exposure to low levels may cause respiratory difficulty, eczema, and sensitization. Formaldehyde must be used in the chemical hood with standard PPE. Formaldehyde should be kept away from ignition sources.

Formaldehyde (37%):

-Major lab use: Fixative in neutral formaldehyde solution and Bouin's fixative

-Maximum quantities: 300mL (although typically used as 100mL to constitute a 1L volume of neutral formaldehyde solution or 25mL to make 105mL of Bouin's fixative)

-Is hazard band SOP sufficient: Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations.

-Storage location: this reagent is stored in the rightmost cabinet beneath the hood.

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-Note to user: Formaldehyde is classified as a human carcinogen. Short-term exposure can be fatal. Long-term exposure to low levels may cause respiratory difficulty, eczema, and sensitization. Formaldehyde must be used in the chemical hood with standard PPE. Formaldehyde should be kept away from ignition sources.

Paraformaldehyde:

-Major lab use: Fixation of tissues (skin, mammary gland, and toes)

-Maximum quantities: The powder will be used at no more than 80g at a time. Reconstituted PFA will be used at different volumes depending on how many tissues are being processed, but no more than 2L is used or made at one time.

-Is hazard band SOP sufficient: Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations. You must wear a lab coat, goggles, double gloves and preferable double mask in the chemical hood when handling PFA powder.

-Storage location: PFA powder is stored in the cold room (4C). Reconstituted PFA is stored in aliquots of either 15mL or 50mL conical tubes in the -20C.

-Note to user: 4% PFA is used to fix tissue samples such as mammary gland, toes and skin either embedded in OCT or prior to paraffin embedding. 4% PFA can also be diluted down to 2% PFA and mixed with EDTA to be used as a decalcification reagent. This is a very dangerous chemical so double glove when using even the liquid form, and dispose of extra PFA in the appropriate waste container in the chemical hood. Vapors emitting from paraformaldehyde and formalin solutions are flammable, so keep away from ignition sources.

WATER REACTIVE:

Sodium Borohydride: *STORE*

-Major lab use:

-Maximum quantities:

-Is hazard band SOP sufficient: Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations.

-Storage location: In a box on the dry chemical rack under "S".

-Note to user: Safety considerations: Sodium borohydride (NaBH_4) decomposes rapidly in water (especially if acidic). The reaction is exothermic and produces diborane gas (toxic), hydrogen gas (flammable), and boric acid (weak acid).

STRONG OXIDIZER:

Silver Nitrate:

-Major lab use: Silver staining

-Maximum quantities: 1 gram

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-Is hazard band SOP sufficient: Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations.

-Storage location: In a box on the dry chemical rack under "S".

-Note to user: Silver nitrate can stain any exposed skin with a black/brown/color. Best to limit exposed skin.

ACUTELY TOXIC:

Phenol:

-Major lab use: For RNA or DNA isolation and purification

-Maximum quantities: Exact amount varies depending on how much bulk solution is made but typically less than 100 mL is sufficient in make a bulk solution of 200 mL. Typical day to day usage for DNA/RNA isolations would be under 1mL.

-Is hazard band SOP sufficient? Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations. To reiterate, it is critical Phenol is utilized in the fume hood due to extreme odor and the user has adorned all appropriate PPE

-Storage location: Phenol is stored in the cabinet under the fume hood, right side with other organics.

Glutaraldehyde:

-Major lab use: fixative and disinfectant LacZ and EM

-Maximum quantities: 10 ml

-Is hazard band SOP sufficient? Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations. To reiterate, glutaraldehyde should be used in the fume hood and lab coats, goggles, nitrile gloves, long pants and closed toe shoes must be worn.

- Glutaraldehyde exposure has been associated with irritation to the eyes, skin, and respiratory system. Other symptoms include dermatitis, sensitization, cough, asthma, nausea, and vomiting. Glutaraldehyde may affect the body through inhalation, skin absorption, ingestion, and skin and/or eye contact. **PHYSICAL HAZARDS** Glutaraldehyde is a combustible liquid. When heated to decomposition, it emits acid smoke and irritating fumes. Avoid glutaraldehyde contact with strong oxidizers and strong bases. Alkaline solutions of glutaraldehyde (i.e. activated glutaraldehyde) react with alcohol, ketones, amines, hydrazines, and proteins.

-Storage location: cabinet under the fume hood and the plastic cabinet in the fridge. Note this one is bad.

Sarkosyl: *STORE*

-Major lab use: ionic detergent and foamer

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-Maximum quantities:

-Is hazard band SOP sufficient?

-Storage location: chemical shelf

Sodium Azide:

-Major lab use: preservation of antibodies and immunofluorescence buffers

-Maximum quantities: Comes in powder form. Maximum of 15 mls of 2% solution for bench storage

-Is hazard band SOP sufficient? NO

- Sodium azide is incredibly toxic and explosive. Solutions of 10% or greater should be handled with extreme care as they are acutely toxic and can explode if heated. Solutions of 0.1 to 2% should be used as working solutions to mitigate this hazard. Sodium azide can react with heavy metals to form dangerous metal halides that can be explosive. Any solution containing sodium azide cannot be poured down the drain as a result.
- PPI and engineering controls: Since sodium azide may enter the body through all routes of entry, and importantly can be fatal if absorbed through the skin, usage of all appropriate PPI is essential. Long pants, closed toe shoes, lab coats, tight fitting chemical goggles, and double nitrile gloves are necessary when working with concentrations above 5%. Change gloves frequently especially when contaminated, torn, or punctured when using more than 5% concentration. When working with concentrations below 2%, double gloves and goggles are not necessary but a single layer of nitrile gloves is required. Sodium azide in the powdered form or concentrations above 10% must be used in the fume hood using proper fume hood technique eg. chemicals must be kept back 6 inches from the opening of the hood, the glass sash should be kept as closed as possible, and NEVER put your head into the fume hood. If the chemical must be weighed, you can tare a closed container on the scale, then move the closed container to the fume hood and place an amount of the chemical to be measured into the container and close it, and then place the sealed container on the scale to weigh. This ensures no chemical exposure. Do not allow metal to come into contact with sodium azide, eg. metal spatulas. Store tightly closed in a cool, well ventilated area away from heat, light, air, and moisture. Store in a properly labeled secondary container away from other chemicals including metals, acids, carbon disulfide, bromine, chromyl chloride, sulfuric acid, nitric acid, hydrazine, and dimethyl sulfate. Must use in a fume hood if using more than 5 ml or a concentration of more than 10%. Stock solutions should be made at 10%. Only use in the presence of a second thoroughly trained individual in case of accident. Wash hands thoroughly after use and dispose of gloves.
- First Aid measures:
 - Eye contact: immediately flush eyes with water for 15 minutes lifting upper and lower lids occasionally. Then get medical attention.

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- Skin contact: Wipe off material from skin and flush with water immediately with soap and water for 15 minutes. Remove contaminated clothing and shoes and wash before reuse. Get immediate medical attention.
- Ingestion: Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- Inhalation: Remove from exposure and to fresh air. Give oxygen if having trouble breathing. Never give mouth to mouth if a person had ingested or inhaled a hazardous chemical. Get medical attention immediately.
- Note to medical personnel: Accidental ingestion of Sodium Azide is potentially life threatening. Treatment includes gastric lavage followed by sodium catharsis. EKG and blood pressure monitoring and support are recommended.

-Storage location: Concentrated stock solution in the fume hood, dry powder on the chemical shelf

2-Mercaptoethanol:

-Major lab use: western blot

-Maximum quantities: 200 ul is used for 10 ml loading dye, 5% concentration in gels not to exceed 1.5 ml

-Is hazard band SOP sufficient? Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations. Must be used in fume hood due to strong odor.

-Storage location: cabinet under the fume hood

Sodium Fluoride: *STORE*

-Major lab use: used in some cell lysis buffers for western blot

-Maximum quantities: 2 g

-Is hazard band SOP sufficient?

-Storage location: chemical shelf

Dimethyl Sulfate: *STORE*

-Major lab use:

-Maximum quantities:

-Is hazard band SOP sufficient?

-Storage location:

HIGHLY FLAMMABLE:

Acetone:

-Major lab use: Fixation of fresh frozen tissues.

-Maximum quantities: Typically we use about 200uL maximum will be 100mL

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-Is hazard band SOP sufficient? Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations.

-Storage location: Acetone is stored under the fume hood on the right side. For fixation of tissues, it is typically stored in the -20 in a glass slide holder (typically less than 100 mL).

Ethanol:

-Major lab use: General lab cleaning, and general DNA/RNA work.

-Maximum quantities: Used at 100% for DNA isolation, used at 70% for cleaning/sterilizing general lab equipment and bench space. Lower percentages of ethanol are used for various IHC methods/dehydration steps. 100% ethanol comes in 1 gallon containers.

-Is hazard band SOP sufficient? Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations.

-Storage location: Bulk storage is in the flammable cabinet. Aliquots are stored (and properly labeled!) throughout lab (i.e. on benchtops).

Isopropanol:

-Major lab use: DNA/RNA isolation, Oil Red O.

-Maximum quantities: Typically Isopropanol is used at about 20 mL but will not exceed 100 mL.

-Is hazard band SOP sufficient? Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations.

-Storage location: Stored in the cabinet under the fume hood on the right side.

Oil Red O:

-Major lab use: Dissolved in isopropanol

-Maximum quantities:

-Is hazard band SOP sufficient? Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations.

-Storage location: Oil Red O is stored on the dry chemical shelf. Working stocks of Oil Red O are made with isopropanol and typically stored on the bench (properly labeled as flammable).

Propanol: : **STORE**

-Major lab use:

-Maximum quantities:

-Is hazard band SOP sufficient? Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations.

-Storage location: Underneath the fume hood on the right hand side.

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Sodium dodecyl sulfate (SDS):

-Major lab use: SDS page gels, DNA Isolation buffer, DNA dye, lysate buffer, and general DNA and protein buffers.

-Maximum quantities: Typically used at 10% SDS (no more than a 500mL working stock)

-Is hazard band SOP sufficient? Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations. Note: SDS is flammable in powder form.

-Storage location: SDS is in powder form stored on the dry chemical shelf. 10% working stocks (properly labeled) are stored on the liquid chemical shelf (near 1X PBS).

Vectamount-Permanent Mounting Medium/Toluene:

-Major lab use: Mounting slides

-Maximum quantities: Typically it is used at 2 mL and will not exceed 10mL.

-Is hazard band SOP sufficient? Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations.

-Storage location: Stored individually on lab benches in original stock bottle.

Xylene:

-Major lab use: IHC/histology

-Maximum quantities: 100 mL

-Is hazard band SOP sufficient? Procedures described in this hazard band SOP are sufficient for addressing the safe use of subject chemicals in this laboratory within the listed quantity limitations.

-Storage location: Stored in flammable cabinet. Working stocks are generally placed in glass slide holders (properly labeled) and can be repeatedly used in the fume hood.

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**** Regulated carcinogens require an SOP for each individual listed**

CAS Number	Chemical	Primary Band	Additional Bands
60-24-2	2-Mercaptoethanol	Acutely Toxic	Corrosive & Irritant, Flammable
1239-45-8	Ethidium Bromide	Acutely Toxic	
111-30-8	Glutaraldehyde	Acutely Toxic	Corrosive & Irritant
26628-22-8	Sodium Azide	Acutely Toxic	
7681-49-4	Sodium Fluoride	Acutely Toxic	Corrosive & Irritant
1333-82-0	Chromerge	Acutely Toxic, Peroxide-Forming	
77-78-1	Dimethyl Sulfate	Acutely Toxic, Strong Corrosive	Carcinogen
108-95-2	Phenol	Acutely Toxic, Strong Corrosive	
137-16-6	Sarkosyl	Acutely Toxic, Strong Corrosive	Corrosive & Irritant
88-89-1	Picric Acid	Explosives and Potentially Explosives	
67-64-1	Acetone	Highly Flammable	
64-17-5	Ethanol	Highly Flammable	
67-63-0	Isopropanol	Highly Flammable	
67-56-1	Methanol	Highly Flammable	
1320-06-05	Oil Red O	Highly Flammable	Corrosive & Irritant
	Propanol	Highly Flammable	
151-21-3	Sodium dodecyl sulfate	Highly Flammable	Corrosive & Irritant
	Vectamount-Permanent Mounting Medium/ TOLUENE	Highly Flammable	Corrosive & Irritant
1330-20-7	Xylene	Highly Flammable	Carcinogen, Corrosive & Irritant, Flammable
30525-89-4	Paraformaldehyde	Highly Flammable,	Carcinogen, Corrosive & Irritant

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		Peroxide Forming	
110-89-4	Piperidine	Highly Flammable, Strong Corrosive	
110-18-9	TEMED	Highly Flammable, Strong Corrosive	
30525-89-4	Formaldehyde (16%)	Peroxide Forming	Carcinogen, Corrosive & Irritant, Flammable
	Formaldehyde (37%)	Peroxide Forming	
71-36-3	1-Butanol	Strong Corrosive	Corrosive & Irritant, Flammable
64-19-7	Glacial Acetic Acid	Strong Corrosive	Flammable
108-24-7	Acetic Anhydride	Strong Corrosive	Flammable
	Clarifier 2	Strong Corrosive	Flammable
10045-89-3	Ferrous ammonium sulfate	Strong Corrosive	
64-18-6	Formic Acid	Strong Corrosive	Flammable
7722-84-1	Hydrogen Peroxide	Strong Corrosive	
288-32-4	Imidazole	Strong Corrosive	
329-98-6	Phenylmethylsulfonyl fluoride	Strong Corrosive	
1310-58-3	Potassium Hydroxide	Strong Corrosive	Corrosive & Irritant
1310-73-2	Sodium Hydroxide	Strong Corrosive	
113-24-6	Sodium pyruvate	Strong Corrosive	Flammable
89-83-8	Thymol	Strong Corrosive	
76-03-9	Trichloroacetic Acid	Strong Corrosive	Carcinogen
7646-85-7	Zinc Chloride	Strong Corrosive	
7761-88-8	Silver Nitrate	Strong Corrosive, Strong Oxidizer	
16940-66-2	Sodium Borohydride	Water Reactive	
79-06-1	Acrylamide		Carcinogen, Corrosive & Irritant
56-75-7	Chloramphenicol		Carcinogen
67-66-3	Chloroform		Carcinogen, Flammable
367-93-1	Isopropyl B-D-1 Thiogalactopyranoside		Carcinogen, Corrosive & Irritant
7791-20-0	Nickel Chloride		Carcinogen, Corrosive & Irritant
57-83-0	Progesterone		Carcinogen
124-65-2	Sodium Cacodylate		Carcinogen
62-56-6	Thiourea		Carcinogen