Standard Operating Procedure

**Digoxin**

*This is an SOP template and is not complete until: 1) lab specific information is entered into the box below 2) lab specific protocol/procedure is added to the protocol/procedure section and   
3) SOP has been signed and dated by the PI and relevant lab personnel.*

Print a copy and insert into your   
*Laboratory Safety Manual* and *Chemical Hygiene Plan*.   
Refer to instructions for assistance.

|  |  |
| --- | --- |
| **Department:** | Click here to enter text. |
| **Date SOP was written:** | Click here to enter a date. |
| **Date SOP was approved by PI/lab supervisor:** | Click here to enter a date. |
| **Principal Investigator:** | Click here to enter text. |
| **Internal Lab Safety Coordinator/Lab Manager:** | Click here to enter text. |
| **Lab Phone:** | Click here to enter text. |
| **Office Phone:** | Click here to enter text. |
| **Emergency Contact:** | Click here to enter text. |
| *(Name and Phone Number)* |
| **Location(s) covered by this SOP:** | Click here to enter text. |
| *(Building/Room Number)* |

**Type of SOP:**  Process Hazardous Chemical  Hazardous Class

**Purpose**

Digoxin is an acute toxin. If not stored and handled properly, this can pose a serious threat to the health and safety of laboratory personnel, emergency responders and chemical waste handlers. Hence, it is important to follow safety protocols to handle this chemical.

Digoxin is a purified cardiac glycoside and extracted from the foxglove plant. Digoxin is widely used in the treatment of various heart conditions, namely atrial fibrillation, atrial flutter and sometimes heart failure that cannot be controlled by other medication.

**Physical & Chemical Properties/Definition of Chemical Group**

CAS#: 20830-75-5

Class: Acute Toxin

Molecular Formula: C41H64O14

Form (physical state): Solid

Color: White

Boiling point: N/A

**Potential Hazards/Toxicity**

Early Signs of Toxicity Include Loss of Appetite, Nausea, Vomiting, and Diarrhea. Very hazardous by Ingestion, Inhalation, Skin Contact, and Eye Contact

**Acute toxicity**

**Oral LD50 [mouse]** 17.78 mg/kg

**Oral LD50 [rat]** 28.27 mg/kg

**Personal Protective Equipment (PPE)**

**Respiratory Protection**

Respirators should be used only under any of the following circumstances:

* As a last line of defense (i.e., after engineering and administrative controls have been exhausted).
* When Permissible Exposure Limit (PEL) has exceeded or when there is a possibility that PEL will be exceeded.
* Regulations require the use of a respirator.
* An employer requires the use of a respirator.
* There is potential for harmful exposure due to an atmospheric contaminant (in the absence of PEL)
* As PPE in the event of a chemical spill clean-up process

Lab personnel intending to use/wear a respirator mask must be trained and fit-tested by ORS and should contact occhealt@uga.edu. This is a UGA requirement described in more detail in the [UGA Respiratory Protection Plan](https://esd.uga.edu/sites/default/files/respiratoryprotection.pdf) and supported by the [Office of Research Occupational Health and Safety Program](https://research.uga.edu/ohsp/).

**Hand Protection**

Handle with nitrile or other chemical resistant gloves.

NOTE: Consult with your preferred glove manufacturer to ensure that the gloves you plan on using are compatible with digoxin.

Refer to glove selection chart from the links below:

<http://www.ansellpro.com/download/Ansell_8thEditionChemicalResistanceGuide.pdf>

OR

<http://www.allsafetyproducts.biz/page/74172>

OR

<http://www.showabestglove.com/site/default.aspx>

OR

<http://www.mapaglove.com/>

**Eye Protection**

Wear chemical splash goggles when handling the chemical.

**Skin and Body Protection**

Lab coats should be worn. These laboratory coats must be appropriately sized for the individual and be buttoned to their full length. Laboratory coat sleeves must be of a sufficient length to prevent skin exposure while wearing gloves. Full length pants and close-toed shoes must be worn at all times by all individuals that are occupying the laboratory area. The area of skin between the shoe and ankle should not be exposed.

**Hygiene Measures**

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

**Engineering Controls**

Work with this chemical in a certified ducted fume hood or a glove-box. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

**First Aid Procedures**

**If inhaled**

Move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**

Wash off with soap and plenty of water for 15 minutes. Take victim immediately to hospital. Consult a physician.

**In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

**If swallowed**

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**Special Handling and Storage Requirements**

**Precautions for safe handling**

Wash thoroughly after handling. Use only in a well-ventilated area. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation.

**Conditions for safe storage**

Keep container tightly closed and store in a secondary container. Label the chemical bottle, the secondary container, and the storage container with “Acute Toxin” label. Keep container tightly closed in a dry and well-ventilated place. Do not store above 230C.

**Spill and Accident Procedure**

**Chemical Spill Dial 911**

**24-7 On-Call Response to Research, Environment, Health or Safety Concerns Dial 2-5561 from a campus phone or 706-542-5561 from a non-campus line.**

**Spill** – Follow the procedures set out in the [UGA Chemical and Laboratory Safety Manual.](http://research.uga.edu/docs/units/safety/manuals/Chemical-Laboratory-Safety-Manual.pdf)

[If there are any chemical-specific protocols for responding to a spill, insert them here or mark “none”:]

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# **Medical Emergency Dial 911**

**Life Threatening Emergency, After Hours, Weekends And Holidays** – Dial **911** or the emergency phone numbers listed at the beginning of the UGA Chemical and Laboratory Safety Manual

*Note: All incidents that result in an injury or property damage must be reported to ORS / ESD using a University Incident/Accident Report.*

**Non-Life Threatening Emergency** – Follow the instructions in the UGA Chemical and Laboratory Safety Manual.

*Note: All incidents that result in an injury or property damage must be reported to ORS / ESD using a University Incident/Accident Report.*

**Decontamination/Waste Disposal Procedure**

**For general hazardous waste disposal procedures, see Appendix H of the UGA Chemical and Laboratory Safety Manual.**

**Chemical Specific Procedures: [to be inserted or marked as “none”]**

Using a respirator and proper PPE protection, decontaminate area with isopropyl alcohol and then wash area with soap and water. All spent digoxin is to be disposed as hazardous waste.

**Safety Data Sheet (SDS) Location**

UGA personnel can access Online SDS through a link in the upper left corner of the ESD home page (<https://esd.uga.edu>) and logging in by using their UGA email user name and password.

**Protocol/Procedure (Add lab specific Protocol/Procedure here)**

Click here to enter text.

**NOTE**

Any deviation from this SOP requires approval from PI.

**Documentation of Training** (signature of all users is required)

* Prior to conducting any work with digoxin, designated personnel must provide training to his/her laboratory personnel specific to the hazards involved in working with this substance, work area decontamination, and emergency procedures.
* The Principal Investigator must provide his/her laboratory personnel with a copy of this SOP and access to the SDS provided by the manufacturer.
* The Principal Investigator must ensure that his/her laboratory personnel have attended appropriate laboratory safety training or refresher training within the last 12 months.

**Principal Investigator SOP Approval**

Print name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Signature\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Approval Date:

I have read and understand the content of this SOP:

|  |  |  |
| --- | --- | --- |
| **Name** | **Signature** | **Date** |
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