RUTGERS UNIVERSITY Office for Research

CMR STANDARD OPERATING PROCEDURE

TITLE: Chlorine Dioxide Chemical Plan		
SOP Category: Gnotobiotic	**CMR SOP #: 4.30**	**Page: 1 of 6**
Effective Date: 5/28/24	**Approval: LaTisha V. Moody, DVM, DACLAM**	
Revisions: 4/13/22, 3/7/24, 5/28/24		

SCOPE:

This document describes the procedures to be followed when using chlorine dioxide. This SOP applies to all Animal Care Staff (ACS), ACS Supervisors (ACSS), Veterinary Staff (VS), and Research Staff members (RS) at the Rutgers Gnotobiotic University facilities.

OBJECTIVE:

The goal is to describe standard operating procedures for using Chlorine dioxide chemicals in the gnotobiotic core. This SOP also reviews engineering controls, protective personnel equipment (PPE), waste, storage, spillage and disposal procedures.

Department:	ORED/CMR
Principal Investigator(s):	LaTisha Moody, DVM, DACLAM
Lab Manager/Coordinator:	Rielmer Pinedo Coral
Location of Experiment: (Building/Room Number)	MSB A685
Lab Phone: Lab Manager Emergency contact:	(973) 972-9231 (646) 683-0674
PI Office Phone:	(973) 972-8828
PI Emergency Contact:	LaTisha Moody (215) 913-7819

Reviewed and Approved by:

PI: LaTisha Moody		
PI: (Signature and Date)		3/7/24
Lab Manager: (if PI unavailable) Rielmer Pinedo		3/7/24

Hazardous Material Use and Management

Hazardous Material(s) Used: (wt./volume)	Chlorine dioxide: Maximum amount allowed without PI approval: 1:3:1 sterilant dilution is maximum

Hazardous Material Storage Location:	Store away from direct sunlight in a dry, cool and well-ventilated area. All staff should have access to a key to open the storage location and can be locked up at the end of the day. Separate from acids, alkalis, reducing agents and combustibles. Store away from cylinders of hydrogen, acetylene, ammonia, fuel gases, ether, turpentine, hydrocarbons, organic matter or finely divided metals. Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling. Designated Storage Area: A686A closet
Experimental Procedure and Lab Techniques to be Used:	Chlorine dioxide (Clidox) will be used to sterilize surfaces such as flexible film isolators, biosafety cabinets, and other surfaces to perform aseptic technique when handling germ-free mice.
Hazard Identification: (i.e., physical/health hazards)	**CAS # 7782-50-5** **GHS Classification: Oxidizer may cause or intensify fire. May cause frost bites. Fatal if inhaled. Corrosive to respiratory tract. Cause severe skin burns and eye damage. Very toxic to aquatic life.** • Acutely toxic. • Oxidizer, reacts violently with combustible and reducing materials. • Reacts explosively or forms explosive compounds with many common substances such as acetylene, ether, turpentine, ammonia, fuel gas, hydrogen & finely divided metals. The solution in water is a strong acid, it reacts violently with bases and is corrosive. OSHA PEL: TWA 0.5ppm, CL 1ppm ACGIH TLV: TWA 0.5ppm, CL 1ppm NIOSH REL: CL 0.5ppm Review MSDS/SDS prior to working with chemicals.
Engineering Controls: (chemical fume hood, biosafety cabinet, glove box)	Use in chemical fume hood with adequate exhaust or use with fit-tested half-face chemical respirator when spraying or atomizing chemical. Eyewash and safety showers must be readily available.
Protective Equipment:	Use nitrile or latex gloves. Gloves must be inspected prior to use. Check with the glove manufacturer for more info. Wear safety glasses or goggles, sometimes use of a face shield may be required when mixing chemicals. Wear gown/lab coat/lab smock and/or Tyvek sleeves to prevent skin exposure.

Waste Collection/Disposal Method:	Chlorine dioxide once mixed expires within 24 hours at the highest concentration 1:3:1 however at lower concentrations it expires within 2 weeks. Store chlorine dioxide waste in a tightly closed 5-gallon jug container in designated storage area. REHS certified jug does not require secondary storage. Store waste away from incompatible waste. Affix and complete hazardous waste label. Contact REHS for waste pick up: https://halflife.rutgers.edu/forms/hazwaste.php
Spill Management:	Persons not wearing PPE and clothing should be restricted from areas of spills or leaks until cleanup has completed. If chlorine dioxide is spilled or leaked, the following steps should be taken: 1. Remove all ignition sources 2. Ventilate area of spill or leak 3. If in liquid form, evacuate persons not wearing PPE from spill area. Allow chlorine dioxide to evaporate while providing all available ventilation. Contact REHS for cleanup instructions for larger spills.
First Aid:	**Eyes:** Flush eyes with plenty of water for 15 min. Seek immediate medical attention. **Skin**: Flush skin with plenty of water for 15 min. remove contaminated clothing and shoes. Seek immediate medical attention. **Inhalation**: move the person to fresh air, if breathing is difficult give oxygen. Seek immediate medical attention. **Ingestion**: As this product is a gas ingestion is not probable.

Training

- Prior to conducting any work with chlorine dioxide, designated personnel must be provided training specific to the hazard involved in working with the substance.
- The PI must provide his/her lab personnel with a copy of the SOP and a copy of the SDS provided with the manufacturer.
- The PI must ensure that his/her lab personnel have attended and are up to date on the appropriate laboratory safety training within the last year.

I have read and understood the content of this SOP and the SDS:

Lab Personnel (Running the Experiment/Procedures)	Date of Hands-on Training from Department	Signature of Lab Personnel

May cause frost bites. Fatal if inhaled. Corrosive to respiratory tract. Cause severe skin burns and eye damage.

FIRST AID

Eyes: Flush eyes with plenty of water for 15 min. Seek immediate medical attention.

Skin: Flush skin with plenty of water for 15 min. remove contaminated clothing and shoes. Seek immediate medical attention.

Inhalation: move person to fresh air, if breathing is difficult give oxygen. Seek immediate medical attention.

Ingestion: As this product is a gas ingestion is not probable.

DIAL 911 **Call REHS for more information 848-445-2550**