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	UQBR SOP 47 – Preparation and Use of Chlorine Dioxide		
	Contact: UQBR Director	Location: UQBR Facilities	Revision: 4

UQBR SOP 47 – Preparation and Use of Chlorine Dioxide

REQUIREMENT:

1. To ensure that the requirements and regulations as set out by the following are met as far as practicable:
 - AEU UQ
 - The Code
 - OGTR
 - Department of Agriculture and Fisheries (DAF)
 - QLD Workplace Health and Safety, and
 - UQ OH&S
2. To standardise practice for all UQBR staff and researchers within UQBR facilities.
3. Annual review is required to maintain best practice and usability of this SOP.

RESPONSIBILITY:

It is the responsibility of the individual performing animal handling procedures and techniques to ensure they have been assessed as competent.

Please Note:


This UQ Biological Resources (UQBR) SOP expands upon UQ Animal Ethics Unit SOPs. This document outlines the procedures followed by UQBR and should not be referenced in Animal Ethics Applications.

No changes or deviations from this SOP are to occur unless the Director of UQBR gives prior authorisation.

NB: The use of (*) indicates this statement is dependent on the facility procedures

NB: The use of () indicates this statement is dependent on AEC Approvals**

Originator: UQBR Training Review Committee	Reviewed: UQBR OHS Committee August 2016
Reviewed: UQ Occupational Hygienist January 2017	Approved: UQBR OHS Committee November 2016

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OBJECTIVE:

To describe the procedure for preparation and use of Chlorine Dioxide to be used within the UQBR facilities.

I. EQUIPMENT

- Fume Cabinet or local exhaust ventilation (If available)
- PPE* (Including P2 Particulate Mask with relief from nuisance levels of acid gases when the risk assessment and/or work area requires this, protective eyewear)
- Chlorine Dioxide tablets 4 gram
- Bulk Container with tap – able to be sealed with little dead space
- Spray bottles
- Chlorine Dioxide SDS

II. PREPARATION OF EQUIPMENT


- Ensure bulk container is clean. Polypropylene should not be used for long term storage of chlorine dioxide. PVC is a viable alternative.

III. PROCEDURE

Preparation of Chlorine Dioxide solution

1. Complete in a well ventilated space or with mechanical extraction e.g. fume cabinet
2. Place the required number of 4g tablets into bulk container
3. Add required amount of potable water
4. Wait a minimum of 15 minutes for the tablet to dissolve
5. Dispense solution to facility spray bottles using the tap taking care to minimize aerosol generation and splashing. Do not pour the solution from the bulk container
6. Seal the bulk container containing stock solution
7. Record the date on the stock solution container

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Use of Chlorine Dioxide solution for Surface Disinfection

1. Spray chlorine dioxide solution onto non-porous surface
2. Wipe surface dry once work is completed


Disposal of Solution

1. Dilute and dispose via sink
2. If nuisance level acid gases are causing an irritant effect use an appropriate mask when disposing of solution

IV. CONSIDERATIONS

- Follow facility instructions for the concentration to be used
- Stock solutions should be replaced at the end of each week or used within 7 days
- Solutions should be stored in cool dry area away from sunlight
- Chlorine Dioxide is an oxidizing solution and may attack metals
- Where bulk solutions are not required tablets may be scored and placed directly into spray bottles
- Chlorine Dioxide should not be used in dunk tanks
- Chlorine Dioxide at 200 ppm in water equates to 0.02%/wt the use of which is likely to result in airborne concentrations well below the current workplace exposure standard of 0.1ppm.
- Use of respiratory protection may be incorporated to reduce overall workplace exposures, e.g. where fume cabinets or adequate ventilation are unavailable and when staff report sensitivity to vapours.
- Respiratory protection should provide protection against acid gases and have a P2 rating.
- Staff using respiratory protection for this task will require proper fit testing of the respirators
- Making up chlorine dioxide in a bio-safety cabinet is not a substitute for a fume cabinet since the air will be exhausted into the room

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V. SAFETY

1. PPE use is essential when handling laboratory rodents
2. All accidents, injury or near misses are to be reported immediately to the Facility Manager and recorded on the UQsafe Incident Reporting Database
3. Splash back into the face or eyes is a risk when performing this task. Protective visors or safety goggles must be worn at all times during making of the solution.
4. In the event of a spill follow the facility emergency spill procedures
5. Ensure you have read the risk assessment and SDS for the solution
6. All spray bottle solutions should be appropriately labelled

VI. REFERENCES

1. Australian code for the care and use of animals for scientific purposes (8th Edition, NHMRC 2013): <https://www.nhmrc.gov.au/guidelines/publications/ea28>
2. Code of Practice for the Housing and Care of Laboratory Mice, Rats, Guinea Pigs and Rabbits (DEPI, Vic 2004): <http://www.depi.vic.gov.au/agriculture-and-food/animal-health-and-welfare/animal-welfare/animal-welfare-legislation/victorian-codes-of-practice-for-animal-welfare/code-of-practice-for-the-housing-and-care-of-laboratory-mice,-rats,-guinea-pigs-and-rabbits>
3. Department of Agriculture and Fisheries (DAF): <http://www.daf.qld.gov.au/>
4. Guidelines to promote the wellbeing of animals used for scientific purposes (NHMRC, 2008): https://www.nhmrc.gov.au/files_nhmrc/publications/attachments/ea18.pdf
5. OGTR PC2 work requirements and regulations: <http://www.ogtr.gov.au>
6. QLD WH&S Act 2011: <https://www.worksafe.qld.gov.au/laws-and-compliance/workplace-health-and-safety-laws/laws-and-legislation/work-health-and-safety-act-2011>
7. UQ Animal Ethics Unit SOPs: <http://www.uq.edu.au/research/integrity-compliance/standard-operating-procedures-sops>
8. UQ OHS Unit: <http://www.uq.edu.au/ohs/>
9. UQsafe Incident Reporting Database : <http://www.uq.edu.au/ohs/index.html?page=141331>
10. UQBR SOPs: [V:UQBR/SOPs/Common/UQBR SOPs](V:UQBR/SOPs/Common/UQBR%20SOPs) and <http://biological-resources.uq.edu.au/secure/uqbr-sops>

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