
Task/Process Details

Task/Process ID: 27575

Name: Use of Mercuric Chloride in Histology

Effective Risk Level: Moderate

Action: Should be dealt with as soon as possible but situation is not an emergency

Author: SBMS Histology

Last Updated By: Robyn Oram On 23/02/2011 11:47:12AM

Audited By: Robyn Oram

Audit Date: 23/02/2011

Workplace Location of the Task/Process

Campus: St Lucia

Faculty/Division: Fac - Medicine and Biomedical Sciences

School/Centre: School of Biomedical Sciences (SBMS)

Workplace: Macgregor Building

Supervisor: Robyn Oram

Status: Approved

Approval Date: 23/02/2011

Risks Associated with this Task/Process or Situation

Risk Situation: Mercuric Chloride Chemical Storage and Use

Process/Job Desc: The safe storage and use of chemicals used in Golgi Cox histology. Golgi Cox stain contains Mercuric Chloride, an inorganic form of mercury

Pregnancy Risk: Yes

Energy Source: Chemical

Current Controls: Mercuric chloride powder must be handled in a fume hood, See SBMS SOP for the use of a Fume hood, in the Histology laboratory, during normal working hours.

Stored in original containers, in its own, away from other DG classes including Class 6. Check for container breakdown or leakage intermittently.

To be stored in a locked cabinet, and may only be used to make stains in histology facility.

PPE must be worn at all times when handling the containers. Nitrile gloves, safety goggles, lab coat, closed in shoes.

Training is required to be given by the SBMS Histologist prior to this procedure.

if in direct contact with eyes, or skin, or throat (inhalation) Flush under safety shower/eyewash equipment for 20 minutes and alert security immediately on ext 53333 to escort to UQ Health Services. In the case of inhalation alert security immediately on ext 53333 to escort to UQ Health Services. Blood samples for mercury must be taken. Safety showers tested monthly.

In the event of a spill outside the fume hood, follow SOP for mercuric chloride spill (out side the fume hood section). and seek medical attention as soon as possible, including blood testing for mercury levels.

In the event of a spill inside the fume hood. follow SOP for mercuric chloride spill (inside the fume hood section).

All incidences must be reported on the UQ Incident Injury and Illness Database.

Hazard Event: absorption of mercury in the blood causing health effects to the nervous system (muscular tremors, memory loss and emotional inability), Kidney (renal tubular necrosis), respiratory tract infection, gastrointestinal tract, dermatitis, blisters and damage to hearing.

Incident Category: Single contact with chemical or substance

Assessment Date: 17/07/2010

Risk Analysis

Consequence: Serious

Rationale: Direct exposure and contact to the chemicals may lead to serious health problems for users, however if storage and usage is correct, the chances of direct exposure is low.

There should be no fatal casualties.

Exposure: Unusual

Rationale: Direct exposure may be occasional depending on use. This would only be in the case of users not following safety instructions for the usage of chemicals.

Probability: Unusual but possible

Rationale: If there is direct exposure the probability of having a serious health problem seeking medical attention immediately is high.

Risk Level: Moderate

Action: Should be dealt with as soon as possible but situation is not an emergency

No Additional Controls

Risk Situation: Golgi Cox Solution Storage

Process/Job Desc: Golgi Cox solution is usually stored in 1L or 2L clear or brown glass bottles. These bottles are completely covered with aluminium foil and stored in a dark cupboard or fume hood.

Pregnancy Risk: Yes

Energy Source: Chemical

Current Controls: Always wear correct PPE. Nitrile gloves, closed in shoes, Lab coat, long hair tied back.

Check bottle frequently for foil degradation or liquid leakage.

Foil degradation: Discard foil into clinical waste bin and replace with new foil.

Minor spill/ leakage: Wipe clean with paper towel, water and detergent.

Major spill/ leakage: Notify SBMS Histologist, and follow SOP for chemical Spills

Sharps accident: If there is evidence of a puncture wound, encourage bleeding and flush with water and seek medical attention immediately.

All incidences must be reported on the UQ Online incident, injury and illness database.

Hazard Event: absorption of mercury in the blood causing health effects to the nervous system, Kidney, respiratory tract infection, gastrointestinal tract, dermatitis, blisters and damage to hearing.

Incident Category: Single contact with chemical or substance

Assessment Date: 17/07/2010

Risk Analysis

Consequence: Substantial

Rationale: 3% solution of mercury. Loss of controls may result in absorption of mercury

Exposure: Occasional

Rationale: Solution is handled at least once per month

Probability: Remotely possible

Rationale: Given current controls the probability of an event is remotely possible and an incident has not occurred at SBMS after years of exposure.

Risk Level: Low

Action: Risk is normally acceptable

No Additional Controls

Chemical Risk Assessment Details

Substances: (4)

Substance Name: mercuric chloride

UN Number: 1624

Form: Solid

Concentration: 100%

DG Class: 6 - Toxic or infectious

Hazardous Substance: **Yes**

Storage Location: Locked cupboard

Health Effects	Hazardous Reactions	Route of Exposure	Evidence of Exposure
NIL: No	NIL: Yes	NIL: No	NIL: No
Irritant: Yes	Explosive: No	Inhalation: Yes	Presence of dusts/fumes/odours: Yes
Corrosive: No	Flammable: No	Skin absorption: Yes	Leaks/spills/residues: Yes
Sensitiser: No	Peroxide forming chemicals: No	Eye contact: Yes	Worker symptoms and complaints: Yes
Asphyxiant: No	Water reactive: No	Ingestion: Yes	Previous incidents and exposures: No
Toxic: Yes	Oxidising agents: No	Needlestick: No	Neighbouring activities impact: No
Carcinogenic: No	Cryogenic: No		
Mutagenic: Yes	Pyrophoric: No		
Teratogenic: Yes			
Cytotoxic: No			
Neurotoxic: Yes			
Reproductive: Yes			

Substance Name: mercuric chloride solution

UN Number: 3287

Form: Liquid

Concentration: 5%

DG Class: 6 - Toxic or infectious

Hazardous Substance: **Yes**

Storage Location: Locked cupboard

Health Effects	Hazardous Reactions	Route of Exposure	Evidence of Exposure
NIL: No	NIL: Yes	NIL: No	NIL: No
Irritant: Yes	Explosive: No	Inhalation: Yes	Presence of dusts/fumes/odours: Yes
Corrosive: No	Flammable: No	Skin absorption: Yes	Leaks/spills/residues: Yes
Sensitiser: No	Peroxide forming chemicals: No	Eye contact: Yes	Worker symptoms and complaints: Yes
Asphyxiant: No	Water reactive: No	Ingestion: Yes	Previous incidents and exposures: No
Toxic: Yes	Oxidising agents: No	Needlestick: No	Neighbouring activities impact: No
Carcinogenic: No	Cryogenic: No		
Mutagenic: No	Pyrophoric: No		
Teratogenic: Yes			
Cytotoxic: No			
Neurotoxic: No			
Reproductive: Yes			

Substance Name: agarose

UN Number:

Form: Solid

Concentration: 100%

DG Class: Not classified as a Dangerous Good

Hazardous Substance: No

Storage Location:

Health Effects	Hazardous Reactions	Route of Exposure	Evidence of Exposure
NIL: No	NIL: Yes	NIL: No	NIL: No
Irritant: Yes	Explosive: No	Inhalation: Yes	Presence of dusts/fumes/odours: Yes
Corrosive: No	Flammable: No	Skin absorption: No	Leaks/spills/residues: No
Sensitiser: No	Peroxide forming chemicals: No	Eye contact: Yes	Worker symptoms and complaints: No
Asphyxiant: No	Water reactive: No	Ingestion: Yes	Previous incidents and exposures: No
Toxic: No	Oxidising agents: No	Needlestick: No	Neighbouring activities impact: No
Carcinogenic: No	Cryogenic: No		
Mutagenic: No	Pyrophoric: No		
Teratogenic: No			
Cytotoxic: No			
Neurotoxic: No			
Reproductive: No			

Substance Name: agarose gel

UN Number:

Form: Gel

Concentration: 4%

DG Class: Not classified as a Dangerous Good

Hazardous Substance: No

Storage Location:

Health Effects	Hazardous Reactions	Route of Exposure	Evidence of Exposure
NIL: No	NIL: Yes	NIL: No	NIL: No
Irritant: Yes	Explosive: No	Inhalation: Yes	Presence of dusts/fumes/odours: Yes
Corrosive: No	Flammable: No	Skin absorption: No	Leaks/spills/residues: Yes
Sensitiser: No	Peroxide forming chemicals: No	Eye contact: Yes	Worker symptoms and complaints: No
Asphyxiant: No	Water reactive: No	Ingestion: Yes	Previous incidents and exposures: No
Toxic: No	Oxidising agents: No	Needlestick: No	Neighbouring activities impact: No
Carcinogenic: No	Cryogenic: No		
Mutagenic: No	Pyrophoric: No		
Teratogenic: No			
Cytotoxic: No			
Neurotoxic: No			
Reproductive: No			

Risk Control

Elimination/Substitution: NA

Engineering Controls: Isolation/containment: Mercuric chloride is kept under locked conditions in the histology facility Fume cupboard: Mercuric Chloride solution and powder must be handled in a fume cupboard

Effectiveness: Effective and maintained well

Administrative Controls: Training (job specific / general OHS induction): SBMS Histology facility manager, currently Darryl Whitehead training is the making of Golgi Cox strain. Written safe working procedure: Use of a Fume hood, SBMS Chemical spill, SBMS Chemical spill involving mercury, SBMS chemical waste. Good housekeeping practices: Clean fume hood before and after use Good personal hygiene practices: laundering of lab coats via SBMS lab coat laundering system. wash hands when leaving.

Effectiveness: Effective and maintained well

Training Controls:

Effectiveness: Effective and maintained well

PPE Controls: Gloves: Nitrile Eye protection: Side-covered lab goggles Respirator: Dust mask (When cleaning spill outside a fume hood Coat/apron: Standard lab coat Footwear: Standard closed-in footwear Other: Must use a fume hood. long hair tied back.

Effectiveness: Effective and maintained well

Waste Disposal: Waste must be disposed of in appropriately labelled Chemwaste waste container and disposed of as per SBMS SOP Chemical waste

Storage Incompatibilities: Must be stored on its own under locked conditions. Do not store near peroxides, chlorines, acids, ammonium, chromium, borohydrides, metals, oxidisers, phosphorus, arsenic, silver salt, sulfides, and acetylenes

Safety Instructions: if in direct contact with eyes, or skin, or throat (inhalation) Flush under safety shower/eyewash equipment for 20 minutes and alert security immediately on ext 53333 to escort to UQ Health Services. In the case of inhalation alert security immediately on ext 53333 to escort to UQ Health Services. Blood samples for mercury must be taken. Safety showers tested monthly. In the event of a spill outside the fume hood, follow SOP for mercuric chloride spill (out side the fume hood section). and seek medical attention as soon as possible, including blood testing for mercury levels. In the event of a spill inside the fume hood. follow SOP for mercuric chloride spill (inside the fume hood section). All incidences must be reported on the UQ incident injury database

Risk Determination

Exposure Frequency: Occasional

Risk Level: Significant but controlled

Air Monitoring: No

Health Surveillance Req: Yes

Schedule 10: No

Carcinogen Authority No:

Task Readers:

Reader	Date Read
Mu, Erica (uqemu)	24/07/2014

No Training Specified