STANDARD OPERATING PROCEDURES

HUMAN TESTING CENTER

INSTITUTE OF APPLIED LIFE SCIENCES

UNIVERSITY OF MASSACHUSETTS AMHERST

Emergency Response Protocols

For emergencies, from a campus or cell phone dial 911 – specify UMass Amherst when reporting location.

Purpose of Plan:

To prepare for appropriate responses should an emergency situation arise that affects the campus, the Life Sciences Laboratory building, the Exercise Interventions and Outcomes Core area, or an individual as a result of an injury or illness. These protocols are prepared in conjunction with Environmental Health & Safety to ensure they are consistent with campus guidance and standard practice in the event of an emergency, injury or illness. This helps ensure that minor medical incidents do not become major incidents and that major medical incidents are handled with the utmost care and efficacy.

Preparations:

1. Staff must be knowledgeable in current emergency response protocols including, locations of Automatic External Defibrillators (AEDs), fire extinguishers, and emergency exit egress pathways from the Exercise Interventions and Outcomes suite and emergency exit from the building. Once outside of the building, individuals associated with the Exercise Interventions and Outcomes Core must assemble at the traffic circle on Stockbridge Road to ensure that everyone is accounted for.
2. Staff and users must take the EH&S safety trainings on Bloodborne Pathogens which can be accessed online at https://ehs.umass.edu/owl-training. It is recommended that staff and users have a Hepatitis B vaccination which can be obtained at University Health Services free of charge.
3. First aid, CPR, and AED training may be required based upon specific facility utilization.
4. Staff must be certified by the facility director to use the equipment. The facility director will maintain a list of individuals authorized to use the specific equipment and will maintain the OWL database for required EH&S trainings.
5. In-service training on emergency situations
   - Recognition and management of life-threatening emergencies
   - Recognition and management of minor incidents
   - Fires, tornadoes, or other environmental emergencies (follow University policy)
   - Post-emergency documentation
6. Studies involving subjects with specific medical conditions must maintain pertinent information to each subject (i.e. personal physician's name/phone, medical conditions, medications, etc.) readily available, though secured, during the study in case of an emergency for the access of first responders.

7. Emergency telephone procedures are located near the phones. Phone numbers for emergency services, UMass Police and Environmental Health and Safety are located on these postings.

Emergency Exit Plan:

Sign posted on wall of room next to door detailing how to exit the research suite in the case of an emergency. See appendices for specific egress paths.

Minor Incidents:

Definition. For the purpose of these procedures, a minor incident is considered any injury or illness that is not immediately life threatening. **Examples of minor incidents include abrasions, contusions, and strains.** Any incident that involves breathing, circulation (e.g. cardiovascular problems, severe bleeding, shock), hyperthermia, inappropriate blood glucose, or impaired consciousness is considered life-threatening and will be handled as a major incident. Be aware that many non-life-threatening injuries, such as a broken clavicle, can become life threatening if the subject develops severe shock.

Procedure.

1. Survey the scene.
2. Contact a supervising staff member (the study PI, Dr. Busa or otherwise designated staff member when they are absent). Promptly evaluate the injury and determine whether to manage on-site or to utilize community medical resources (call for ambulance or send to emergency room or personal physician).
3. If subject is to receive treatment off-site, the supervising staff member will arrange transportation to the desired location (some options: subject drives self, staff drives subject, ambulance, etc.)
4. Other staff member(s) present are responsible for crowd control, assisting the supervising staff member, or requesting additional assistance.
5. The incident must be documented in writing (Incident Report Form attached) and followed-up as necessary.

Major Incidents:

Definition. For the purpose of these procedures a major incident is considered any life-threatening illness or injury. This includes **any incident that involves or could soon involve breathing, circulation (cardiovascular problems, severe bleeding, shock), hyperthermia, inappropriate blood glucose, or impaired consciousness.** These are considered life threatening and will be handled as major incidents.

Procedure.

1. Survey the scene, and prevent further injury.
2. The incident will be assessed, stabilized (i.e., CPR/AED or first aid), and referred to an emergency medical service (ambulance).
3. Staff should function in duty-specific roles.
    a. **First on the scene**. This is the person who witnesses the event or is the first staffer to reach the victim. That person should promptly ensure 911 is called and then render immediate care, consistent with the protocols of CPR or rules of first aid.
    b. **Team leader** - This is the highest-level staffer on duty. After arriving on the scene, that individual should direct the general flow of care. The team leader is also responsible for the post-incident documentation and should make plans for follow-up actions such as contacting the subject's "emergency contact."
    c. **Communications staffer** - This person will call for an ambulance and provide the emergency dispatcher with the exact location of the emergency (240 Thatcher Rd, UMASS Amherst, Life Science Laboratory Room S360), the phone number nearest the incident (Front Desk: 413-577-4583, Room Calorimeter: 413-577-4579, Exercise Testing Room: 415-577-4584), and the nearest entrance to the facility. This person, and a second, if available, will also go outside to meet and direct the ambulance, respectively. Upon return, this individual can be responsible for real-time documentation.
    d. **Crowd control staffer** - This person, along with EH&S personnel, will clear the area of other facility users and of any equipment that may be in the way to ensure that emergency medical personnel can access and treat the victim. This person will locate the participant's information to retrieve any available information about medical conditions, medications, etc. that may be important to the ambulance personnel. After the incident is well controlled, the crowd control staffer will gather the subject's personal belongings and place them in a secure location.

Note – If four research team members are not present, other near-by faculty/staff or available personnel may be called on to assist the staff in the roles outlined above. If all of the above roles cannot be filled, priority should be on filling the "First on the scene" and the "Team Leader" roles.

Incidents Involving Blood:

All incidents in our facility involving blood must follow OSHA's Blood-Borne Pathogen Rules. Refer to the wall postings in our labs for these guidelines.

Emergency / First-Aid Equipment:

An AED and first aid kit are located in the hallway at the back of the Human Testing Suite (S360/370). **Staff must be aware of where these items are kept.** A checklist for the AED is next to the unit (in working order and battery OK). The AED should be routinely checked for completeness of supplies (and expiration dates recorded) and proper function of AED. It is the responsibility of the personnel using the facility and testing patients to complete these checks and document the checks. 12-lead ECG instrumentation is also located in the facility if needed.

Fire extinguishers

In case of fire, locate nearest fire extinguisher (Corridor adjacent to S370D in the rear of the Human Testing Center (S360/370), pull fire alarm, aim, point, squeeze.

For emergencies, from a campus or cell phone dial 911 – specify UMass Amherst when giving location.

Documentation:

1. Emergency plan (this document) should be available and familiar to all staff.
2. Subjective/Objective/Assessment/Plan Notes (SOAP) will be used to document the incident in real-time to aid in transfer of information to emergency medical personnel. SOAP notes pages are included at the end of this document.
3. Incident Report Forms will be used to document the details of any incident and will be kept in each laboratory room.
4. Evidence of CPR certification (and first-aid certification if completed) will be kept by the individual PI's.
5. Emergency equipment maintenance records will be kept in the exercise lab. Maintenance will be completed by appropriate staff (eg; AEDs: EH&S, Eye Wash Stations: facility staff).

CHAPTER 1

Blood Draw / Examination Room
LSL S360 B & J
Date Created: July 2016
Date of Last Revision: December 2016 by Michael Busa, PhD

All study staff should be familiar with the emergency response protocols.

Required Trainings:

- Bloodborne Pathogens (if performing blood work)
- Autoclave (if preforming blood work)
- First Aid/AED/CPR
- Certification for instrument use (by Core Staff)
- Hepatitis B vaccination is recommended for those performing blood draws

List of Equipment

1. Thermofisher Centrifuge: Sorvall ST 16 swinging bucket centrifuge (S360B)
2. Under counter refrigerator & freezer (S360B)
3. Phlebotomy Cart (S360B)
4. Phlebotomy Chair (S360B)
5. Exam Table w/ paper dispenser
6. Medical Stool
7. GE Lunar iDXA (S360J)

Room Use Description

Both examination rooms can serve different purposes e.g., blood draw, general check-in, iDXA, and interview. The SOP for using S360J for performing iDXA scans can be found in Chapter 2. When using the examination rooms for interviews if emergency issues arise investigators should use Emergency Response procedures outlined in this SOP manual.

Examination rooms can be used to perform blood draw and take biopsies of muscle and fat. During the collection of these tissues additional standard procedures outlined here are to be followed to ensure the safe collection, transfer and storage of the samples.

Authorized Users

Blood is only to be collected by qualified individuals provided by the study PI. The handling and storage of blood should be done in a manner that limits the risk of spills and falls. Phlebotomy cart should be used when collecting blood and tubes should be kept in the deep wells of the cart. Safety sharps are required equipment to limit the risk of inadvertent needle stick. Vacutainer tubes and needles are also required to limit spills.

Storage of Sample Tubes

Sample tubes should be stored in test tube racks (within secondary containment) when being stored in the refrigerator or freezer. When preparations are being made for use of the centrifuge tubes are also to be kept in racks.

Disposal and Sanitation of Equipment

Sharps and syringes are to be disposed of in the supplied sharps containers. Other materials that contain biohazard materials, e.g., gauze and bandages are to be disposed of in supplied biohazard bins.

Centrifuge

When the centrifuge is to be used in S360B to spin blood or other biohazard materials the secondary containment caps on each of the swinging buckets are to be secured prior to spinning samples. Following this procedure limits the risk of a tube breakage or spill contaminating the entire body of the centrifuge.

Routine Cleaning

Disinfection of all surfaces that have come into contact with blood. Spray bottles with an approved disinfectant (supplied by the core) are in the room and should be used with a paper towel to clean the surface. If a participant sits on the exam table, the paper is to be changed after they leave.

Emergency Clean Up

In the case of a blood spill or tube breakage inform the core director. Do not pick up broken glass with your hands, use tongs to move the broken glass to a broken glass or sharps container. Clean the affected area thoroughly with spill kits stored in the cabinet and supplement with approved disinfectant (supplied by the core) as necessary. If a spill is large and assistance is required, please call EH&S at 413-545-2682 to request assistance.

Accidental Exposure to Human Source Materials

In the case of an exposure to human source materials sites should be:

- Rinsed under running water for 15-minutes
- Obtain medical evaluation
- Contact EH&S

Approved Equipment needed for Blood Draws

- Safety Sharps
- Vacutainer (type) Collection Vials

Approved Disinfection Products

Product: ACCEL TB
EPA Reg#: 74559-1
Registrant: VIROX TECHNOLOGIES INC.
Approval Date: 30-Sept-2005
Active Ingredients: Hydrogen peroxide 0.5%

Product: SANI-CLOTH GERMICIDAL DISPOSABLE WIPES
EPA Reg#: 9480-4
Registrant: PDI
Approval Date: 01-Nov-2007

Active Ingredients: Alkyl*dimethyl benzyl ammoniumchloride(60%C14,30%C16,5%C18,5%C12) 0.25%
Alkyl*dimethyl ethylbenzyl ammonium chloride (68%C12,32%C14) 0.25%

To be phased out after current supply is depleted (20 December 2016)
Product: CIDECON CLEANER, DISINFECTANT, DEODORIZER
EPA Reg#: 3862-179-56753
Registrant: Decon Labs, Inc.
Approval Date:
Active Ingredients: para-tertiary-Amylphenol 5.25%
ortho-Benzyl-para-chlorophenol 3.00%
ortho-Phenylphenol 3.00%

Chapter 2

iDXA
LSL S360J
Date Created: July 2016
Date of Last Revision: November 2016 by Michael Busa, PhD

All users should be familiar with the emergency response protocols.

Required Trainings:

- First Aid/CPR/AED Training
- X-Ray Safety Training
- Certified for operation in accordance with State of Massachusetts Guidelines
- Certification for instrument use (by Core Staff)

Relevant Equipment

GE Lunar iDXA

Instrument Location

The GE iDXA is located in LSL S360J. The instrument is not to be removed from this location and installed in another location without a radiation head leakage scan to ensure that there is no significant radiation being transmitted to adjacent rooms.

Authorized Users

In accordance with Massachusetts regulations operators of the bone densitometry system shall be:

1. Licensed as a radiologic technologist [by the Agency]; or
2. A licensed physician; or
3. International Society For Clinical Densitometry certified as a bone densitometry technologist; or
4. ARRT certified in Bone Density

Standard Operation

During the operation of any bone densitometry system: (1) The operator, ancillary personnel, and members of the general public shall be positioned at least one meter from the patient and bone densitometry system during the examination. (2) The operator shall advise the patient that the bone densitometry examination is a type of x-ray procedure.

Bone densitometry on human patients shall be conducted only:

1-Under a prescription of a licensed practitioner of the healing arts; or

2-Under an alternate screening program approved by the Agency.

Any person proposing to conduct a bone densitometry screening program shall submit the information outlined in Appendix B of this Part and include the name and address of the individual who will interpret the screening results. (I) Section 120.010 includes CT units that are designed for bone density.

Participants will be asked to remove all metal jewelry prior to scanning and it will be questioned to ensure that they have not received Barium in the previous 48hours and are not pregnant.

The technician performing the scan should keep the participant on the scanner in line of sight and remind them to remain still during the scan. The console should be kept at least 6 feet from the center of the scanner to ensure the minimum exposure to x-ray.

Emergency Procedures

In the case of an emergency the machine can be stopped by the red button located on the scanner arm of the iDXA head or at the console. Once the scan is stopped the arm can be sent to its home position by pressing 'Control + H'. Once the scanner arm is returned to its home position the participant can exit the table comfortably. In the case of power outage or participant in extreme distress, the participant can be slid out of the scanner once the scan is stopped. In the event that this happens lab personnel should refer to the Emergency Response chapter of the Core SOP.

Quality Assurance and Maintenance

The Manufacturer's Quality Assurance and Quality Control programs shall be followed.

Every day that the scanner will be used the quality assurance (QA) block will be scanned. Scans on participants will only be completed if the iDXA passes the calibration. If the calibration fails, the calibration will be run a second time, if it passes the machine will be used, if it fails the second time GE maintenance will be contacted. In accordance with manufacturer recommendations for the iDXA unit, testing with the spine phantom is not needed for quality control, the QA block handles this.

In accordance with state regulations the facility will keep maintenance records for bone densitometry systems. These records shall be maintained for inspection by the Agency for three years. These will be kept by the core director.

Standard Radiological Checks

Radiation badges will be placed on all interior walls of the room housing the iDXA, and will be collected and analyzed via UMass EH&S services monthly. Systematic checks using a Ludlum Model 3 Survey meter with a Ludlum NAI probe, will be conducted by the University's Radiation Safety Officer and will be logged with maintenance records. Logs will be maintained by the core facility director. If the alternative screening procedure (see option 2 in Standard Operation section) is approved annual checks will be done by a medical physicist to ensure that the machine is operating appropriately with no additional x-ray scatter from the head.

CHAPTER 3

Strength Testing (Biodex)
LSL S370E
Date Created: July 2016
Date of Last Revision: November 2016 by Michael Busa, PhD

All users should be familiar with the emergency response protocols.

Required Trainings:

- First Aid/CPR/AED
- Certification for instrument use (by Core Staff)

Relevant Equipment:

Biodex System 4 Pro

Instrument Location:

The Biodex should not be moved from its current location in LSL S370E without the a technician from the company coming and making sure the calibration is correct and the unit is leveled properly.

Standard Operation:

Testing apparatus can be found on the back of the experimenter console and on the device rack located adjacent to the Biodex. All apparatus are to be removed following testing and placed back in their appropriate storage location. Please see the MOP for a guide to how different testing protocols are run.

After every user the chair and attachment apparatus is to be wiped down with the provided disinfecting cloths.

Emergency Stop Buttons:

Emergency stop buttons are located on the computer console, dynamometer tower, and a handheld remote that should be given to participants so that they can stop the test if they experience abnormal pain or strain.

In case of Emergency and Faulty Equipment

Please follow Emergency Response procedures. All emergencies, and adverse event are to be reported to the Core Director and to EHS, IRB and PI where appropriate.

CHAPTER 4

Exercise Intervention & Outcomes Core
Electrocardiogram w/Treadmill
LSL S370E

All users should be familiar with the emergency response protocols.

Required Trainings:

- First Aid/CPR/AED
- Certification for instrument use (by Core Staff)

Relevant Equipment: Quinton Q-Stress ECG System w/ TM55 Treadmill

Manual of Operation highlights the safety shutoffs. Participants should be informed of the emergency shut off prior to getting on the treadmill.

Hands are to be kept clear of all moving parts while the treadmill is on. Cleaning when treadmill is off.

List of Cleaning Supplies

1. Disinfecting wipes for the wipe down of equipment that may come in contact with participant sweat.
2. Nitrile gloves

General Usage Procedures

Participants will be fitted with the ECG leads and wiring will be secured such that they will not obstruct movement when on the treadmill, and not create a trip hazard either on the treadmill deck or in the surrounding area. Leads will be placed in accordance with the manufacturers specifications.

Electrodes will only be used one time and will be disposed of after each use.

The research staff will be trained of how to use the emergency stop and rapid deceleration features of the devise to ensure participant safety during maximal protocols.

Standard Maintenance

Daily use:
1. Ensure all components are clean and there are no cracks in any components.
2. Ensure all cords are plugged in properly and do not exhibit any signs of wear.

Annual Maintenance:
1. Per manufacturer instructions the system should be maintained annually by a service technician.

CHAPTER 5

Exercise Intervention & Outcomes Core
Velotron Bicycle Ergometer
LSL S370E

All users should be familiar with the emergency response protocols.

Required Trainings:

- First Aid/CPR/AED
- Certification for instrument use (by Core Staff)

Relevant Equipment: RacerMate Veloton Bicycle Ergometer

List of Cleaning Supplies

1. Disinfecting wipes for the wipe down of equipment that may come in contact with participant sweat.
2. Nitrile gloves

General Usage Procedures

Participants will be fitted to the bicycle to a level of their comfort.

In accordance with the manufacturers recommendations the ergometer will be rolled down to ensure that it is calibrated.

The bicycle will be wiped down after every use with disinfectant.

The control unit should be plugged into the data recording computer before it is turned on.

Hands are to be kept clear of moving parts at all times.

Standard Maintenance

Daily use:

3. Ensure all components are clean and there are no cracks in any components.
4. Ensure that pedals, cranks and chainrings are tight and that there is appropriate tension in the chain.
5. Ensure all cords are plugged in properly and do not exhibit any signs of wear.

Annual Maintenance:

1. Inspect the chain and chainrings for wear. Replace if necessary.
2. Ensure the copper fins on the wheel are ‘true’. Replace if necessary.
3. Check bottom bracket for wear. Replace if necessary.

CHAPTER 6

Exercise Intervention & Outcomes Core
Metabolic Testing (ParvoMedics)
LSL S370E

All users should be familiar with the emergency response protocols.

Required Trainings:

- First Aid/CPR/AED
- Certification for instrument use (by Core Staff)

Relevant Equipment: ParvoMedics TrueOne 2400 Metabolic Card

List of Cleaning Supplies

1. Bleach Solution (2% concentration) or Cidex
2. Johnson & Johnson baby wash – cleaning (per manufacturer recommendation)
3. Nitrile Gloves
4. Wall mounted drying rack
5. Wash basins

General Usage Procedures

Participants will be fitted with the head piece in line with the manufacturers recommendation and will be monitored while wearing the mask. Participants will be informed that if they are ever in any pain or substantial discomfort the mask can be removed at any time.

Prior to testing participants will be screened for risk factor. Based on ACSM criteria and specific IRB approval for each protocol, a 12-lead ECG will be used to monitor participant's cardiac rhythms.

After a test is completed the equipment will be disinfected using a disinfectant solution (e.g. Cidex, Metricide) and cleaned with the mild soap solution (Johnson & Johnson Baby Soap). The equipment will then be dried on the hanging rack

The heart rate monitor will be disinfected using a disinfecting spray or wipes and will be hung to dry.

Prior to every usage the metabolic cart will be calibrated for both flow accuracy and for O_2 and CO_2. The mask does not restrict airflow and people can breathe 'normally' while wearing it. There is no gas from canisters flown into the mask, rather people breath normal air.

Standard Maintenance

Per the Manufacturers recommendations

After Every Test: Remove and dry up the "white" water trap filter after every exercise testing. Clean and disinfect the 2-way valve and mouthpiece/face mask. Do not over- tighten the inspiratory port of 2-way valve. Finger tight is recommended.

Daily: Warmup 30 minutes. (The CO_2 reading during the first 10 minutes is very unstable.) Flow and gas cal once in the morning and once in the afternoon. Flow Cal must use dry breathing tube. Make sure cal gas is turned off when shutting down the system. Turn off the power strip at end of the day.

3-6 Month Maintenance: Wash and clean up the heated pneumotach every 6 months for exercise system. Replace the PermaPure gas drying line/filter (3 months for dilution mode, 6 months for exercise Testing). Perform Sampling Line Calibration and Gas Leakage Test. Make sure the heated pneumotach is warm.

Annual: Replace the auto-cal PermaPure gas loop at the back of the analyzer module. Replace "white" filters if they are cracked or dirty. Re-order Perma Pure drying lines and water trap filters.

Standard Cleaning

Cleaning processes, which might use elevated heat, chemicals, and gases, reduce the functional life cycle of a product. Your cleaning protocol should be evaluated closely to determine its effect on biological decontamination control, the functional life of the product, and the possible resulting change in care and maintenance of the equipment.

Follow closely all the instructions made available for the operation, care, and maintenance of the Parvo Medics, Inc. TrueOne® 2400. Pay special attention to the **warnings** and **cautions** in the User's Manual and on equipment labels.

If new cleaning techniques or new equipment materials are encountered, run sample test evaluations and review thoroughly the results with all concerned parties.

Good cleaning practices

1. **Disassemble** - allows the physical removal of particulates and allows sterilants to contact all the surfaces while contributing to a thorough rinse.

2. **Prewash** - All particulate matter should be removed before the cleaning operation.

3. **Cleaning/Disinfection Procedure** - Follow our temperature and chemical limitations.

4. **Rinse** - A very critical operation. Disinfectant manufacturer will emphasize special conditions. Sterile water is recommended. If not practical, tap water or distilled water is substituted.

5. **Dry** - A thorough drying is a necessity using a heated chamber to prevent bacterial multiplication. Check for the temperature limit, which is 45 degrees Celsius.

6. **Inspect & Verify** - Make sure the components are
    a. Dry and free from residue
    b. Not deformed or distorted
    c. Flexible materials are not hardening or stiffening

d. Plastics are not crazed or cracked

e. Components showing signs of deterioration should be disposed of or returned to Parvo Medics, Inc. for failure evaluation

7. **Lubrication** - Apply a thin film of silicone grease to the threads, o-rings, or calibration syringe seal before re-assembly. One recommended grease is Molykote 33 Grease, medium consistency, manufactured by Dow Corning Corporation, U.S.A.

   Caution! Avoid repeated or prolonged skin contact. Grease may cause mild skin and eye irritation.

8. **Assemble** - Inspect and test for proper function.

9. **Package** - For storage or reuse per your facilities protocol.

10. **Verify** - Your level or biological decontamination on a periodic time program.

11. **Special Treatment** - Refer to section titled Special Cleaning & Care for products requiring special treatment.

Acceptable Cleaning Materials

1. Prewash

   Mild soap (detergent) and water are particularly useful.

   - or - Metrizyme, a proteolytic Enzymatic detergent.

2. Glutaraldehyde Solutions (All of these are toxic materials and bleacl solution, see section 3 below, should be used in favor of these). The following glutaraldehyde solutions have been used successful with our products, except for causing discoloration on nickel plated metal components and may causing discoloration and stress crazing when used with polycarbonate plastic.

   a. Procide(R) 14 N.S. (2.4% glut).

   b. Omnicide(TM) Long Life Activated Dialdehyde Solution (2.4% glut)

   c. Omnicide(TM) Plus (3.4% glut)

   d. Sterilant Claim - 10 hours at 20 degrees C, max reuse of 14 days.

   e. High Level Disinfection Claim - 45 minutes at 20 degrees C, max. Reuse of 28 days.

   f. Cidex, Cidex 7. Trademarks of Surgikos, Inc., a Johnson & Johnson Company.

   g. Metricide, Metricide 28, and ColdSpor. Trademarks of Metrex Research Corporation.

h. Glutarex. Trademark of 3M Company.

Cidex or most glutaraldehyde requires, at 25 degrees C, 45 minutes to kill most germs, and 10 hours to sterilize.

Newer kind of glutaraldehyde, such as Procide or Omnicide, can be used at 20 degrees C (room temperature) for 45 minutes to kill germs. And they are not as toxic as Cidex. Therefore, Procide or Omnicide are better recommended. They can be obtained from hospital supply companies.

3. **High concentration chlorine will crack the plastics**. Lower concentration chlorine (2% or 5%), according to Clorox company, will not affect the plastics as much. Cidex will not affect plastics as much. But the newer Procide or Omnicide are not as toxic and can be used in room temperature.

Note: Pay special attention to the proper use of any cleaning materials. Follow the manufacturer's instructions carefully.

Other cleaning instructions for semi-annual and annual services can be found in section 13-4 in the User's Manual located on the computer desktop of the Parvo Cart.

Calibration Gas

Secure to cart
Core staff should the only people to change cal tank.

Approved Disenfection Products

To be phased out after current supply is depleted (20 December 2016)
Product: Cidex OPA
EPA Reg#: 00707800017
Registrant: Advanced Sterilization Products
Approval Date: 28-Jun-2005
Active Ingredients: ortho-Phthalaldehyde (OPA) 0.55%

Product: Clorox Clean Linen Bleach
EPA Reg# 5813-1
Registrant: Clorox
Approval Date: 23-Aug-2011
Active Ingredients: Sodium Hypochlorite 5.25%

Chapter 7

Living Science Core
Metabolic Testing (Oxycon Mobile)
LSL S370E

All users should be familiar with the emergency response protocols.

Required Trainings:

- First Aid/CPR/AED
- Certification for instrument use (by Core Staff)

Relevant Equipment: Oxycon Mobile Metabolic Cart

List of Cleaning Supplies

1. Cidex or Bleach Solution – disinfection of mouthpieces
2. Johnson & Johnson baby wash – cleaning (per manufacturer recommendation)
3. Nitrile Gloves
4. Wall mounted drying rack
5. Wash basins

General Usage Procedures

Participants will be fitted with the head piece in line with the manufacturers recommendation and will be monitored while wearing the mask. Participants will be informed that if they are ever in any pain or substantial discomfort the mask can be removed at any time.

Prior to testing participants will be screened for risk factor. Based on ACSM criteria and specific IRB approval for each protocol, a 12-lead ECG will be used to monitor participant's cardiac rhythms.

After a test is completed the equipment will be disinfected using a disinfectant solution (e.g. Cidex, Metricide) and cleaned with the mild soap solution (Johnson & Johnson Baby Soap). The equipment will then be dried on the hanging rack.

The heart rate monitor will be disinfected using a disinfecting spray or wipes and will be hung to dry.

Prior to every usage the metabolic cart will be calibrated for both flow accuracy and for O_2 and CO_2. The mask does not restrict airflow and people can breathe 'normally' while wearing it. No mixed gases are flown into the mask, rather people breath normal room air.

Standard Maintenance

A service contract is maintained for this piece of equipment. PermaPure lines should be replaced periodically. The Triple-V should be replaced if it does not spin freely.

If any issues arise in the calibration or use of the Oxycon, please consult the Manual of Operations as we have included many tips for overcoming many standard issues that arise.

If any issues arise that need addressed with CareFusion the core director should be contacted and notes specific to the issue at hand should be made.

Standard Cleaning

In accordance with manufacturer recommendations masks and heart rate monitor straps should be thoroughly washed and hung to dry on the drying rack.

The PermaPure lines should be hung and no water should be introduced to them.

The turbine should be soaked in the disinfecting solution in accordance with the guidelines of the solution. The turbine should then be set aside to air dry and should not be used again until completely dry.

The battery should be charged after every use, and removed from the charger when the charging cycle is complete.

Approved Disinfection Products

To be phased out after current supply is depleted (20 December 2016)
Product: Cidex OPA
EPA Reg#: 00707800017
Registrant: Advanced Sterilization Products
Approval Date: 28-Jun-2005
Active Ingredients: ortho-Phthalaldehyde (OPA) 0.55%

Product: Clorox Clean Linen Bleach
EPA Reg# 5813-1
Registrant: Clorox
Approval Date: 23-Aug-2011
Active Ingredients: Sodium Hypochlorite 5.25%

CHAPTER 8

Exercise Intervention & Outcomes Core
Exercise Training
LSL S370D

All users should be familiar with the emergency response protocols.

Required Trainings:

- First Aid/CPR/AED
- Certification for instrument use (by Core Staff)

Relevant Equipment: Cybex Treadmill, Cybex Stationary Bicycle, Monark Bicycle Ergometer, Cybex Bravo Multigym.

List of Cleaning Supplies

1. Disinfecting wipes for the wipe down of equipment that may come in contact with participant sweat.
2. Nitrile gloves

General Usage Procedures

Participants will be fitted to the bicycle to a level of their comfort.

In accordance with the manufacturers recommendations the ergometer will be rolled down to ensure that it is calibrated.

The bicycle will be wiped down after every use with disinfectant.

The control unit should be plugged into the data recording computer before it is turned on.

Treadmill trip hazard,

Bravo hands away from moving parts

Standard Maintenance

Daily use (Performed by Core Users):
1. Ensure all components are clean and there are no cracks in any components.
2. Ensure all cords are plugged in properly and do not exhibit any signs of wear and do not pose a tripping hazard.

Annual Maintenance (Performed by Core Director):
1. Inspect the components for wear. Service or replace if necessary.

Pro re nata Maintenance (Performed by Core Users):
1. Service of cables and belts as they exhibit signs of wear. Report issues to Core Director.

Chapter 9

Human Motion Core
Motion Capture System
LSL S360B

All users should be familiar with the emergency response protocols.

Required Trainings

First Aid/CPR/AED – Citizen CPR
Certification for instrument use (by Core Staff)

Equipment

8 - Qualisys Oqus 700 Series Cameras
1 – Qualisys Oqus 500 Series Camera
3 – AMTI force platforms

Authorized Users

The motion capture equipment is only to be operated by certified users, this will be controlled through the Facilities Online Management (FOM) system. Where by the Core Director must activate users once training has been completed.

Standard Procedures

Individuals must login to their NetID account and activate their session, this will unlock the computer and begin billing through FOM.

Individuals are to create and utilize their own 'Workspaces' in the QTM software. These can be shared with lab members on the IALS Data Server. A starter 'Workspace' file is located on the core website.

The data collection space is to be calibrated before every use to ensure optimal results, calibration should be repeated until the total residual error is less than 0.8mm. The calibration wand and L-frame are to be put away after every use to preserve their lifespan.

Data is to be saved to each users 'home' folder on the IALS-Data Server Accounts will be furnished for each user and user groups can be created/amended as needed. This ensures that data will be available for use at the data processing computers in the Computational Space (S360H).

14 mm retroreflective markers are provided by the Core. Markers that are damaged or lose their reflective capability are to be placed in the container marked 'old markers', these are not to be used any further. If additional markers are required for a project they can be purchased through B&L Engineering.

Users are to logout of the collection computer after use, this will terminate your FOM session and terminate billing.

Chapter 10

Human Motion Core
Delsys Trigno EMG/IMU sensors
LSL S360B

All users should be familiar with the emergency response protocols.

Required Trainings:

- First Aid/CPR/AED
- Certification for instrument use (by Core Staff)

Emergency Procedures:

Please refer to the emergency response (Chapter 1) for a list of the emergency response and documentation procedures for this core.

Required Training

First Aid/CPR/AED – Citizen CPR (if working with human participants)
Certification for instrument use (by Core Staff)

Equipment

Delsys Trigno EMG/IMU System

Authorized Users

Delsys Trigno users will be certified by the Core staff. As this is instrument will most often be used in tandem with either the motion capture system (Chapter 9) or the Biodex (Chapter 3) it will be booked through FOM as an accessory for each of these facilities. Only approved users will be given the ability to book this accessory.

Standard Procedures

As the Delsys Trigno system is synchronized with other systems in the Human Testing Center there are no standard procedures other than to book the instrument through FOM.

Chapter 11

Human Motion Core
Kuka LBR iiwa 14-R820 robot arm
LSL S360B

All users should be familiar with the emergency response protocols.

Required Trainings:

- First Aid/CPR/AED (if working with Humans)
- Mechanical & Electrical Research Safety
- Certification for instrument use (by Core Staff)

Emergency Procedures:

Please refer to the emergency response (Chapter 1) for a list of the emergency response and documentation procedures for this core.

Equipment

Kuka LBR iiwa 14-R820 robot arm

Authorized Users

The Kuka Robot is only to be operated by certified users, this will be controlled through the Facilities Online Management (FOM) system. Where by the Core Director must activate users

Standard Procedures

Individuals must login to their NetID account and activate their session, this will unlock the computer and begin billing through FOM. At the end of their session users are to logout of the collection computer after use, this will terminate your FOM session and terminate billing.

The robot resides in the northeast corner of S360B, it can be moved into the center of the room so that it is in view of the motion capture system. When moving the robot, ensure that there are two people present. The steel base plate should always be in place underneath the robot prior to bolting it to the ground. The robot must ALWAYS BE BOLTED TO THE GROUND PRIOR TO TURNING IT ON.

Emergency stops are located both on the desktop and on the handheld control. If a person interacting with the is ever in distress the emergency should be plunged immediately.

Chapter 11

ROOM CALORIMETER CORE
LSL S360D, S360E, S360F, S360G
Date Created: July 2016
Last Revision by Michael Busa, PhD

All users should be familiar with the emergency response protocols.

Required EH&S Trainings:

- First Aid/CPR/AED
- Bloodborne Pathogens (if doing blood work)
- Certification for instrument use (by Core Staff)

Relevant Equipment:

- Room Calorimeter Chambers
- Equipment Relevant to metabolic acquisition
    - Gas Analyzers
    - Gas Blender
    - Gas Cylinders (O_2; CO_2; N_2; 20% O_2, 1% CO_2, balance N_2; 21% O_2, balance N_2)

Standard Operation:

The operation of the room calorimeters with human participants are to follow the extensive procedures outlined in the MOP to ensure accurate assessment of relevant dependent measures (e.g., VO_2, vCO_2, Energy Expenditure, and Respiratory Quotient). In brief, this requires gas calibrations and null measurements to be run prior to testing. As well as a null measurement run after the participant has been removed from the chamber.

The chamber will have gas from the medical air system (ensures dry air that will have uniform O_2 and CO_2 which is no different than normal ambient air).

Alarming Procedures:

Alarms will be set in the room calorimeter software (CalRQ) as a safe guard to alert examiners to conditions in the chambers that should be addressed by either checking the flow panel, adjust settings in the software or remove the participant from the chambers. Values are selected to prevent undue risk to participants. Alarm values for O_2 and CO_2 are established from guidelines set forth by NIOSH for CO_2 or McManus 1999 for O_2 to ensure that issues with the calorimeter are made at levels that do not approach any level of harm for the participants. The first (local) alarm point above NIOSH the long term CO_2 (8hr) exposure level (0.5%) and the altitude corrected O_2 for approximately 2000 ft above sea level (19.5%). The second alarm (text to core director) is set at 0.9% which is well below the NIOSH short term exposure limit for CO_2 (3%), the O_2 level is set at 18%, which is equivalent to 4000 ft above sea level. If the chamber values cannot be corrected when local alarms are triggered either by the study staff or by contacting the core director then the study is to be terminated and the participant removed from the chamber immediately. The second warning level that triggers a text to the core facility director allows for a system check and if no changes can be made immediately then the room can be called and study staff will be instructed to remove the participant from the chamber and close the chamber door. Temperature guidelines are established to ensure that the participant does not remain in the chamber if the

HVAC system has a failure. This failure would cause the room temperature to rise to an uncomfortable, though not dangerous, level.

O_2: below 19.3%(local alarm), below 18% (core director text message)
CO_2: above 0.5% (local alarm), above 0.9% (core director text message)
Temperature: greater than X standard deviations of the 10 minute average (local), greater than X standard deviations away from the 10 minute average (core director text message)

Standard Operation:

Prior to participants entering either of the chambers for a study the system will undergo a calibration where check the system against known concentrations (Zero Gas: 21% O_2, 0% CO_2, balance N_2 and Span Gas: 20% O_2, 1% CO_2, balance N_2) as well as ensuring that the system is delivering air that has stable, near 0% CO_2 air.

If a participant is in a chamber a core certified researcher must be present. Participants will be able to communicate with the researcher via the push button communication system. Additionally, if a participant feels uncomfortable for any reason they are free to leave the chamber, pushing the button door latch.

When staying long durations in the metabolic chambers participants will be passed their meals through an airlock and a separate airlock will be used for anything that needs passed out of the chamber. Meals will be provided by the research staff in accordance with the protocol.

Curtains are located on the inside of the large chamber and outside of the small chamber. These are to provide participants with privacy while in the chambers.

As part of the lab certification researchers will be made aware of where the materials needed to tend to any blood spill that may occur in the facility.

Between participants the chambers will be cleaned by UMass custodial staff or by the research staff and linens will be changed.

Gas tanks used to calibrate the chambers are secured to an unistrut on the wall with chain in LSL S360D. These gases include: (2) 21% O_2, balance N_2, (1) 100% CO_2, (1) 100% O_2, (1) 100% N_2, (1) 20% O_2, 1% CO_2, balance N_2. Depending on need extra tanks may also be stored in this room, these tanks will also get secured to the wall with chain. Appropriate signage will be placed on the door of S360 to inform people of the gasses located inside. In the case of fire vacate the area immediately, as the large O_2 source is an explosion hazard.

When connecting tanks to regulators a leak checking solution is applied to the threads to ensure that no leaks are present. Additionally, all tanks are checked for fill level every week.

Standard Maintenance:

In accordance with MEI specifications the mass flow controllers (MFC) will be sent to MEI every 6-months to undergo calibration.

Mixed gas (zero and span gasses) will be verified for content by using the gas blender that is part of the system to ensure that the measures used are correct. The method for this is located in the MOP developed in conjunction with MEI (the chamber manufacturer)

The HVAC systems for each chamber are located on top of each chamber and the glycol chiller and medical air system are located in LSL S235 and will be maintained by the UMass physical plant in accordance with their manufacturer specifications. In accordance with factory specification the drying unit on the medical air system is to be switched every month to ensure that the tanks can dry out and the system will continue to operate properly.

APPENDIX A

Emergency Exit Maps

LSL S360B: Blood Draw Room

LSL S360J: iDXA Room

Exercise Testing: S370E

Exercise Training: S370D

APPENDIX B

SOAP Reporting

SOAP Reporting Instructions:

When an adverse event occurs the documentation of the event is of the utmost importance, using the S.O.A.P. documentation format allows for concise documentation of important information that relate to both the participant and the setting.

S: Subjective

In this portion of the SOAP form responders are to document their subjective views of the situation. For example, 'The participant was eager to participate today.' or 'The participant seemed tired.'

O: Objective

This section is where you document measurable information that is observed during treatment. This includes things like Participant temperature, O_2 saturation, and blood pressure. Other things that can be reported in this section include reporting behaviors. For example, 'The participant had difficulty remaining conscious.'

A: Assessment

This is the portion of reporting where you report, in descriptive terms, the participant's performance during the session that would have led to the incident. For example: 'the participant knocked lost consciousness and hit the phlebotomy cart resulting in the blood vials falling on the floor and breaking.'

P: Plan

In this section of the SOAP notes you are to outline the treatment plan. For example, 'As the participant had no issues, they were allowed to leave. EH&S was contacted to help with the blood clean up.' or 'The participant was aided to the exam table where they laid down, 911, campus police and EH&S were contacted for their assistance. Participants feet were elevated.'

SOAP Notes – Human Testing Suite Incident Reporting Sheet

S: Subjective **O:** Objective **A**: Assessment **P:** Plan

Date: **Person Recording:**
Location: **Staff Present:**

S	
O	
A	
P	

APPENDIX C

Laboratory Incident Report Form

Name: **Title:**	**Department:** **Building / Room :**
Date/Time of incident:	**Phone #:**
	E-Mail:
Witness(es):	
Description of incident: Include the use of Personal Protective Equipment, chemical hood or other environmental control, safety equipment (attach additional pages if necessary).	
Did the incident result in a an injury: Yes ☐ No ☐ **Description of injury:**	
Notice of Injury report submitted: Yes ☐ No ☐ Date:	
Environmental Health and Safety (EH&S) notified: Yes ☐ No ☐ Date: **Name of EH&S staff person notified:** **Title:** **Date:**	
Emergency response information (include EH&S, fire, police, ambulance response present at the scene):	
Name of supervisor:	**Signature:** **Date:**

APPENDIX D

Data Safety Sheets

Accel TB (US)

SECTION 1. IDENTIFICATION

Product Identifier Accel TB (US)
Recommended Use Ready to Use Disinfectant Cleaner.
Manufacturer Virox Technologies Inc., 2770 Coventry Rd., Oakville, ON, L6H 6R1, 905-813-0110
Emergency Phone No. Virox Technologies Inc., 1-800-387-7578
SDS No. 000802

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification
Not classified under any GHS hazard classes.
GHS Label Elements
Signal Word: None
Hazard Pictogram: None
Hazard Statement (s): None
Precautionary Statement (s):
Prevention: Wash thoroughly after handling. See section 8 for Individual Protective Measures information.
Response: IF IN EYES: Get medical attention if symptoms appear. See section 4 First Aid Measures for Eye Contact.
Storage: No other specific measures identified. See section 7 for Handling and Storage information.
Disposal: See section 13 for Waste Disposal information.
Other Hazards
The product contains no substances which at their given concentration are considered to be hazardous to health.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture:

Chemical Name	CAS No.	%	Other Identifiers
Hydrogen peroxide	7722-84-1	0.5	

Notes
Active ingredients are listed above. All ingredients of this product are listed on the US EPA TSCA Inventory.
EPA Registration Number 74559-1

SECTION 4. FIRST-AID MEASURES

First-aid Measures
Inhalation
No specific first aid measures are required.
Skin Contact
No specific first aid measures are required.
Eye Contact
Flush with cool water. Remove contact lenses, if applicable, and continue washing.
Obtain medical attention if irritation develops or persists.
Ingestion
No specific first aid measures are required.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

Not combustible. Use extinguishing agents compatible with product and suitable for surrounding fire.

Unsuitable Extinguishing Media

None known.

Specific Hazards Arising from the Chemical

None known.

Special Protective Equipment and Precautions for Fire-fighters

Wear self-contained breathing apparatus for fire fighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Use the personal protective equipment recommended in Section 8 of this safety data sheet.

Environmental Precautions

Before attempting clean-up, refer to hazard data. Prevent large spills from entering sewers or waterways. Contact emergency services and supplier for advice.

Methods and Materials for Containment and Cleaning Up

Large spills or leaks: (greater than 5 gallons) Contain and soak up spill with absorbent that does not react with spilled product. Place used absorbent into suitable, covered, labelled containers for disposal. Use water rinse for final cleanup.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling

Use good industrial hygiene practices in handling this material. FOR COMMERCIAL AND INDUSTRIAL USE ONLY.

Conditions for Safe Storage

Store in an area that is out of direct sunlight. Avoid storage at elevated temperatures.

KEEP OUT OF REACH OF CHILDREN.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

	ACGIH		OSHA PEL		AIHA WEEL	
Chemical Name	**TWA**	**STEL**	**TWA**	**Ceiling**	**8-hr TWA**	**TWA**
Hydrogen Peroxide	1 ppm		1 ppm			

Appropriate Engineering Controls

No specific ventilation requirements.

Individual Protection Measures

Eye/Face Protection

Not required if product is used as directed.

Skin Protection

Not required if product is used as directed.

Respiratory Protection

Not required if product is used as directed.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Basic Physical and Chemical Properties

Odour Threshold	Not available
pH	2.5 - 3.5
Melting Point/Freezing Point	Not available (freezing)
Initial Boiling Point/Range	Not available

Flash Point	> 93 °C (199 °F)
Evaporation Rate	Not available
Flammability (solid, gas)	Not applicable (liquid).
Upper/Lower Flammability or Explosive Limit	Not available (upper); Not available (lower)
Vapour Pressure	Not available
Vapour Density (air = 1)	Not available
Relative Density (water = 1)	1.01 at 20 °C
Solubility	Soluble in water
Partition Coefficient, n-Octanol/Water (Log Kow)	Not available
Auto-ignition Temperature	Not available
Viscosity	1.122 centistokes at 20 °C (kinematic)

Other Information

Physical State	Liquid
Critical Temperature	Not available
Appearance	Clear, colourless liquid.
% Volatile	0.0%
Odour	Faint, Characteristic odour

SECTION 10. STABILITY AND REACTIVITY

Reactivity
Not reactive.
Chemical Stability
This product is stable.
Possibility of Hazardous Reactions
Hazardous polymerization will not occur.
Conditions to Avoid
High temperatures.
Incompatible Materials
Do not mix with concentrated bleach products.
Hazardous Decomposition Products
None known.

SECTION 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure
Inhalation; skin contact; eye contact; ingestion.
Acute Toxicity
LC50 (Inhalation): > 2.59 mg/L (Rats).
LD50 (oral): > 5000 mg / kg (Rats).
LD50 (Dermal): > 5000 mg/kg (Rabbit)
Skin Corrosion/Irritation
Not classified under GHS criteria.
Serious Eye Damage/Irritation
Not classified under GHS criteria.
STOT (Specific Target Organ Toxicity) - Single Exposure
Inhalation
Not classified under GHS criteria.
Skin Absorption
Not classified under GHS criteria.

Ingestion

Non-hazardous by GHS criteria. Like any product not designed to be ingested, this product may cause stomach distress if ingested in large quantities.

Aspiration Hazard

Not classified under GHS criteria.

STOT (Specific Target Organ Toxicity) - Repeated Exposure

Respiratory and/or Skin Sensitization

Skin Sensitization: not a skin sensitizer.

Respiratory sensitizer. Not a respiratory sensitizer.

Carcinogenicity

Not classified under GHS criteria.

Reproductive Toxicity

Development of Offspring

Not classified under GHS criteria.

Sexual Function and Fertility

Not classified under GHS criteria.

Germ Cell Mutagenicity

Not classified under GHS criteria.

Interactive Effects

None known.

SECTION 12. ECOLOGICAL INFORMATION

This section is not required by OSHA.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods

Review the STORAGE and DISPOSAL instructions on product label prior to disposal.

SECTION 14. TRANSPORT INFORMATION

Not regulated under Canadian TDG Regulations. Not regulated under US DOT Regulations.

Special Precautions for User Not applicable

IMO/IMDG clarification:

Not regulated.

SECTION 15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations

USA

Toxic Substances Control Act (TSCA) Section 8(b)

All ingredients are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.

Other U.S. Federal Regulations

SARA 302/304/311/312 extremely hazardous substances: No listed substance.

SARA 302/304 emergency planning and notification: No listed substance.

US Regulations:

EPA Registration No.: 74559-1

This chemical is a pesticide product registered by the US Environmental Protection Agency and is subject to certain labelling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS) and for workplace labels for non-pesticide chemicals. The following is the hazard information as required on the pesticide label: KEEP OUT OF REACH OF CHILDREN.

California Prop. 65: No listed substance.

SECTION 16. OTHER INFORMATION

HMIS Rating	**Health - 0** **Flammability - 0** **Physical Hazard - 0**
SDS Prepared By	Virox Technologies Inc.
Phone No.	(800) 387-7578
Date of Preparation	October 01, 2014
Additional Information	For an updated MSDS please contact the supplier/ manufacturer listed on the first page of this document. Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since condition of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirement of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and manufacturer/supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document. The contents of this document have been prepared in accordance with the OSHA Hazard Communication Standards (2012) and GHS (Globally Harmonized System of Classification and Labelling of Chemicals).

Safety Data Sheet (SDS)

Section 1: Chemical Product and Company Identification

Cat# : 8504

Part Name: CiDecon Cleaner, Disinfectant, Deodorizer

Supplier: **Decon Laboratories Inc.**
460 Glennie Circle King of Prussia, Pa 19406
SDS Telephone # (610) 755-0800

Emergency Telephone Numbers
US Chemtrec: (800) 424-9300
Canada: (703) 527-3887

Identified uses: Laboratory use

Email Contact: cveloski@deconlabs.com

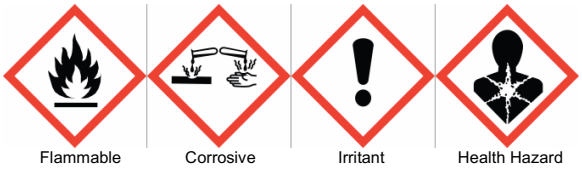
Section 2: Hazards Identification:

Hazard Overview

Classifications

Skin Corrosion - Category 1
Eye Damage - Category 1
Specific Target Organ Toxicity (repeated exposure) – Category 2
Specific Target Organ Toxicity (single exposure) - Category 3
Flammable Liquids - Category 3

Signal Word: DANGER



Hazard and Precautionary Statements

Hazard Statements
Keep out of reach of children.
Read label and SDS before use.
Causes severe skin burns and eye damage
May cause damage to kidneys and liver through prolonged or repeated exposure if swallowed.
May cause drowsiness or dizziness.
Flammable liquid and vapor.

Precautionary Statements Prevention
Wash hands thoroughly after handling.
Wear protective gloves and clothing. Wear eye and face protection.
Do not breathe fumes/mist/spray/vapors. Use only in a well-ventilated area.
Keep away from sparks, flames and hot surfaces. □ -No smoking. Use explosion-proof ventilating.
Use only non-sparking tools. Take precautionary measures against static discharge.

Keep container tightly closed.
Keep cool.

Response

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with soap and water/shower. Wash contaminated clothing before reuse
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Immediately call a poison center or a physician.

Storage

Store locked up in a well-ventilated place

Disposal

Dispose of contents and container in accordance with all local, regional, and national regulations.

NFPA Rating

Hazard Ratings:
These ratings are Decon Laboratories Inc.'s own assessments of the properties of the material using the ANSI/NFPA 704 Standard. Additional information can be found by consulting in the NFPA published ratings lists (List 325 and list 49).

If no data is listed the information is not available

Health 2 Flammability 2 Reactivity 0

Section 3: Composition/ Information on ingredients

Chemical Name	CAS #	Concentration % by weight
Isopropanol	67-63-0	>=5 <= 10
Sodium Hydroxide	1310-73-2	>=1 <= 5
Ethylene Glycol	107-21-1	>=1 <= 10
Para-Tertiary-Amylphenol	80-46-6	= 5.25
Ortho-phenylphenol	90-43-7	= 3.0
Ortho-Benzyl-para-Chlorophenol	120-32-1	= 3.0

Section 4: First Aid Measures

DANGER. Harmful if swallowed. Causes severe skin burns and eye damage. May cause respiratory irritation

EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
Immediately call a poison center or a physician.
SKIN: Take off immediately all contaminated clothing and wash it before reuse. Wash with plenty of soap and water/shower. If skin irritation persists get medical attention.
INHALATION: Remove person to fresh air and keep comfortable for breathing. Immediately call a poison center or a doctor.
INGESTION: Rinse mouth. Do not induce vomiting. Seek medical attention immediately.

Section 5: Fire-Fighting Measures

Suitable fire extinguishing media:
Use water spray, fog or foam.

Specific hazards arising from the chemical:
Containers may build pressure and rupture.

Hazardous thermal decomposition products:
Carbon Dioxide, Carbon Monoxide

Specific fire-fighting methods:
Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool
.

Special protective equipment for fire fighters:
Fire fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in a positive pressure mode

Section 6: Accidental Release measures

Personal precautions:
Put on appropriate personal protective equipment (see section 8)

Environmental precautions and clean-up methods:
Stop all leaks. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Eliminate all ignition sources. Disperse vapors with water spray. Prevent runoff from entering drains, sewers, streams or other bodies of water. Absorb spill with inert material. Absorb unrecoverable product. Transfer contaminated absorbent, soil and other materials to containers for disposal.

Section 7: Handling and Storage

Do not use or store near heat, sparks or open flame.
Store in a cool, dry place.
Do not get in eyes, on skin or on clothing.
Avoid breathing fumes. Keep out of reach of children.

Section 8: Exposure Controls/ Personal Protection

Ethylene Glycol	
ACGIH TLV	100 mg/m3
OSHA PEL	125 mg/m3
Sodium Hydroxide	
ACGIH TLV	2 mg/m3
OSHA PEL	2 mg/m3

Eye Protection: Wear safety glasses or goggles.
Skin Protection: Wear impervious gloves (made from rubber, nitrile or neoprene), clothing, and boots.
Respiratory Protection: When respiratory protection is required, use an organic vapor & particulate cartridge. All respiratory programs must meet OSHA's 29 CFR 1910.34 & ANSI Z88.2 requirements.
Engineering Controls: Good general ventilation required.

Section 9: Physical and Chemical Properties

Property	Value		
Appearance	CLEAR LIQUID	Auto Ignition Temp	NOT AVAILABLE
Boiling Point	NOT AVAILABLE	Color	YELLOW/BROWN
Decomposition Temperature	NOT AVAILABLE	Evaporation Rate	NOT AVAILABLE
Explosive Limit Ranges	NOT AVAILABLE	Explosive Properties	NOT AVAILABLE
Flash Point	102 F	Melting/FreezingPoint	NOT AVAILABLE
Odor	ALCOHOL	Odor Threshold	NOT AVAILABLE
Other Information	VOC content (wt. %): 12.4	Oxidizing Properties	NOT AVAILABLE
Partition Coeff	NOT AVAILABLE	Physical State	LIQUID
Relative Density	1.1	Solubility (Water)	COMPLETE
Vapor Density	NOT AVAILABLE	Vapor Pressure	NOT AVAILABLE
Viscosity	NOT AVAILABLE	pH	12-13

Section 10: Stability and Reactivity:

Reactivity :	Under normal conditions of storage and use, hazardous reactions will not occur.
Chemical Stability :	Stable under normal conditions.
Incompatible Materials :	Acids and strong oxidizers
Conditions to Avoid :	High temperatures
Decomposition Products:	CO, CO2

Vapors may ignite at temperatures exceeding flash point.

Section 11: Toxicological Information

Primary Route of Entry: Skin contact, eye contact, inhalation

Acute/Potential Health Effects:

EYES: Causes severe irritation experienced as discomfort or pain, excess blinking and tear production, with redness and swelling of the conjunctiva.

SKIN: Brief contact may cause slight irritation. Prolonged contact may cause more severe irritation with pain, local redness and swelling and possible tissue destruction.

INHALATION: High vapor concentrations may be irritating to respiratory tract.

INGESTION: Harmful or fatal if swallowed. Corrosive. Can cause severe burns and complete tissue perforation of mucous membranes, mouth, throat and stomach.

Chronic / Long Term Effects: None known.

Target Organ Effects: Lungs and upper respiratory tract, gastrointestinal tract, eyes, skin.

Reproductive/Developmental Information: No data.

Carcinogenic Information: WARNING: This product contains a chemical known to the state of California to cause cancer.

Acute Toxicity Values:
Isopropanol: Inhalation: > 10,000 mg/l Exposure time: 6 h, Species: rat

Section 12: Ecological Information

Not available.

Section 13: Disposal Considerations

Waste must be disposed of in accordance with federal, state and local environmental control regulations. See label for further instructions.

Section 14: Transportation Information

Certain shipping modes or package sizes may have exceptions from the transport regulations.

The classification provided may not reflect those exceptions and may not apply to all

shipping modes or package sizes.

Shipment by ground LTD QTY

UN number 2924

Proper shipping name FLAMMABLE LIQUID, CORROSIVE, N.O.S., (CONTAINS ISOPROPANOL AND SODIUM HYDROXIDE)

Class 3

Packing group III

Section 15: Regulatory Information

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act)
Ortho-phenylphenol

CERCLA RQ (40 CFR 302)
Sodium Hydroxide **1000 lbs**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 (40 CFR 372.65)
Ortho-phenylphenol

If identified components of this product are **CERCLA** hazardous substances and/or listed under **Sections 302, 304, or 313 of Title III** of the Superfund Amendments and Reauthorization Act (SARA) of 1986 (also known as EPCRA, the Emergency Planning and Community Right-To-Know Act), or under **California Proposition 65** (Safe Drinking Water and Toxic Enforcement Act), they are listed above in Section 15 of this SDS.
If identified components of this product are listed under Section 313, this product contains toxic chemicals subject to the reporting requirements of Section 313. This information must be included in all SDS that are copied and distributed for this material.
Title III Section 311/312 Hazardous Categories - 40 CFR 370.2:
ACUTE (X) Chronic (X) Fire (X) Pressure ( ) Reactive ( ) Not Applicable ( )
T.S.C.A. Status: All chemical substances found in this product comply with the Toxic Substances Control Act inventory reporting requirements.

RCRA Status: Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. If this product becomes hazardous waste it would be assigned RCRA Code(s)
D001, D002

FIFRA information
This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use
.
Signal word: DANGER. Hazard statement: Causes irreversible eye damage and skin burns. Harmful if swallowed and absorbed through skin.

Section 16: Other Information

Date of Issue: 11/15/2000
Date of Revision: 05/08/2015

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End of Safety Data Sheet

ADVANCED STERILIZATION PRODUCTS®
a Johnson & Johnson company
Division of Ethicon, Inc.

Material Safety Data Sheet

MSDS-09588-0-001
Rev.: E
Product: CIDEX® OPA Solution
Issue Date: 6-28-05

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Supplier:
Advanced Sterilization Products
33 Technology Drive
Irvine, CA 92618

Customer service telephone: 1-800-755-5900
Emergency telephone number: 1-877-208-6653 24 hrs
Product name: CIDEX OPA Solution
Synonyms: None

2. COMPOSITION/INFORMATION ON INGREDIENTS

The ingredients at their given percentages in this product are not considered hazardous to your health.

Components	CAS Number	Weight %	J&J - OEL Data (TWA - 8 hr)	J&J - OEL Data (STEL):	J&J - OEL Data (Ceiling Limit Value):	J&J - PBOEL
ortho-Phthalaldehyde (1,2 – benzenedicarboxaldehyde)	643-79-8	<1	Not Determined	Not Determined	Not Determined	Not Determined

3. HAZARDS IDENTIFICATION

Emergency overview: May cause eye, skin and respiratory irritation.
May elicit an allergic reaction.
CIDEX OPA Solution has been reported to cause anaphylactic-like reactions in bladder cancer patients undergoing repeated cystoscopy.
CIDEX OPA Solution should not be used to reprocess instruments for patients that have shown previous sensitivity to this solution or any of its ingredients.

Properties affecting health: May cause sensitization by repeated skin contact.

Principle routes of exposure:

Oral: Not anticipated to be a significant route of occupational exposure.
Eye contact: May cause eye irritation and redness.
Skin contact: May cause skin irritation. Repeated exposure may cause skin dryness or cracking. Exposure to skin may cause temporary staining.
Ingestion: Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Exposure can irritate and discolor the tissues of the mouth, esophagus and other tissues of the digestive tract.

Inhalation: May cause irritation, including but not limited to discharge, coughing, wheezing tightness of chest and throat, difficulty breathing and stinging sensation in nose and throat, tingling of mouth and lips, headache, lose of smell and dry mouth. Symptoms are temporary and reversible.

Hazard information:

Target organ effects: None
Reproductive effects: Not a reproductive effector.
Mutagenic effects: Not mutagenic in the Ames assay.
Sensitization: May cause sensitization.

Carcinogenicity rating:

Components	CAS Number	J & J:	NTP:	IARC:	California Proposition 65 List:
ortho-Phthalaldehyde (1,2 – benzenedicarboxaldehyde)	643-79-8	Not Determined	Not Determined	Not Determined	Not Determined

Signs and symptoms: None.

Medical conditions aggravated by exposure: Inhalation of vapor may cause asthma-like symptoms (chest discomfort and tightness, difficulty with breathing) as well as aggravate pre-existing asthma.

4. FIRST AID MEASURES

Eye contact: In the case of contact with eyes, rinse immediately with plenty of water for 15 minutes and seek medical attention.

Ingestion: Do not induce vomiting. Rinse mouth followed by drinking a large quantity of water

Inhalation: Move to fresh air immediately. If experiencing difficulty breathing, seek medical attention.

Skin contact: Wash contaminated areas thoroughly with soap and water.
Remove contaminated clothing and wash before re-use.
Seek medical attention if irritation develops or persists.

Protection of first-aiders: None.

Notes to physician: Probable damage to the mucosa from oral exposure may contraindicate the use of gastric lavage.

5. FIRE-FIGHTING MEASURES

Flash point (°F):	Not applicable
Flash point (°C):	Not applicable
Autoignition temperature:	Not applicable
Flammable limits in air - lower (%):	Not applicable
NFPA rating:	Health: 1 flammability: 0 reactivity: 0
HMIS/ NFPA rating and classification:	

Fire fighting information:

Suitable extinguishing media:	Use any extinguishing agent which is suitable for the surrounding fire
Extinguishing media which must not be used for safety reasons:	None
Specific methods:	None
Special protective equipment for firefighters:	Wear self-contained breathing apparatus for fire fighting if necessary.
Hazardous combustion products:	None
Explosivity:	None
Explosion limits:	
lower:	None
upper:	None

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:	Wear eye and skin protection while handling material for clean-up. Avoid breathing vapors and/or mists.
Environmental precautions:	Do not wash down sewers or waterways.
Methods for cleaning up:	If required, neutralize by sprinkling approximately 25 grams of glycine (CAS# 56-40-6) powder per gallon of CIDEX OPA Solution spill. Thoroughly blend the glycine into the spill using mop or other tools. Allow 5 minutes contact for neutralization. Pick up and transfer to properly labeled containers. Allow neutralization to continue for 1 hour and then dispose of in accordance with all applicable federal, state, and local regulations. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Handling:

Technical measures/precautions:	Use in well ventilated area and use with appropriate exhaust ventilation, for example a minimum of 10 air exchanges per hour or as defined by state and local regulations.
Safe handling advice:	Wear appropriate personal protection. Avoid contact with skin, eyes and clothing. Remove contaminated clothing and launder before reuse.

Storage:

Technical measures/storage conditions:	This product should be stored between 59°F (15°C) and 86°F (30°C) Keep containers tightly closed.
Incompatible products:	Avoid contact with strong acids and bases. Keep from contact with oxidizing materials.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls:	Ensure adequate ventilation.
Eye protection:	Eye protection recommended.
Hand protection:	Chemical resistant gloves recommended.
Skin and body protection	Wear suitable protective clothing.
Respiratory protection:	None required.
Other/general protection:	None required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear liquid
Physical state:	Liquid
Color:	Light blue
pH:	7.2-7.8
Odor:	Slight Odor
Boiling temperature (ºF):	212
Boiling temperature (ºC):	100
Freezing point/range (ºC):	0
Freezing point/range (ºF):	32
Specific gravity:	1.0003g/cc
Evaporation rate:	similar to water
Water solubility:	soluble

10. STABILITY AND REACTIVITY

Chemical stability:	Stable under recommended storage conditions.
Hazardous polymerization:	Hazardous polymerization does not occur.
Hazardous decomposition products:	Unknown on product.

Materials to avoid:	Strong acids and strong bases. Stay away from strong oxidizing agents.
Conditions to avoid:	Extremes of temperature and direct sunlight.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

LD50/oral/rat (mg/kg) =	>5000 mg/kg
LD50 Dermal Rabbit (mg/kg):	>2000 mg/kg

Local effects

Oral:	Non-toxic
Eye irritation	May cause eye irritation.
Skin irritation:	May cause skin irritation.
Inhalation:	Unknown on product.

Chronic toxicity

Oral:	Unknown on product.
Inhalation:	Unknown on product.
Dermal:	Unknown on product.

Subchronic toxicity

Oral:	Oral administration of o-phthalaldehyde to rats for 90 days resulted in a NOEL of 5mg/kg/day.
Dermal:	Unknown on product.

Specific effects

Corrosive effects:	Not corrosive.
Sensitization:	May elicit an allergic reaction.
Target organ effects:	None
Mutagenic effects:	Not mutagenic in Ames test.
Reproductive effects:	Unknown on product.
Developmental effects:	Oral administration of o-phthalaldehyde to pregnant rats indicated that at maternally non-toxic doses (less than 10 mg/kg/day) there was no developmental effect.
Carcinogenic effects:	Unknown on product.

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Ecotoxicity effects:	Unknown on this product.
Aquatic toxicity effects:	This product is harmful to aquatic organisms.
Mobility:	Unknown on product.
Persistence / degradability:	Unknown on product.
Bioaccumulation:	Unknown on product.
Degradation:	Unknown on product.

13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products:	Waste disposal must be in accordance with appropriate US, Federal, State and International regulations. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority. This product is not a hazardous waste as defined by EPA definitions.
Contaminated packaging:	Do not re-use empty containers
Methods for cleaning up:	If required, neutralize by sprinkling approximately 25 grams of glycine (CAS # 56-40-6) powder per gallon of CIDEX OPA Solution spill. Thoroughly blend the glycine into the spill using mop or other tools. Allow 5 minutes contact for neutralization. Pick up and transfer to properly labeled containers. Allow neutralization to continue for 1 hour and then dispose of in accordance with all applicable federal, state, and local regulations. Clean contaminated surface thoroughly.

14. TRANSPORT INFORMATION

DOT:	
DOT UN-No:	Not applicable
DOT shipping name:	Not regulated
Hazard class:	Not applicable
Subsidiary risk (hazard class):	Not applicable
Packing group:	Not applicable
DOT reportable quantity (lbs):	Not applicable
IMO/IMDG:	
Hazard class:	Not applicable
IMDG page:	Not applicable
IMDG-labels:	Not applicable
Packing group:	Not applicable
MFAG table No.:	Not applicable
Proper shipping name:	Not regulated
UN/Id No.:	Not applicable
ADR/RID:	
Hazard class/packing group:	Not applicable
Item:	Not applicable
ADR/RID-labels:	Not applicable
UN/Id No.:	Not applicable
Proper shipping name:	Not regulated
TREM-card:	Not applicable
IATA/ICAO:	
Hazard class:	Not applicable
Packing group:	Not applicable
Proper shipping name:	Not regulated
ID/UN No.:	Not applicable
IATA - label:	Not applicable
ERG #	Not applicable
TDG (Canada):	
Status:	Not applicable
Packing group:	Not applicable

15. REGULATORY INFORMATION

SARA (311, 312) hazard class:

Immediate health:	None
Delayed health:	None
Fire:	None
Sudden Release of Pressure Hazard:	None
Reactivity:	None

TSCA inventory list: Listed under TSCA: Yes

WHMIS:

WHMIS trade secret:	None
WHMIS hazard class:	None

Canada DSL inventory list: Listed on DSL: Yes

Notes:

1. SARA = Superfund Amendments and the Reauthorization Act.
2. CERCLA = Comprehensive Environmental Response, Compensations and Liability Act.
3. FIFRA = Federal Insecticide, Fungicide and Rodenticide Act
4. TSCA = Toxic Substance Control Act
5. WHMIS = Canadian Workplace Hazardous Materials Information System
6. This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. OTHER INFORMATION

This data sheet contains changes from the previous version in section(s):
None

Additional advice None

Literary Reference: None

MSDS format: North American Format - U.S. and Canada
This Material Safety Data Sheet was prepared in accordance with OSHA 29 CFR 1910.1200.

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End of Safety Data Sheet

SAFETY DATA SHEET

1. Product and Company Identification

Product identifier **Super Sani-Cloth Germicidal Wipe** **SDS 0020-00**

Other means of identification Not available

Recommended use Disinfectant

Recommended restrictions For Professional and Hospital Use

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name Professional Disposables International, Inc.

Address Two Nice-Pak Park
Orangeburg, NY 10962-1376

Telephone Phone (USA) 1-845-365-1700 (M-F 9am - 5pm)
Emergency Phone: 1-800-999-6423

E-mail www.pdihc.com

Emergency phone number 1-800-999-6423

2. Hazards Identification

Physical hazards Flammable solids Category 1

Health hazards Serious eye damage/eye irritation Category 2A

Environmental hazards Not determined

OSHA defined hazards None additional

Not applicable.

Label elements

Signal word Danger

Hazard statement Flammable solid.
Causes serious eye irritation.

Precautionary statement

Prevention Read label before use.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Wash thoroughly after handling.

Response If in eyes: Rinse cautiously with water for 15 - 20 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
In case of fire: Use appropriate media to extinguish.

Storage Store away from incompatible materials.

Disposal Dispose of waste and residues in accordance with local authority requirements.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information Not applicable.

3. Composition/Information on Ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Isopropyl Alcohol		67-63-0	55
n-Alkyl (60% C14, 32% C16, 5% C12, 5% C18) dimethyl benzyl ammonium chlorides		68391-01-5	0.25
n-Alkyl (68% C12, 32% C14) dimethyl ethylbenzyl ammonium chlorides		68956-79-6	0.25

4. First Aid Measures

Inhalation	Not a normal route of exposure. If inhaled, remove to fresh air. Get medical attention if symptoms develop.
Skin contact	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes.
Eye contact	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
Ingestion	Not a likely route of exposure. If ingestion does occur, call a poison control center or doctor for treatment advice.
Most important symptoms/effects, acute and delayed	Symptoms may include stinging, tearing, redness, swelling, and blurred vision.
Indication of immediate medical attention and special treatment needed	Treat patient symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Avoid contact with eyes.

5. Fire Fighting Measures

Suitable extinguishing media	Water. Water fog. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Structural firefighters protective clothing will only provide limited protection.
Fire-fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. In the event of fire, cool product with water spray. Move product from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials. Move products from fire area if you can do so without risk. Cool containers exposed to flames with water until well after the fire is out. In the event of fire and/or explosion do not breathe fumes.
General fire hazards	Flammable solid.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures	Wear appropriate protective equipment and clothing during clean-up. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Pick up and discard towelette. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and Storage

Precautions for safe handling	Not a skin wipe. For use on hard non-porous surfaces only. Do not use or store near heat or open flame. Use according to package label instructions. Use good industrial hygiene practices in handling this product. Wear appropriate personal protective equipment. Wash thoroughly after handling. When using do not eat or drink.
Conditions for safe storage, including any incompatibilities	Do not contaminate water, food or feed by storage or disposal. When not in use keep container closed to prevent moisture loss. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure Controls/Personal Protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Isopropyl Alcohol (CAS 67-63-0)	PEL	980 mg/m3 400 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
Isopropyl Alcohol (CAS 67-63-0)	STEL	400 ppm
	TWA	200 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Isopropyl Alcohol (CAS 67-63-0)	STEL	1225 mg/m3
		500 ppm
	TWA	980 mg/m3
		400 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Isopropyl Alcohol (CAS 67-63-0)	40 mg/l	Acetone	Urine	*

* - For sampling details, please see the source document.

Exposure guidelines Chemicals listed in section 3 that are not listed here do not have established limit values for ACGIH or OSHA PEL.

Appropriate engineering controls Provide eyewash station.
Ensure adequate ventilation.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear eye protection as appropriate.

Skin protection

Hand protection Wear disposable protective gloves as appropriate.

Other As required by employer code.

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards Not available.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and immediately after handling the product. When using do not eat or drink. When using do not smoke.

9. Physical and Chemical Properties

Appearance Liquid saturated on wipe

Physical state Solid.

Form Solid.

Color Colorless to Slightly yellow

Odor Alcohol

Odor threshold Not available.

pH 5.75 - 8.50

Melting point/freezing point Not available.

Initial boiling point and boiling range Not available.

Pour point Not available.

Specific gravity 0.892

Partition coefficient (n-octanol/water) Not available.

Flash point 75.0 °F (23.9 °C) (Liquid)

Evaporation rate Not available.

Flammability (solid, gas) Flammable solid.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Explosive limit - lower (%) Not available.

Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.

10. Stability and Reactivity

Reactivity	Do not use on natural marble, windows, unpainted wood or brass, clear plastic or colored grout. This product may react with strong acids and strong oxidizing agents.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Contact with incompatible materials. Heat, flames and sparks.
Incompatible materials	Strong oxidizing agents. Acids. Isocyanates. Chlorine.
Hazardous decomposition products	May include and are not limited to: Oxides of carbon. Ammonia. Chloride compounds

11. Toxicological Information

Information on likely routes of exposure

Ingestion	Harmful if swallowed.
Inhalation	Health injuries are not known or expected under normal use.
Skin contact	Non-irritating based on test data.
Eye contact	Causes serious eye irritation.
Symptoms related to the physical, chemical and toxicological characteristics	Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Information on toxicological effects

Acute toxicity

Components	Species	Test Results
Isopropyl Alcohol (CAS 67-63-0)		
Acute		
Dermal		
LD50	Rabbit	12800 mg/kg
Inhalation		
LC50	Rat	16970 mg/l/4h
Oral		
LD50	Dog	4797 mg/kg
	Mouse	3600 mg/kg
	Rabbit	5030 mg/kg
	Rat	4396 mg/kg
n-Alkyl (60% C14, 32% C16, 5% C12, 5% C18) dimethyl benzyl ammonium chlorides (CAS 68391-01-5)		
Acute		
Dermal		
LD50	Rat	2000 mg/kg
		1420 mg/kg
Inhalation		
LC50	Not available	
Oral		
LD50	Mouse	150 mg/kg
	Rat	240 mg/kg

Components	Species	Test Results
n-Alkyl (68% C12, 32% C14) dimethyl ethylbenzyl ammonium chlorides (CAS 68956-79-6)		
Acute		
Dermal		
LD50	Not available	
Inhalation		
LC50	Not available	
Oral		
LD50	Rat	250 mg/kg

Skin corrosion/irritation	Non-irritating based on test data.
Exposure minutes	Not available.
Erythema value	Not available.
Oedema value	Not available.
Serious eye damage/eye irritation	Causes serious eye irritation based on test results.
Corneal opacity value	Not available.
Iris lesion value	Not available.
Conjunctival reddening value	Not available.
Conjunctival oedema value	Not available.
Recover days	Not available.
Respiratory or skin sensitization	
Respiratory sensitization	Not available.
Skin sensitization	Not applicable.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Narcotic effects.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not classified.
Chronic effects	Prolonged inhalation may be harmful.
Further information	Not available.

12. Ecological Information

Ecotoxicity See below

Components		Species	Test Results
Isopropyl Alcohol (CAS 67-63-0)			
Algae	IC50	Algae	1000 mg/L, 72 Hours
Crustacea	EC50	Daphnia	13299 mg/L, 48 Hours
Aquatic			
Fish	LC50	Bluegill (Lepomis macrochirus)	> 1400 mg/l, 96 hours

Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	No data available.

Partition coefficient n-octanol / water (log Kow)

Isopropyl Alcohol 0.05

Mobility in soil	No data available.
Mobility in general	Not available.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal Considerations

Disposal instructions	Follow container label directions carefully. Do not reuse towelette. Dispose of used towelette in trash. Do not flush in toilet. Nonrefillable container. Do not resue or refill this container. Triple rinse and offer for recycling. If recycling is not available, put in trash collection. Review federal, state/provincial, and local government requirements prior to disposal. Dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container.
Local disposal regulations	See above
Hazardous waste code	Assign as required.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

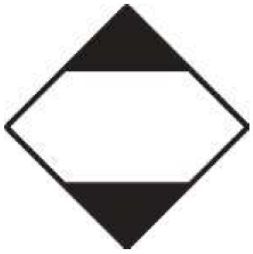
14. Transport Information

U.S. Department of Transportation (DOT)

Basic shipping requirements:

UN number	UN3175
Proper shipping name	Solids containing flammable liquid, n.o.s. (Isopropyl Alcohol)
Hazard class	4.1
Packing group	II
Packaging exceptions	<1kg - limited quantity (par. 173.151)

DOT



15. Regulatory Information

US federal regulations

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

PRECAUTIONARY STATEMENTS:
Hazards to Humans and Domestic Animals. Warning: Causes substantial but temporary eye damage. Do not get in eyes or on clothing. Avoid contact with skin. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using restroom. Remove and wash contaminated clothing before reuse.

EPA Reg. # 9480-4

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Isopropyl Alcohol (CAS 67-63-0) Listed.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - Yes Delayed Hazard - No Fire Hazard - Yes Pressure Hazard - No Reactivity Hazard - No

SARA 302 Extremely hazardous substance No

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Isopropyl Alcohol	67-63-0	55

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Food and Drug Administration (FDA) Not regulated.

US state regulations California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US - California Hazardous Substances (Director's): Listed substance

Isopropyl Alcohol (CAS 67-63-0) Listed.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Not listed.

US - Illinois Chemical Safety Act: Listed substance

Isopropyl Alcohol (CAS 67-63-0) Listed.

US - Louisiana Spill Reporting: Listed substance

Isopropyl Alcohol (CAS 67-63-0) Listed.

US - Minnesota Haz Subs: Listed substance

Isopropyl Alcohol (CAS 67-63-0) Listed.

US - New Jersey RTK - Substances: Listed substance

Isopropyl Alcohol (CAS 67-63-0) Listed.

US - Texas Effects Screening Levels: Listed substance

Isopropyl Alcohol (CAS 67-63-0) Listed.
n-Alkyl (60% C14, 32% C16, 5% C12, 5% C18) dimethyl benzyl ammonium chlorides (CAS 68391-01-5) Listed.

US. Massachusetts RTK - Substance List

Isopropyl Alcohol (CAS 67-63-0) Listed.

US. Pennsylvania RTK - Hazardous Substances

Isopropyl Alcohol (CAS 67-63-0) Listed.

US. Rhode Island RTK

Isopropyl Alcohol (CAS 67-63-0) Listed.

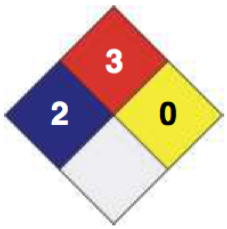
Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s)

16. Other Information

LEGEND	
Severe	4
Serious	3
Moderate	2
Slight	1
Minimal	0

HEALTH	/ 2
FLAMMABILITY	3
PHYSICAL HAZARD	0
PERSONAL PROTECTION	X



Disclaimer	The information in the sheet was written based on the best knowledge and experience currently available. Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.
Issue date	27-March-2015
Further information	For any questions surrounding this SDS, please contact the supplier/manufacturer listed on the first page of the document. It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Not for use on skin. Not a baby wipe. For use on hard surfaces only. Do not use on natural marble, windows, unpainted wood, brass, clear plastic or coloured grout. Revision 1. Changed eye toxicity categorization to Category 2A and revised transportation section. Also changed bulk liquid number and made other miscellaneous changes. Based on bulk liquid # 4FQ51801.
Other information	This Safety Data Sheet was prepared to comply with the current OSHA Hazard Communication Standard (HCS) adoption of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).
Prepared by	Dell Tech Laboratories, Ltd. Phone: (519) 858-5021