

BROOKHAVEN NATIONAL LABORATORY Safety & Health Services Division INDUSTRIAL HYGIENE GROUP Standard Operating Procedure: Program Procedure	NUMBER IH72450
	REVISION FINAL Rev2
Subject: RESPIRATORY PROTECTION PROGRAM	DATE 01/08/08
Disinfecting Masks After Fit Testing	PAGE 1 of 8

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1.0 PURPOSE & SCOPE

Purpose: This procedure describes the approved procedure for disinfecting respiratory protection respirators face pieces after fit testing. This SOP is used in conjunction with *IH72100 Respiratory Protection Program* and *IH72300 QNFT Principles* and *IH72350 TSI Portacount Fit Test Procedure*.

Scope: The SOP is limited to the disinfecting of the inventory of equipment kept in the fit test room for training and fit test purposes. This SOP does not authorize or describe disinfecting of respiratory protective equipment that has been exposed to chemical or radiological contaminants.

2.0 RESPONSIBILITIES

- 2.1 This program is implemented through the SHSD Industrial Hygiene Group Leader and the *Respiratory Protection Program Administrator (RPPA)*. Members of the SHSD Industrial Hygiene Group and other BNL organizations conducting fit testing under the guidance of SHSD, with qualifications in accordance with Section 7 of this procedure, can disinfect face pieces used during fit testing.
- 2.2 It is the responsibility of persons using this SOP to comply with all aspects of it.
- 2.3 The IH Group shall maintain the equipment used in this procedure.

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3.0 DEFINITIONS none

4.0 PREREQUISITES Prior to Disinfecting equipment, the person must meet the qualification requirements in Section 7.

5.0 PRECAUTIONS

5.1 **Hazard Determination:**

- The disinfecting of fit test equipment does not cause exposure to any physical or radiological hazards.
- The disinfectant chemicals do not pose a hazard when used as directed in this SOP. But they are hazardous (CORROSIVE) from eye contact or ingestion of the concentrated liquid.
 - In case of eye contact: Immediately flush for 15 minutes and then get prompt medical attention at OMC. Use the eyewash station to the left of the sink.
 - If swallowed: Go to OMC immediately. (Drinking large quantities of egg whites or gelatin solution, or large quantities of water is recommended.)
- Personal protective equipment, other than water impervious gloves, is not required.
- The equipment does not generate Hazardous Waste. The wash solutions and rinse can be released to the sink in Building 120, Room 1-19.
- The process of disinfecting masks is covered in SHSD Job Risk Assessment [SHSD-JRA-12](#).

5.2 **Prohibitions:**

- Do not use chlorine bleach on facepieces.
- Do not use isopropyl alcohol on the inside sight surfaces.
- Never use abrasives or abrasive pads on the mask parts.
- Do not use a cloth or sponge to dry the inside of the mask.

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6.0 PROCEDURE

6.1 **Equipment:**

- Disinfectant Georgia Steel “*Special Respirator Cleaner Plus®*”, or equivalent (benzyl ammonium chloride compound 15%)
- Dispenser bottle
- Wash bucket
- Plastic Storage Bags
- Sink and Potable Warm Water supply
- Neoprene, Nitrile, PVC, or Natural Latex Rubber Gloves



- 6.2 After fit testing masks has been worn by a worker,
- Remove the filters and testing by-pass fittings.
 - Place the used facepiece in a container clearly labeled to prevent the equipment from being used again prior to disinfecting.
- 6.3 Move used face pieces from the fit test room to the disinfecting area.
- 6.4 Place ½ capful of the “*Special Respirator Cleaner Plus®*” in the disinfecting pail
- 6.5 Fill the pail approximately ¾ full (1 gallon) with warm water from the tap. Mix completely.
- 6.6 Disassemble the face piece as per Attachment 9.3
- 6.7 Place the pieces and the facepiece assembly into the disinfecting solution. (The solution may be used to disinfect up to 3 masks, then needs to be replaced with fresh solution).
- 6.8 Allow the pieces and facepiece assembly to soak for 10 minutes.
- 6.9 After 10 minutes, remove the parts and rinse in warm water until the parts rinse runs clear.
- 6.10 Pour the used disinfecting solution down the drain and rinse the bucket with tap water.
- 6.11 Place the clean parts on a paper towel and let air dry. It is acceptable to hang the mask facepieces on a coat rack to dry.
- 6.12 After parts and masks are dry, reassemble the respirator.
- 6.13 Visually inspect the mask for distortion and inhalation and exhalation vales for proper seating.
- 6.14 Place disinfected respirators into the plastic storage bag.
- 6.15 Return them to the disinfected fit test mask storage cabinet.

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7.0 IMPLEMENTATION & TRAINING

- 7.1 **Respirator Qualifications:** Only persons with current qualification can perform the role of equipment disinfection in this program. Qualification is obtained by reading this SOP and the Job Performance Measure in Attachment 9.3.

8.0 REFERENCES

- 8.1 Georgia Steel “*Special Respirator Cleaner Plus®*” bottle label.
- 8.2 North 5400 and 7600 Series Full Face Air Purifying Respirator Operating and Maintenance Manual.
- 8.3 NIOSH *Suggested Respirator Cleaning and Sanitation Procedure* from CDC NIOSH Web Site.

9.0 ATTACHMENTS

- 9.1 MSDS for Disinfecting Solution
- 9.2 Guide to Disassembling the Mask for Cleaning
- 9.3 Qualification Documentation for Fit Test Respirator Disinfecting

The only official copy is on-line at the SHSD IH Group website.
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10.0 DOCUMENTATION

Document Development and Revision Control Tracking		
Prepared By: <i>(signature/date on file)</i> R. Selvey 03/16/04 Certified Industrial Hygienist	Reviewed By / Date: <i>(signature/date on file)</i> D. Wadman 03/16/04 SHSD respirator Fit Tester Lead	Approved By / Date: <i>(signature/date on file)</i> R. Selvey 03/16/04 Industrial Hygienist Group Leader
ESH Coordinator/ Date: <i>none</i>	Work Coordinator/ Date: <i>none</i>	SHSD Manager / Date <i>none</i>
QA Representative / Date: <i>none</i>	Training Coordinator / Date: <i>none</i>	Filing Code: IH52
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ISM Review - Hazard Categorization <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low/Skill of the craft	Validation: <input type="checkbox"/> Formal Walkthrough <input type="checkbox"/> Desk Top Review <input type="checkbox"/> SME Review Name / Date:	Implementation: Training Completed: Tracked in BTMS Procedure posted on Web: 01/08/08 Hard Copy files updated: 01/08/08 Document Control on forms: 01/08/08

Revision Log		
Purpose: <input type="checkbox"/> Temporary Change <input type="checkbox"/> Change in Scope <input checked="" type="checkbox"/> Periodic review <input type="checkbox"/> Clarify/enhance procedural controls Changed resulting from: <input type="checkbox"/> Environmental impacts <input type="checkbox"/> Federal, State and/or Local requirements <input type="checkbox"/> Corrective/preventive actions to non-conformances <input checked="" type="checkbox"/> none of the above Section/page and Description of change: Triennial review. Update format of Section 10. Added other SOP on fit testing to the Section 1 Scope. Added link to JRA in 5.1. Removed references to room numbers in Section 6 as the fit testing room and cleaning rooms have changed location and a subject to change in the future. Replaced the work "Clean" with "Disinfection" throughout the document to correctly indicate the appropriate word for the "cleaning" done between masks use by the fit test subjects. Deleted the Attachment 9.2 Cairn Mask label as that type of equipment has been eliminated. Revised the JPM in Attachment 9.2 to the current format.		
<i>R. Selvey 03/30/07 (signature on file)</i> SME Reviewer/Date:	Reviewer/Date:	Reviewer/Date:
Purpose: <input type="checkbox"/> Temporary Change <input type="checkbox"/> Change in Scope <input type="checkbox"/> Periodic review <input type="checkbox"/> Clarify/enhance procedural controls Changed resulting from: <input type="checkbox"/> Environmental impacts <input type="checkbox"/> Federal, State and/or Local requirements <input type="checkbox"/> Corrective/preventive actions to non-conformances <input checked="" type="checkbox"/> none of the above Section/page and Description of change: Added Attachment 9.2 Guidance for Fit Test. Reworded Step 6.6 to refer to Attachment 9.2. Reworded Section 7 with new Attachment number. Renumbered JPM from 9.2 to 9.3.		
<i>(signature/date on file) R. Selvey 01/08/08</i> SME Reviewer/Date:	SME Reviewer/Date:	SME Reviewer/Date:

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Attachment 9.1

MSDS for Disinfecting Solution

MATERIAL SAFETY DATA SHEET

Georgia Steel & Chemical Co., Inc.
 10820 Gullford Rd
 Annapolis Junction, MD 20701

Product Information: (301) 317-5502
 Emergency: (800) 424-9300
 Document Number: MSDS100 Rev C
 Date Revised: 1/15/2001

Section 1 – Identification

Product Number:	FK300, FK300C, FK300G, FK300GC
Product Name:	Spectral Respirator Cleaner Plus™
Product Type:	Quaternary ammonium germicidal detergent disinfectant

Hazard Rating Health: 2 Fire: 0 Reactivity: 0 Personal Protective Equipment: B	Scale: 4- Extreme 3- High 2- Moderate 1- Slight 0- Insignificant
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Section 2 – HAZARDOUS COMPONENTS

Component	CAS #	% Weight	OSHA			ACGIH
			TWA	STEL	PEL	15-min-Ceiling
Alkyl (C ₁₂ , 50%; C ₁₆ , 40%; C ₁₈ , 10%) dimethyl benzyl ammonium chloride	68391-01-5	5-10	NE	NE	NE	NE
Octyl/decyl dimethyl ammonium chloride	32426-11-2	1-5	NE	NE	NE	NE
Dioctyl dimethyl ammonium chloride	7173-51-5	1-5	NE	NE	NE	NE
Dioctyl dimethyl ammonium chloride	5538-94-3	1-5	NE	NE	NE	NE

Active Ingredients: -
 Other Ingredients: -

Section 3 – PHYSICAL / CHEMICAL CHARACTERISTICS

Color:	*Blue	Boiling Point:	212°F
State:	Liquid	Melting Point:	N/A
Odor:	Pleasant sassafras odor	Solubility in Water:	Complete
pH:	-	Percent Volatile:	-
Vapor Density:	Same as water	Evaporation Rate:	1.0
Specific Gravity (H ₂ O = 1):	1.010	Vapor Pressure (mmHg 20C):	Same as water

*Exposure to sunlight may alter the color of this product but it does not have any adverse affect on the disinfectant properties of this product

Section 4 – FIRE AND EXPLOSION HAZARD DATA

Flash Point:	None to boiling ICC
Special Fire Fighting Procedures:	None
Unusual Fire and Explosion Hazards:	None
Flammable limits:	Lower Level: N/A Upper Level: N/A

Section 5 – REACTIVITY DATA

Stability:	Stable
Conditions to Avoid:	Do not mix with other cleaning chemicals.
Materials to Avoid:	Strong oxidizing or reducing agents
Hazardous Decomposition or Byproducts:	Ammonia, nitrogen oxides
Hazardous Polymerization:	May not Occur

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MATERIAL SAFETY DATA SHEET

Section 6 – HEALTH HAZARD DATA

Primary Route of exposure:	Ingestion, Skin, Eyes
Health Effects of overexposure:	Direct eye contact can cause severe irritation. Repeated skin contact can cause irritation. Inhalation of mists can cause irritation to mucous membranes. Ingestion may cause severe irritation to mouth, throat, gastrointestinal tract, as well as circulatory shock and respiratory depression. Dermatitis generally aggravated by exposure
Signs or Symptoms of Overexposure (Acute):	Eyes: Redness, tearing. Skin: Irritation seen as redness. Ingestion: Burning pain in mouth, throat, abdomen, circulatory shock, and convulsions
Signs or Symptoms of Overexposure (Chronic):	-
Carcinogenicity:	NTP: No IARC: No OSHA Reg: No

Section 7 – SPILL OR LEAK PROCEDURES

Clean Up:	Mop up or absorb or use solid absorbent and shovel into containers for disposal.
Disposal:	Dispose in compliance with Federal, State, and Local laws and 40 CFR. Open dumping is prohibited. Do not reuse empty container and wash hands thoroughly after using product
Handling and Storage:	Keep container closed when not in use. Keep away from food and water supplies

Section 8 – CONTROL MEASURES

Eye Protection:	Goggles
Skin Protection:	Rubber or neoprene gloves
Respiratory Protection:	N/A
Ventilation Procedures:	Mechanical (General) is Sufficient

Section 9 – EMERGENCY AND FIRST AID PROCEDURES

Inhalation:	Unlikely to occur, however, in the event of inhalation move victim to fresh air. If irritation persists, or if symptoms of overexposure develop, get medical attention.
Skin Contact:	Wash with mild soap and water. Remove contaminated clothing and launder before reuse.
Eye Contact:	Flush with large amounts of water for 15 minutes lifting upper and lower lids occasionally. Get medical attention.
Ingestion:	DO NOT INDUCE VOMITING! Give promptly large quantities of egg whites or gelatin solution. If these are not available, drink large quantities of water. Avoid alcohol. Contact physician immediately.
Notes for Physician:	Probable mucus damage may contraindicate the use of gastric lavage.

Section 10 – ADDITION PRECAUTIONS

DOT:	
KEEP OUT OF THE REACH OF CHILDREN.	

ABBREVIATIONS:

- ACGIH = American Conference of Government Industrial Hygienists
- ATA = International Air Transport Association
- ICAO = International Civil Aviation Organization
- OSHA = Occupational Safety and Health Administration
- PEL = Permissible Exposure Limit
- STEL = Short-term Exposure Limit
- TLV = Threshold Limit Value
- TWA = Time Weighted Average
- WHMIS = Workplace Hazardous Materials Information System
- N/A = Not Applicable
- NE = Not Established

The above information is believed to be correct with respect to the formula used to manufacture the product. As data, standards and regulations change, and conditions of use and handling are beyond our control, NO WARRANTY EXPRESSED OR IMPLIED IS GIVEN FOR THE CONTINUING ACCURACY OF THIS INFORMATION.

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Attachment 9.2 Guidance for Disassembly of Masks for Cleaning



Minimal acceptable disassembly of the
North 7600 series masks

Minimal acceptable disassembly of the
North 7700 and 5500 series masks



Minimal acceptable disassembly of the
MSA Advantage 3000 series masks

Fit Test Respirator Disinfecting Job Performance Measure (JPM) Completion Certificate

Candidate's Name	Life Number:
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Practical Skill Evaluation: Demonstration of Evaluation Methodology by Oral Exam

Criteria	Qualifying Performance Standard	Unsat.	Recov.	Satisf.
Pre-Disinfecting Inspection	Verifies the mask to be inspected is operational and has all parts.			
Operating Parameters	Knows the theory to disinfect the masks, supplies and equipment.			
Documentation-Technician	Demonstrates correctly disinfecting a mask.			
Turning on the meter	Demonstrates how to correctly reassemble the mask.			
Probe placement during measurements.	Demonstrates how to correctly bag the mask for storage and future use.			
Handling of Disinfecting solution	Understands the proper handling, PPE, and disposal of the disinfecting solution.			

I accept the responsibility for performing this task as demonstrated within this JPM and the corresponding SOP.

Candidate Signature:	Date:
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I certify the candidate has satisfactorily performed each of the above listed steps and is capable of performing the task unsupervised.

Evaluator Signature:	Date:
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