

**Attention: All certification candidates are required to have an established and up to date user portal account in the PA State Fire Academy's Acadis Learning Management System prior to participating in <u>ANY</u> certification testing opportunity. Please log in to your Acadis portal account and update all personal information before submitting your certification application. (Access can be gained through the OSFC website – <u>Training and Certification Portal</u>).

Hazardous Materials Operations – Skill Stations NFPA 470, 2022 Edition: Chapters 7 and 9

	General (Chapter 7), Mission Specifics (Chapter 9, Section 9.2 & 9.6)	
Station A	Planning the Response (7.1 to 7.3)	Mandatory
Station B	Implement the Planned Response (7.4 to 7.6)	Mandatory
Station C	Proceed through Emergency Decontamination (7.4 and 7.5)	Mandatory
Station D	Personal Protective Equipment & Respiratory Protection (9.2)	Mandatory
Station E	Foam Application Vapor Suppression (9.6)	Mandatory
Station F	Absorption/Adsorption (9.6)	Mandatory
Station G	Damming (9.6)	Mandatory
Station H	Diversion, Diking and Retention (9.6)	Mandatory
Station I	Dilution (9.6)	Mandatory
Station J	Vapor Dispersion & Remote Valve Shutoff (9.6)	Mandatory



STATION A – Planning the Response		Reference NFPA 470 – 2022 Edition, Chapter 7 Mandatory Station JPRs 7.2.1, 7.3.1		
Test Site	Test Date	Candidate #	Check the Test Type	
			Rnitial	Retest

Evaluator Note: Scenario chosen MUST be marked at the top of the task list

Directions: Given a hazardous materials scenario at either a fixed facility, in a transportation setting, or at a pipeline along with AHJ SOPs, reference materials and a facility representative, the candidate must analyze one of the scenarios and identify potential hazards, response objectives and action options for the incident, select and implement a response consistent with the emergency response plan to include: scene control, emergency/gross decontamination, and evidence preservation, while communicating the response status through the chain-of-command.

No.	Tasks	Yes	No			
	Check Scenario - Fixed Facility: Transportation: Pipeline:					
Fixed	Fixed Facility					
1	Identify type of facility and container					
2	Meet with facility representative to determine location of incident and access to incident					
Trans	sportation					
1	Identify type(s) of container(s)					
2	Identify type of spill or leak and ensure that they are located upwind, uphill, and upstream as appropriate					
Pipeli	ne					
1	Identify pipeline incident and where to find contact information					
2	Communicate to pipeline operator or carrier relaying appropriate information and obtaining relevant information					
All Sc	enarios					
3	Collect and determine hazard information from approved reference sources					
4	Describe any potential behavior of materials, containers, or pipelines					
5	Describe likely outcomes associated with identified behavior and surrounding conditions					
6	Identify strategies based on the scope of the incident and available resources					
7	Identify tactics based on response objectives and available resources					
8	Identify safety precautions for the incident, including EM Decon methods					
9	Determine if available PPE is appropriate for the incident		<u> </u>			
10	Complete incident Size up		<u> </u>			
	Please indicate skill outcome	PASS	FAIL			
Evalua	tor Comments:					
Evalua	tor Signature: Evaluator #:					



STATION B – Implement the	e Planned Response	Reference NFPA 470 – 2022 Edition, Chapter 7 Mandatory Station JPRs 7.4.1, 7.5.1, 7.6.1	
Test Site	Test Date	Candidate #	Check the Test Type
			InitialRetest

Evaluator's Note: The evaluator may need to assist the candidate in setting up site control barriers.

Directions: Given a scenario and incident action plan involving a hazardous material and/or WMD materials, the candidate will establish ICS, interpret information and implement a response to include the following tasks; scene control, emergency decontamination and evidence preservation.

No.	Tasks	Yes	No			
	Emergency Decontamination performed on Responder Victim					
1	Establishes control zones and physically secures site, denies entry using barrier tape, barricades or posting a guard					
2	Candidate implements and communicates at all levels of the established ICS					
3	Control Efforts: considers wind direction, water spray and run off					
4	 Selects appropriate PPE Verbalizes safety and emergency procedures based on the level of PPE used Dons and Doffs selected PPE 					
5	Instructs the individual to the proper emergency/gross DECON location					
6	Sets nozzle to a low flow, narrow fog OR sets up gross wash in DECON corridor					
7	Holds nozzle above responder/victim's head					
8	Instructs individual to properly position themselves to complete the DECON process properly flush under arms, the groin area flushed feet while victim moves to a safe area for medical evaluation. [Flushing / gross wash time is dependent on the type of contamination.]					
9	Evaluate the effectiveness of decontamination using appropriate monitoring/detection method					
10	Evaluates scenario for progress and records/reports upline observations: identifies evidence / possible evidence and if evidence disturbed and how if evidence was moved notes where, how, why assesses effectiveness of operations / conditions for withdrawal documents personnel / activities associated with the incident					
11	Completes all tasks without compromising personal or team safety					
	Please indicate skill outcome	PASS	FAIL			
Evalua	tor Comments:					
Evalua	tor Signature: Evaluator #:					



STATION C: Proceed Through Emergency Decontamination		Reference NFPA 470 – 2022 Edition, Chapter 7 Mandatory Station JPR 7.4.1		
Test Site	Test Date	Candidate #	Check the Test Type	
			InitialF	Retest

Evaluator's Note: In conjunction with Skill B, candidates for skill C will proceed through the emergency decontamination station set up in skill B.

Directions: Given a hazardous materials scenario, AHJ SOPs, appropriate Structural Firefighting PPE, charged hoseline and water supply, decontamination equipment (i.e., fans, brushes, vacuums, garbage bags, etc.), the candidate will go through decontamination procedures while wearing and doffing approved PPE. Do you have any questions?

NIa	Toolin	Vac	No
No.	Tasks	Yes	No
1	Proceed to decontamination line		
2	Place tools and equipment in the designated area for decon.		
3	Proceed through decontamination line as directed by decon crew		
4	Doff PPE while continuing to breathe air from SCBA. a) Remove helmet and hood (slide hood over face mask to airline). b) Remove turnout coat and outer gloves. c) Roll turnout pants down with clean side out, and step out of boots. d) Remove SCBA facepiece, shut off the cylinder valve, and disarm PASS. e) Remove and dispose inner gloves. NOTE: A helper may be used to doff PPE.		
5	Wash, using soap and water or disposable towels to clean the head, face, neck, hands, and wrists before moving to the medical monitoring area.		
6	Using the appropriate forms/reporting procedures candidate notes/reports any abnormal findings during testing/inspection of PPE		
7	Ensure appropriate disposal or decon of PPE.		
	Please indicate skill outcome	PASS	FAIL
Evalua	ator Comments:		
Evalua	ator Signature: Evaluator #:		



STATION D: Personal Protective Equipment & Respiratory Protection		Reference NFPA 470 – 2022 Edition, Chapter 9 Mandatory Station JPR 9.2.1		
Test Site	Test Date	Candidate #	Check the Test Type	
			Retest	

Note: PPE includes protective clothing, skin, eyes/face, hands, feet, head, body, hearing.

Directions: Given a scenario involving hazardous materials and/or WMD the candidate will demonstrate the ability to select, don, work in and doff personal protective equipment (PPE) including respiratory protection equipment provided by the AHJ.

No.	Tasks	Yes	No
1	Performs pre-use inspection of PPE		
	Selects and dons Personal Protective Equipment (PPE)		
2	Properly donned appropriate level of PPE:		
	Circle One Level A Level B PPE (specify)		
	Selects and dons Respiratory Protection Equipment (RPE)		
3	Properly donned appropriate level of RPE:		
	Circle One SCBA SAR PAPR ARP		
4	Works in PPE		
5	Doffs PPE and RPE		
6	Properly inspected and tested PPE prior to storage		
7	Using the appropriate forms/reporting procedures candidate notes/reports any abnormal findings during testing/inspection of PPE		
8	Completes all tasks without compromising personal safety		
	Please indicate skill outcome	PASS	FAIL
Evalua	ator Comments:		
Evalua	ator Signature: Evaluator #:		



STATION E: Foam Applicat	ATION E: Foam Application Vapor Suppression		Reference NFPA 470 – 2022 Edition, Chapter 9 Mandatory Station JPRs 9.6.1	
Test Site	Test Date	Candidate #	Check the Test Type	
			Initial	_Retest

Evaluator Note: If a task (i.e., removes pick-up tube) is not applicable, please note N/A the in comments; then calculate PASS based on the remaining applicable "Yes" marks.

Directions: Given a scenario and an incident action plan involving hazardous materials and/or WMD materials, demonstrate the ability, while working as part of a team and while wearing PPE and SCBA, demonstrate the proper application of a vapor suppressing agent/foam on a HAZMAT spill. When the task is completed, demonstrate proper doffing PPE procedures. Do you have any questions?

No.	Tasks	Yes	No
1	Establishes control zones and an Incident Command System (ICS)		
2	Control efforts: considers wind direction, water spray and run off		
3	Selects, Dons and Doffs appropriate PPE		
4	Team properly assembles a foam delivery system (if applicable)		
5	Verify the system is a properly proportioned system		
6	Candidate applies foam to material spilled		
7	Candidate shuts down nozzle		
	On evaluator command, candidates change positions and repeat Steps 6 and 7 (leave PPE in place)		
8	Removes pick-up tube from foam & flushes hose line & pick-up tube (if applicable)		
9	Completes all tasks without compromising personal or team safety		
	Please indicate skill outcome	PASS	FAIL
Evalua	tor Comments:		

valuator Comments:				
Evaluator Signatura	Evaluator #•			



STATION F: Absorption / A	dsorption	Reference NFPA 470 – 2022 Mandatory Station JPRs 9.6.	, -
Test Site	Test Date	Candidate #	Check the Test Type
			InitialRetest

Evaluator Note: You will act as the HAZMAT Technician and provide the candidate (who is in an operations-level role) the name of the product(s) spilled and the materials to be used in clean-up. The candidate will choose the appropriate products and follow directions as noted below to complete the tasks.

Directions: Given a scenario, appropriate tools and equipment, and while wearing PPE and working as part of a team, demonstrate the proper control activities for absorption and adsorption. First absorb the HAZMAT spill then apply adsorbent to the remaining product. Use two different materials to complete these tasks. Do you have any questions?

No.	Tasks	Yes	No
1	Establishes control zones and an Incident Command System (ICS)		
2	Control efforts: considers wind direction, water spray and run off		
3	Selects, Dons and Doffs appropriate PPE		
	ABSORPTION:		
4	Selects proper absorption material for the hazardous material involved. Check material type: sand soilspill padsvermiculite		
5	Properly places absorbent on the spill with minimal disruption to the spill.		
6	Waits for the absorbent to absorb as much product as practical		
7	Removes absorbent and places in a provided container		
	ADSORPTION:		
8	Selects proper adsorption material for the hazardous material involved. Check material type: sand soil kitty litter vermiculite activated charcoal		
9	Properly places adsorbent materials on the spill with minimal disruption		
10	Waits for the adsorbent to adsorb as much product as practical		
11	Removes adsorbent materials and places in a provided container		
12	Completes all tasks without compromising personal or team safety		
	Please indicate skill outcome	PASS	FAIL
Evalua	tor Comments:		
Evalua	tor Signature: Evaluator #:		



STATION G: Damming		Reference NFPA 470 – 2022 Mandatory Station JPRs 9.6.	, <u>*</u>
Test Site	Test Date	Candidate #	Check the Test Type
			Retest

Evaluator Note: Indicate to the candidate which damming technique (i.e., underflow or overflow) to construct.

Directions: Given a scenario, appropriate tools and equipment, and while wearing PPE and working as part of a team, demonstrate the proper control activities for damming. Do you have any questions?

Performance Outcome: Pass / Fail is determined by **ALL** of the tasks being correctly performed.

Evaluator Signature: _____

No.	Tasks	Yes	No
1	Establishes control zones and an Incident Command System (ICS)		
2	Control efforts: considers wind direction, water spray and run off		
3	Selects, Dons and Doffs appropriate PPE		
4	Selects proper size and amount of pipe		
5	Constructs a dam using materials provided Check construction type: underflow overflow		
6	Places pipe (s) in proper location		
7	Size and amount of pipe adequately handles amount of water flow		
8	Completes all tasks without compromising personal or team safety		
	Please indicate skill outcome	PASS	FAIL
Evalua	ntor Comments:		

Evaluator #: _____



STATION H: Diversion, Dik	ing, & Retention	Reference NFPA 470 – 2022 I Mandatory Station JPRs 9.6.	/ -	
Test Site	Test Date	Candidate #	Check the Test Type	
			Initial	_Retest

Directions: Given a scenario, appropriate tools and equipment, and while wearing PPE and working as part of a team, demonstrate the proper control activities of diversion and diking. First divert the flow of material to a safe location, then construct a dike around a leaking HAZMAT container. Do you have any questions?

Given a scenario, appropriate tools and equipment, and while wearing PPE / SCBA and working as a team, demonstrate the proper control activities to construct a retention device to keep a HAZMAT from flowing into a storm drain. Do you have any questions?

No.	Tasks	Yes	No
1	Establishes control zones and an Incident Command System (ICS)		
2	Control efforts: considers wind direction, water spray and run off		
3	Selects, Dons and Doffs appropriate PPE		
	DIVERSION:		
4	Selects proper diverting material		
5	Constructs a diversion device with material provided		
6	The flowing material is properly diverted to a safe location		
7	Size and angle of diversion adequately handles amount of hazardous flow		
		PASS	FAIL
	DIKING:		
8	Selects proper diking materials		
9	Constructs dike using materials provided.		
10	Places dike in proper location		
11	Size and amount of diking material adequately handles the volume of HAZMAT		
12	Completes all tasks without compromising personal or team safety		
		PASS	FAIL
	RETENTION:		
13	Selects proper retention material		
14	Constructs a retention device with material		
15	Product stopped before entering the storm sewer		
16	Completes all tasks without compromising personal or team safety		
		PASS	FAIL
	Please indicate total skill outcome	PASS	FAIL



STATION I: Dilution		Reference NFPA 470 – 2022 Mandatory Station JPRs 9.6.	· •	
Test Site	Test Date	Candidate #	Check the Test Type	
			InitialF	Retest

Directions: Given a scenario, appropriate tools, and equipment, and while wearing PPE and working as part of a team, demonstrate the proper control activities to dilute a HAZMAT spill. Do you have any questions?

No.	Tasks	Yes	No
1	Establishes control zones		
2	Control efforts: considers wind direction, water spray and run off		
3	Selects, dons and doffs appropriate PPE		
4	Identifies the material as one that can be diluted with water		
5	Determines if the amount of the product released can be effectively diluted		
6	Demonstrates the ability to perform a dilution process and indicates the estimated quantity of water to		
	complete the task		
7	Request spill area be tested for adequate reduction of the hazardous material		
8	Completes all tasks without compromising personal or team safety		
	Please indicate skill outcome	PASS	FAIL
Evalua	tor Comments:		

Evaluator Signature:	Evaluator #	



STATION J: Vapor Dispersi	on & Remote Valve Shutoff	Reference NFPA 470 – 2022 Mandatory Station JPRs 9.6.	, <u>-</u>
Test Site	Test Date	Candidate #	Check the Test Type
			Retest

Evaluator Note: Indicate below which scenario (Outside Handline or Interior PPV) is used.

Directions: Given a scenario, appropriate tools and equipment, and while wearing PPE / SCBA and working as a team, demonstrate the proper control activities for vapor dispersion and for a remote valve shutoff. Candidates will use a hose line for vapor dispersion, approach a leak, and shut off a remote valve (outside scenario); when done, candidates will change positions (i.e., nozzle operator) and repeat the evolution. If using the PPV scenario, each candidate will facilitate the evolution. Do you have any questions?

No.	Tasks	Yes	No
1	Establishes control zones and an Incident Command System (ICS)		
2	Control efforts: considers wind direction, product flammability		
3	Selects, Dons, and Doffs appropriate PPE / SCBA		
OUT	SIDE SCENARIO USING HAND LINE		
4(a)	Selects hose-line no larger than 1 ¾" with a combination nozzle and starts advancing line using a modified fog pattern to disperse vapors to a safe area		
5(a)	Back up person handles line to facilitate nozzle operator's actions and control.		
6(a)	Team maintains control of the hose line at-all-times		
7(a)	Back-up person shuts off remote valve		
On ev	valuator command, candidates change positions and repeat Steps 5 - 7 (keep PPE in place)		
INSI	DE SCENARIO USING PPV check this box if this scenario is used (Individual Can	ididate)	
4(b)	Selects Positive Pressure Ventilation fan & sets it in appropriate position		
5 (b)	Starts and runs fan in a safe manner		
6(b)	Remote valve is shut off		
7(b)	Properly shuts down fan		
8	Monitors the dispersion for changing conditions		
9	Completes all tasks without compromising personal or team safety		
	Please indicate skill outcome	PASS	FAIL
Evalua	tor Comments:		
Evalua	tor Signature: Evaluator #:		



PSFA Hazmat OPS Hazmat Tactical Worksheet

Incident Location:	Time: Date:
Site Rep:	Contact:
ICP Location:	
LIFE SAFETY	PRODUCT INFORMATION ERG Guide Page #:
Primary Search	Product Name:UN ID#
Evacuation	Solid Liquid Gas Quantity
Site Access Control	Reacts with water Water Soluble Inhalation Hazard
Secondary Search	Specific Gravity Vapor Density Vapor Pressure
Medical Unit	TLV/Ceiling IDLH REL Boiling Point
Decontamination	Freezing Point Flash Point LELUEL
Rehab	PPE
	Respiratory Protection
NFPA 704	DOT Placard Hazard ID Numbers
NFPA 704	DOT Placard Hazard ID Numbers
NFPA 704 Container Information	Meather Information Hazard ID Numbers Hazard ID Numbers
Container Information	Weather Information Resources on Scene
Container Information Pressure	Weather Information Resources on Scene Temp
Container Information Pressure Non-Pressure	Weather Information Resources on Scene Temp — Humidity — Wind Speed —



PSFA Hazmat OPS Hazmat Tactical Worksheet

Air Readings a	t Comm	and Po	ost					
Initial Readings an	d at 5-mir	ute inte	rvals					
Date								
Time	O ₂	% C	Oppm	LEL	%	H₂S	ppm HCN	ppm
Time	O ₂		Oppm				_ppm HCN_	
Time	O ₂	- % c	Oppm				ppm HCN	
Time	O ₂		.Oppm				ppm HCN	
Time	O ₂	-% c	Oppm	LEL	%		ppm HCN	
Time	O ₂		Oppm				ppm HCN	
Time	O ₂		Oppm				ppm HCN	
Time	O ₂		Oppm	LEL	%	H₂S	_ppm HCN_	ppm
Time	O ₂		O ppm				ppm HCN	
Time	O ₂	- % c	O ppm	LEL	%		ppm HCN	
Time	O ₂	_	O ppm				ppm HCN	
Time	O ₂	_	O ppm				ppm HCN	
Time	O ₂	_	Oppm				ppm HCN	
Time	O ₂		Oppm				ppm HCN	
Time	O ₂		Oppm				ppm HCN	
	-		additional she					
Rescue Evacuation Isolation Zone Air Monitoring Deny Entry	Evacuation Pads Hazmat Unit Isolation Zone Booms None Air Monitoring Dam/Dike/Divert Other							t
			.1 .5	_	\neg	Г	off	
		l lr	ncident Comma	nder		\vdash	Liaison Officer	
	_				┛		Safety Officer	
Operations					┚	\vdash		
	Stagin	g Area Ma	nager		1	-		
	-				1		PIO	
	_				1			
Hazmat Brach Supervise	or HM Sa	fety			1			
	Н				1			
					1			
_	\neg				4			
		Planning		Logist	ics		Finance/Admir	n
	\neg							



February 2025

PENNSYLVANIA STATE FIRE ACADEMY HAZARDOUS MATERIALS OPERATIONS NFPA 470 – 2022 Edition

PSFA Hazmat OPS Hazmat Tactical Worksheet

Site Sketch

Situation Summary and Health and Safety Briefing Information:	
Current and Planned Objectives:	



PSFA Hazmat OPS Hazmat Tactical Worksheet

Additional Information or NOTES



Hazardous Materials Dilution Worksheet and Report

Product/Material spilled		
Product/Material solubility		
Amount of product/material spilled		gallons
pH Level of the product/material spilled		
pH level desired for dilution		pH
Amount of water to dilute product/material		gallons
Area to retain water is large enough?	YES	NO
Dilution decision	GO	NO-GO
Final pH of product/material after dilution		pH
Any product/material escape the retention area	YES	NO
Were Dilution operations successful	YES	NO
Report given to Command/IC/Operations?	YES	NO
Additional Notes/Comments:		
Report completed by:		

February 2025





Pennsylvania State Fire Academy Personal Protective Equipment Inspection Checklist

USER Name	Inspection Date	\ (g 🔌
		1
		FIRE AC



Instructions:

- 1. This checklist shall be used for a structural firefighting ensemble only
- 2. Soiled or contaminated gear shall be cleaned prior to inspection

Definitions

- "Soiled" Soil easily transfers from one surface to another
- "Contamination" Presence of a visual or odorous foreign substance
- 3. Universal precautions shall be used if the gear is soiled or contaminated
- 4. The following inspection elements should not be considered all inclusive. In the event that you find something that requires further inspection, do not hesitate to have it inspected further
- 5. The inspection should in no way be interpreted as complying with the Advanced Inspection requirements established by NFPA 1851 Selection, Care, and Maintenance of Structural Fire Fighting Protective Ensemble, 2014 edition
- 6. Place an X in the appropriate box (P)ass or (F)ail

Helmet Make:	Model:		el:	S/N:		
		Р	F		Р	F
Contamination				Suspension system		
Soiling				Damaged or missing reflective trim		
Shell Damage: Cracks, crazing, dents, abrasions or thermal damage				Liner Damage: Rips, tears, or thermal damage		
Damaged or missing components				Loss of Seam Integrity		

Eye Protection		
	P	F
Damaged or missing components to faceshield or goggle system		

Hood					
	Р	F		Р	F
Contamination			Rips, tears, cuts or thermal damage		
Soiling					
Loss of Face Opening adjustments / shrinkage			Loss of Seam Integrity; Broken or missing stitches		

Footwear Make:	Model:				
	P	F		Р	F
Contamination			Rips, tears, punctures or thermal damage		
Soiling			Loss of water resistance		
Closure system damage					
Damaged or deformed safety toe, mid-sole, and shank			Loss of Seam Integrity; Broken or missing stitches		

Drag Rescue Device (DRD)					
	Р	F		Р	F
Contamination			Installed correctly		
Soiling					
Cuts, tears, punctures, splitting, or thermal	П		Loss of Seam Integrity; Broken or missing		
damage			stitches		



Coat – Make:	Model:		S/N:		
	Р	F		Р	F
Contamination			Rips, cuts, tears, or thermal damage		
Soiling			Correctly assembled		
2" Coat to Pants overlap					
Damaged or missing hardware and closure system			Loss of Seam Integrity; Broken or missing stitches		
Pants – Make:	Mo	del	: S/N:		
	P	F		Р	F
Contamination			Rips, cuts, tears, or thermal damage		
Soiling			Correctly assembled		L
Damaged or missing hardware and closure system			Loss of Seam Integrity; Broken or missing stitches		
Gloves		_		_	_
	P	F		P	F
Contamination		╙	Rips, cuts, tears, or thermal damage	┸	╙
Soiling	\perp	┖	Inverted liner	╙	┖
Shrinkage		┖	Loss of elasticity and flexibility	┖	丄
		L	oss of Seam Integrity; Broken or missing stitches		
Interface Components(items such	26 14/	rict	lots and collars)		_
Interface Components(items such	as Wi	F		Р	F
Contamination	──————	!	Loss of effectiveness	!	
Soiling	$\overline{}$	+	Physical damage	+	+
		-	oss of Seam Integrity; Broken or missing stitches	t	士
COMMENTS:					
					_
ANY DAMAGE NOT INCLUDED IN THIS	CHEC	KLI	ST SHALL REQUIRE AN ADVANCED INSPECT	101	V
Inspected by:	S	igna	ture:		



Operation of pressure relief

Fitting of wrists, ankles, neck



ENCAPSULATING SUITS

Check faceshield for

Cracks

Crazing Fogginess

PSFA Chemical Protective Clothing Inspection Form

Before Use Inspection Visual Inspection of CPC #								
Suit Size:Suit Material:								
Inspected by:								
Inspection Date:								
	Good	Unsat		Good	Unsat			
CLOTHING (CPC)								
Imperfect Seams			Stiffness					
Nonuniform Coatings			Evidence of chemical attach					
Tears			such as discoloration,					
Malfunctioning Closures			swelling, stiffening, softness					
Observe for cracks			Closure failure					
Observe for shelf deterioration			Tears					
Discoloration			Punctures					
Swelling			Seam discontinuities					
GLOVES								
Pressurize gloves to check for pinholes								