

Chemtursion Owners Manual

**DOCUMENT NO. 0000-72900
(CHANGE 12 AUGUST 1999)**

OWNER INSTRUCTIONS

CHEMTURION

**REUSABLE LEVEL A SUIT FOR
PROTECTION
AGAINST LIFE THREATENING
ENVIRONMENTS**

**PLEASE CALL ILC DOVER, INC.
FOR THE AUTHORIZED
DISTRIBUTOR IN YOUR AREA.**



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These Owner Instructions will provide the user with information concerning testing before use, and the use, care, and storage of the ILC DOVER CHEMTURION Protective Suit.

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ILC DOVER CHEMTURION LEVEL A
SUIT FOR PROTECTION AGAINST LIFE
THREATENING ENVIRONMENTS

INTRODUCTORY NOTES

This CHEMTURION suit must be used by only qualified and trained personnel and only after:

1. All instructions, labels, maintenance requirements, and other literature provided by ILC DOVER have been carefully read and understood.
2. The suit has been thoroughly inspected and tested.
3. The CLOROPEL suit material and the visor material have been tested to determine whether they are suitable for use with the proposed chemicals or in the proposed environment.

Failure to test, or misuse or abuse of this suit can result in serious personal injury, illness, or death, depending on the degree of hazard involved.

This suit does not provide protection against impact; however, sufficient space has been provided inside the hood to permit the user to wear head protection where advisable.

The suit is not recommended for use in temperatures below 0°F.

The user is asked to thoroughly inspect the suit upon receipt. As a precaution against exposure of our personnel, ILC DOVER will not, under any circumstances, accept the unauthorized return of any suit.

TESTING BY USER OF CLOROPEL
SUIT MATERIAL AND OF VISOR MATERIAL
FOR PROTECTION AGAINST SPECIFIC
HAZARDOUS ENVIRONMENTS

SUIT MATERIAL TESTING

The purpose of this suit, when properly used, is to protect the user from a variety of hazardous environments. Chlorinated polyethylene was selected as the base polymer for the CLOROPEL suit material because of its overall high rating when tested by its manufacturer for resistance to many industrially-used chemicals. However, ILC DOVER recommends that the user consider the following:

1. The test results published by the base polymer manufacturer show that the polymer is incompatible with certain chemicals and environments. ILC DOVER recommends that the user establish its own test procedures and conduct its own tests.
2. The tests were performed under laboratory (not use) conditions.
3. Protection depends not only on the particular environment, but also on the ambient temperature in which the suit is used; the concentration of any chemicals; the length of its use; the kind and amount of movement by the wearer; the effects of the mixture of the particular chemical/environment with other chemicals and substances, and many other factors.

The data about the base polymer and some testing of the suit material lead ILC DOVER to believe that the suit material will give the user protection from many, but not all, hazardous chemicals/environments.

BECAUSE CHEMICALS AND ENVIRONMENTS ARE SO NUMEROUS AND DIVERSE, THE USER MUST DETERMINE WITH WHICH CHEMICALS AND IN WHICH ENVIRONMENTS THE SUIT MATERIALS MAY BE SAFELY USED. IT IS THE RESPONSIBILITY OF THE USER TO ESTABLISH TEST PROCEDURES AND TO CONDUCT ITS OWN TESTS TO DETERMINE WHETHER OR NOT THE SUIT MATERIAL MAY BE SAFELY USED WITH EACH PROPOSED, SPECIFIC CHEMICAL AND IN EACH PROPOSED SPECIFIC ENVIRONMENT.

VISOR MATERIAL TESTING

The base polymer of the primary visor is polyvinyl chloride. What has been said about the base polymer of the suit material and the suit material and its testing by the user prior to use also applies to the base polymer of the visor material and the visor material.

FURTHERMORE, THE TEST RESULTS PUBLISHED BY POLYMER MANUFACTURERS DISCLOSE THAT POLYVINYL CHLORIDE IS INCOMPATIBLE WITH MORE CHEMICALS AND ENVIRONMENTS THAN THE BASE POLYMER OF THE SUIT MATERIAL. WE, THEREFORE, RECOMMEND THAT THE SPLASH VISORS PROVIDED WITH EACH SUIT BE USED AT ALL TIMES TO FURTHER ENHANCE THE CHEMICAL PROTECTION. THE VISOR MATERIAL MUST BE TESTED BY THE USER IN EACH SPECIFIC CHEMICAL/ENVIRONMENT UNDER ACTUAL USE CONDITION BEFORE EACH USE.

MATERIAL SAMPLES

Upon request, samples will be furnished by ILC DOVER or any of its distributors. In addition, a Chemical Compatibility Chart, to serve as a guide on which to base your testing, is available.

BREATHING AIR

Since dangerous levels of carbon dioxide can build up rapidly in a closed encapsulating suit, a breathing air supply must be used with this suit at all times.

When a self-contained breathing system is worn with this suit, the user is responsible for being totally familiar with the operating procedures prescribed by the manufacturer of the breathing system. The breathing system must be checked for sharp points, edges, etc., in order to prevent suit punctures. Also, the breathing system must properly interface with the configuration of the suit.

CAUTION

NEVER PRESSURIZE THE SUIT WITH PURE OXYGEN INSTEAD OF BREATHING AIR.

EXPOSURE TO FLAME

While the CLOROPEL material will not withstand exposure to direct flame, an ILC DOVER Aluminized Cover suit is available to be worn over the CHEMTURION suit when a potential for flash fire exists. (ILC DOVER Part Number CP20-0628).

USER INFORMATION - DONNING/DOFFING THE SUIT

1. The sleeves end in molded wrist cuffs over which gloves are to be affixed. The gloves must be of materials having chemical resistance equal to or better than the suit for the environment in which they will be used. The retainer rings (O-Rings) provided with the suit are to be slipped over the gloves and onto the wrist cuffs tightly securing the gloves in position.
2. The suit legs terminate in an integrated bootie with a leg gauntlet above it. These integrated booties should be worn inside outer boots having chemical resistance equal to or better than the suit for the environment in which they will be used. The tops of the outer boots are to be positioned inside the leg gauntlets to prevent the flow of liquids into the outer boots.
3. The closure is gas tight and air tight, and has pull tabs both inside and outside of the suit to aid in donning and doffing. The closure lips cover the teeth, which prevent liquids from entering the suit.
4. The closure should be lubricated prior to suit usage to provide easy operation and to assure maximum sealing. Use ILC P/N ST82L3683-02.

5. For those suits having internal ventilation systems, the air inlet manifold assembly, located on the right front torso will interface with any commercial male 1/4" NPT (National Pipe Thread) fitting.

The air flow to the suit during usage shall be a minimum of five (5) cubic feet per minute and a maximum of nine (9) cubic feet per minute. This corresponds to an inlet pressure at the suit of 4.1 to 11.6 PSIG.

CAUTION

ALL EXTERNAL AIR SOURCES MUST BE REGULATED OR OTHERWISE CONTROLLED TO ENSURE REQUIRED INLET PRESSURE. PRESSURE BELOW 4.1 PSIG WILL NOT PROVIDE SUFFICIENT AIR FLOW FOR ORAL NASAL CO₂ WASH. PRESSURE ABOVE 11.6 PSIG MAY CAUSE SUIT FAILURE.

6. To prevent fogging, ILC DOVER recommends attaching a CHEMTURION anti-fog visor to the inside of the primary visor. (ILC DOVER Part Number CP45-0001.)
7. Secondary visors are provided with the purchase of each suit to protect the primary visor against scratches and certain chemicals. Up to three secondary visors can be positioned and held in place by the primary visor flange. If a secondary visor is splashed or damaged, it can be quickly and easily removed for proper disposal. Replacements are available. (ILC DOVER Part Number 0000-27239.)
8. When removing the suit after exposure to toxic chemical, the user must prevent the external surface of the suit from contacting any part of the body.

MAINTENANCE

CLEANING OF THE SUIT AND VISOR

Proper maintenance of the suit will increase its longevity and performance. After each use and completion of the users' decontamination procedures, thoroughly cleanse the suit. Care must be taken to restrict the use of any harsh or rough materials in the cleaning process which might abrade the surface.

The visor should be cleaned with a non-abrasive detergent or mild soap and water solution, and thoroughly rinsed. **DO NOT USE ANY SOLVENTS OR DETERGENTS OF AN ABRASIVE OR HIGHLY ALKALINE NATURE.** Ketones (acetone and methyl ethyl ketone) and aromatics (benzene, toluene, and xylene), gasoline and carbon tetrachloride should never come in contact with the visor.

The closure should be cleaned periodically with ILC P/N ST82L3683-03.

CAUTION

CLEANING OF THE SUIT AND VISOR IN ACCORDANCE WITH THE PRECEDING GUIDELINES DOES NOT CONSTITUTE A DECONTAMINATION PROCEDURE. IT IS THE RESPONSIBILITY OF THE USER TO ADOPT AND APPLY A DECONTAMINATION PROCEDURE.

DISPOSAL OF SUIT AND WASTE MATERIALS

The disposal of a contaminated suit and waste materials by the user must comply with all applicable laws and regulations.

LEAKAGE INSPECTION/TEST

Prior to each use, the user must perform a seam integrity and leakage inspection on the suit. Check for seam integrity by visually examining the seams and pulling (5 - 10 pounds per inch) on each seam. Ensure that all air-feed lines and fittings are secure and show no signs of deterioration.

A suit Integrity Test Kit (ILC DOVER Part Number 0000-19716) is available to inflation test the CHEMTURION suits. However, in its absence, you may check for leakage per the following procedure:

- a. Tape the exhaust valves closed on the inside surface of the suit.
- b. Engage the closure.
- c. Install gloves over the wrist cuffs and place the retainer rings over the gloves to secure them in place.
- d. For suits with Umbilical Air Supply (Models 12, 35, 84, and other air-fed models): Connect the air inlet manifold assembly to an air pressure source equipped with a pressure indicator.

For suits with SCBA or Rebreather Air Supply (Models 13, and 84): Pressurize the suit from an air source equipped with a pressure indicator through a male 14 NPT (National Pipe Thread) fitting mounted on a glove and attach to the molded wrist cuff.

- e. Pressurize the suit to 3 - 6 inches of water pressure.
- f. Brush or wipe the outside of the suit with a mild soap and water solution. Observe the suit for the formation of soap bubbles, which is a positive indication of a leak. If a leak is detected, remove the suit from use.

CAUTION

BE SURE TO REMOVE THE TAPE, APPLIED IN PARAGRAPH (a), FROM THE EXHAUST VALVES BEFORE USING THE SUIT AGAIN.

SUIT REPAIR

If repairs are necessary, the user may do one of the following:

1. Purchase an ILC DOVER repair kit (part Number 00000-23770) and follow the instructions on the label.
2. Request an ILC DOVER Returned Goods Authorization for repair/recertification of the suit at ILC DOVER.

STORAGE

When not in use, the CHEMTURION suit should be hung by its hanger loop or stored in an ILC DOVER Hazmat Bag (Part Number CP10-0319) in a climate controlled atmosphere with a temperature range of 40 F to 90 F. Exposure to extremes in temperature or prolonged sunlight will damage or reduce the useful life of the suit. Place a temporary storage barrier (such as tissue paper) on both sides of the primary visor before storage to protect the visor. Engage the closure prior to storage.

AGE AND USABLE SERVICE LIFE

The CHEMTURION suit and the polyvinyl chloride (PVC) visor are not age limited. However, the usable service life of the suit is directly related to the types and concentrations of chemicals and/or environments to which it is exposed, the work rate, and other local factors having a direct impact on suit stress and wear. Therefore, it is the responsibility of the user to determine the service life of the suit based on specific conditions under which it will be used.

CAUTION

THE USABLE SERVICE LIFE AUTOMATICALLY ENDS WHEN THE SUIT CAN NO LONGER PASS THE LEAKAGE INSPECTION TEST (Refer to Page No. 8).

EMERGENCY SITUATIONS

LOSS OF AIR

In the case of unanticipated loss or interruption of breathing air, there is approximately five (5) cubic feet of free air volume available in the suit when manned. This free volume will provide approximately five (5) minutes of breathing time for emergency situations.

When the suit is in use with an airline, an audible sound will be emitted through the hood vent. This sound is a positive indication of air flow. Any interruption or stoppage of this flow noise is a positive indication of loss of breathing air. Should this occur, the user must immediately exit the work area and remove the suit.

CAUTION

EXTREMES IN TEMPERATURE, PHYSICAL EXERTION OR EXCITEMENT WILL DETRACT FROM THIS BREATHING TIME.

Remember, in any emergency situation, it is imperative to remain calm and breathe at a slow, steady rate in order to efficiently utilize the emergency breathing air available. Minimize movements (such as squatting or bending) that exhaust breathing air from the suit.

SUIT PUNCTURE

If, during use, a puncture and/or tear of the suit material occurs, immediately exit the work area and proceed to a suitable area for suit removal.

Upon observing the puncture and/or tear and while exiting the work area, fold the suit material over the puncture and hold in position with your hand.

If there are observable punctures in the suit material, the suit must be removed from service or repaired. If the suit is repaired, it must be tested for leakage prior to use. (Refer to Page No. 8 Leakage Inspection/Test)

SAFETY SUPERVISION

ALL HAZARDOUS OPERATIONS WITH THE SUIT MUST BE CLOSELY SUPERVISED BY SAFETY PERSONNEL AND/OR THROUGH THE USE OF THE BUDDY SYSTEM (TWO OR MORE PERSONS IN THE SAME SUITED-UP OPERATION). IN THIS WAY, IF THERE IS AN EMERGENCY AND ONE PERSON SHOULD NEED ASSISTANCE, A RESCUE MEMBER IS ON HAND. NO USER SHOULD EVER WORK ALONE!!!

CHANGES TO THESE USER INSTRUCTIONS

These User Instructions may not be enlarged, changed, or waived, and no representation or warranty shall be binding on ILC DOVER, unless in writing signed by the President and General Manager of ILC DOVER.

DISCLAIMER OF CERTAIN WARRANTIES: LIMITATION OF LIABILITY

EXCEPT AS PROVIDED HEREIN OR IN WRITTEN MATERIALS FURNISHED BY ILC DOVER, ILC DOVER DOES NOT MAKE ANY REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH RESPECT TO THE SUIT, INCLUDING ANY WARRANTY AS TO ITS MERCHANTABILITY OR ANY WARRANTY AS TO ITS FITNESS FOR ANY PARTICULAR PURPOSE OR USE.

IN NO EVENT SHALL THE LIABILITY OF ILC DOVER EXCEED THE PURCHASE PRICE OF THE SUIT, AND, IN NO EVENT, INCLUDING THE CASE OF LATENT DEFECTS, NEGLIGENCE OR STRICT LIABILITY, SHALL ILC DOVER BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

RECORD KEEPING

The samples on the following pages are offered to assist in accurate tracking of each CHEMTURION suits' service life.

SERIAL NUMBER, MODEL AND COMPONENT INFORMATION

Glove(s) Type:

ORDERING INFORMATION

<u>DESCRIPTION</u>	<u>MODEL #</u>
AIRLINE CHEMTURION, LARGE	1212-L
AIRLINE CHEMTURION, X-LARGE	1212-XL
AIRLINE/EGRESS CHEMTURION, LARGE	1212-M1-L
AIRLINE/EGRESS CHEMTURION, X-LARGE	1212-M1-XL
SCBA CHEMTURION, LARGE	1310-L
SCBA CHEMTURION, X-LARGE	1310-XL
AIRLINE/SCBA CHEMTURION, LARGE	8402-L
AIRLINE/SCBA CHEMTURION, X-LARGE	8402-XL

CHEMTURION ACCESSORIES

HAZMAT BAG	CP10-0319
SPLASH VISORS, USER PACK (5 SETS OF 3)	0000-27239
SPLASH VISORS, CARTON (12 USER PACK)	0000-27239, CTN
REPAIR KITS (EACH)	0000-23770
REPAIR KITS (6 PACK)	0000-23770, 6 PK
WRIST RINGS (PAIR)	CP10-0038
GLOVES, PVC	724R
GLOVES, BUTYL RUBBER	CP-25
GLOVES, NEOPRENE	SKST17B3208
SMITH THERMA-CLEAR ANTI-FOG VISOR	CP45-0001
ALUMINIZED COVER SUIT	CP20-0628
SUIT INTEGRITY TEST KIT	0000-19716
CLOSURE LUBRICANT	ST82L3683-02
CLOSURE CLEANER	ST82L3683-03
VORTEC AIR CONDITIONER	CP20-0151-2
HIGH PURITY (HEPA) FILTER	CP20-0152

SAMPLE

SUIT JOURNAL SUIT SERIAL # _____ ENTRY # _____

- A. 1.1 Date of Use:
 1.2 User's Name:
 1.3 Type of Use: Training _____ Response _____ (Fill in Section B)

NOTE: IF RESPONSE USE, FILL IN SECTION B

- B. 2.1 Name of Chemicals the suit is exposed to:
 2.2 Length of Use:
 2.3 Concentration of Exposure:
 2.4 Date of Decontamination:
 2.5 Method of Decontamination:
 2.6 Name of Person(s) Performing the Decontamination:

- C. 3.1 Date of Inspection:
 3.2 Name of Inspector:
 3.3 Inspection Findings:
 3.3.1 Visual
 3.3.2 Pressure Test Result _____ " Water After 3 Minutes

- D. 4.1 Date(s) the Suit is Taken out of Service:
 4.2 Reason for Action:
 4.3 Types of Repairs Required:

- E. 5.1 Date(s) of all Repairs:
 5.2 Name of Person(s) Making Repairs:
 5.3 Description of the Repairs:

- F. 6.1 Date the Suit is returned to the Manufacturer:
 6.2 Reason for the Return:

- G. 7.1 Attach copies of all Suit Journals and Certification Documents to
 the Suit Repair Form when returning a suit for repair.