Standard Safety Equipment Company

StaSafe® Total Encapsulating Garments

Operation and Maintenance Manual

STASAFE® ChemMaster

Introduction

This manual contains safety inspection, usage and maintenance instructions for the following Standard Safety products: STASAFE AcidMaster and ChemMaster Suits, STASAFE WorkMaster Suits and other STASAFE TEGs. These total encapsulating garments are designed for use in both working and emergency conditions where exposure or contact with hazardous, corrosive or toxic liquids and/or vapors may occur. Each variation of protective suit should be noted so that the proper suit is used for the correct situation. Free fabric samples are available from Standard Safety for evaluating the chosen chemical suit's effectiveness in various applications. The best procedure is to test the fabric samples under real or as close-to-real conditions as possible. Testing and evaluation should be completed before the suit is used in a work capacity. The recommendations in this manual will extend the life of each garment and insure better protection for the wearer. Included with the instructions are descriptions of repair and maintenance kits available which are designed for fixing minor damage
and garment testing purposes. It is important that any suits showing excessive wear or damage should be returned to Standard Safety for complete inspection and repair or replacement recommendations. There is a nominal inspection charge.

The **STASAFE AcidMaster and ChemMaster Suits** features complete enclosure of the wearer with a pouch to cover the self-contained breathing apparatus (SCBA). The All-Purpose hood will accommodate any self-contained breathing apparatus (SCBA). The garments are designed to remove the arm from the sleeve to access the internal SCBA controls, if necessary. Excess exhalation is removed from the suit through exhalation valves located on the rear of the garment. Optional suit pass-through and accessories are available.

The **STASAFE WorkMaster Suit** features an All-Purpose hood to accommodate any Supplied Air Respirator with an egress bottle. The WorkMaster, when used in conjunction with above respirator, can be used in certain IDLH atmospheres. When ordering you must add one of the following: standard brass pass-through, Scott pass-through or customer supplied pass-through Note: Please check your specific plant safety requirements to insure the proper respiratory protection is selected. The pigtail from the Supplied Air Respirator with egress bottle should be connected to the inside of the air pass-through by means of the quick disconnect. Note: Follow the recommended manufacturer's donning and operation instructions before proceeding. The garment, when configured as above, allows the wearer to work comfortably without the need of a restrictive SCBA.

Note: Please check your specific plant safety requirements to insure the proper respiratory protection is selected.

*Patent number 3,653,690.

Total Encapsulating Level A Garments

Materials

All materials used in StaSafe designed chemical protective garments are of top quality.

- The GraLite trademark is for a proprietary polyvinyl chloride compound used in the fabrication of chemical resistant, self-extinguishing and abrasion resistance garments. GraLite 20 and WinterGlo 20 are the heavy-duty PVC materials used in manufacturing our total encapsulating garments. Our Chlorinated Polyethylene (CPE) provides the broadest chemical resistance and meets or exceeds the Flame Impingement requirement of ASTM F1358
- All GraLite family products are fully hand washable in a mild soap solution or slightly alkaline solution for acid neutralization purposes. It is not necessary to strip the suit of removable parts.
- The base fabric is a polyester blend for greater tensile strength and tear resistance.
- The StaSafe Armored Seams are achieved through a patented tooling process that electronically fuses an unsupported film of like fabric over and through the needle holes, creating a continuous surface of material.
- Each type of suit is equipped with patented* SealTite sleeve cuffs that effectively reduces the chance of leakage of liquids or gases through the cuff joints.
- Compression-type pressure sealing zippers prevent penetration of liquids and gases and have an excellent record for service life when cared for properly.
- Ease of maneuverability is affected by the design of each suit. The WorkMaster Suit has a slim line design for restricted working conditions. The AcidMaster and ChemMaster Suits have a full cut; yet do not "balloon" excessively, due to pressure relief valves.
- The GraLite compound remains usably flexible to temperatures as low as 0° F. Winter Glo 20 is usably flexible for temperatures as low as -20° F. CPE remains flexible to -25° F.
- Boots and stocking foot booties are permanently sewn and armored to the pant legs or attached with a patented SealTite cuff.

*Patented numbers 2,655, 663 and 3,747,126.

GENERAL INSTRUCTIONS FOR THE INSPECTION AND MAINTENANCE OF STASAFE TOTAL ENCAPSULATING GARMENTS

1. Prior to inspecting a garment, be sure it was cleaned and neutralized after its last use.
2. When inspecting a total encapsulating garment, select a location with good lighting and a clean, flat, sufficiently large surface on which to place the garment being inspected. Lay the garment out flat with zippers open.
3. First, look carefully over the entire outside surface of the garment, including seams, for cuts, tears, pulls, bulges, worn spots and cracks in the material. After the outside has been inspected, the inside should be examined, looking especially for spots where the polyester base fabric of the PVC material has actually been worn away. During the initial inspection, upon receipt of the suit, check for abrasions or damage resulting from shipping.
4. Any damaged location should be duly noted or marked on the garment and returned to Standard Safety Equipment Company, 1407 Ridgeview Drive, McHenry, IL 60050, for repair or reconditioning. In some cases, the factory will recommend the garment not be repaired because of extensive damage. Each garment has a five-digit date code stamped under the model label, which indicates to the factory when the garment was manufactured. You may receive a recommendation, because of the age of the garment, that it be scrapped or downgraded in use.
5. Check all zippers for freedom of movement and lubricate lightly if necessary. Check for cleanliness of the pressure-sealing zipper and look for signs of puckering or tearing of the lips of the zipper. The slider should move easily with a minimum of pressure exerted. The sides of the zipper should be lined up to insure the slider is not taking excess strain that would be encountered by the slider trying to pull together the sides of the garment. If the zipper sticks, do not yank it. The problem is probably that the teeth are not lined up properly or something is caught between the zipper slider and teeth. Yanking the zipper will cause a fracture of the teeth or loosening of the teeth, which may allow the slider to be pulled away on one side.
6. Special care should be given when visually inspecting the boots because this area often receives the most wear. Check the seams for pulls, cracks, tears or bulges.
7. Inspect the window seal for any signs of separation or deterioration.
8. Before installing SealTite inserts and gloves, examine them for tears and holes. Install gloves and inserts, checking the tightness of the sleeve cuff. A minimum of ¼" of the insert should be beyond the sleeve cuff, and no more than 1". Check the cuffs, especially if the insert has been installed for a prolonged period of time. There is a chance that the cuff has lost too much of its elasticity if the glove and insert can be pulled through the sleeve or cuff more than 1". It is recommended to use the approved SealTite inserts and gloves with beading to complete the Sealtite sleeve. Please contact us for additional glove options or visit our webpage http://www.standardsafety.com
9. The current pressure relief valve consists of an injection-molded housing, a rubber flapper with a retainer and a locking ring. From the inside of the suit, exhale through the valve to check the release of air. Try to inhale. Valve should shut and prevent flow of air. Also, from the inside, check to see that the locking ring is tight, that it is not cross-threaded, and that no fabric is on the threads, preventing a good, tight seal. From the outside, view the pressure relief valve cover to verify that the flapper is resting on the seal surface. If not, adjust. The current valves are field replaceable. Some older designs are not, and may require alteration at Standard Safety.
10. Some suits are equipped with an air pass-through device. It should be inspected periodically for signs of chemical attack, cracks or leaks. (See Inflation Test Kit, page 4).

SPECIAL INSTRUCTIONS

INSTALLATION OF SEALTITE GLOVES

Place the plastic insert inside the gauntlet of the glove. It is held in position by means of a vinyl beading that has been sewn in the top of the gauntlet. The insert and glove should be installed from the inside of the garment and pulled into the SealTite cuff. The plastic insert should be about ¼" below the bottom of the cuff. On new garments this installation will take a little time and effort to seat the configuration properly. Never apply a lubricant or powder to facilitate the seating of this seal.

EMERGENCY ESCAPE PROCEDURES FOR TEGS

If there is a failure of air being supplied to the suit the wearer should take hold of the regulator through the wall of the suit or by removing their arm from the sleeve and break the seal around the face piece to allow breathing of the residual air remaining in the suit.

If a TEG is to be used in an IDLH atmosphere (Immediately Dangerous to Life and Health), it should be equipped with a Supplied Air Respirator with egress bottle. Always check with a supervisor to ensure the proper breathing apparatus is worn for your particular application .

TIPS FOR THE OPERATION AND MAINTENANCE OF THE PRESSURE-SEALING ZIPPER

When opening or closing the seal with the grip of the slide, care should be taken that the pull is always exerted in the direction of the seal teeth. To close, line up the teeth so that no strong lateral pull is exerted on one or both rows of the zipper teeth.

If sticking or jamming occurs, do not force the zipper. Ease the slide back a little, find the source of trouble and rectify it.

When the seal has become dirty the teeth may be cleaned, both inside and out, with water. This can be done by hand or using a soft brush. Be sure the sealing edge under the slide is cleaned thoroughly, as well as the channels. When a brush is used for cleaning, remove any hair or bristles left in the seal. Do not scratch or scrape with pointed instruments or use a wire brush.

The teeth should be lubricated from time to time with grease composed of beeswax and/or Vaseline. In an emergency, any acid-free grease may be used. Apply only a thin film of grease to the metal parts of the seal. Only lubricate when the seal is completely cleaned.

AIR SUPPLY INFORMATION

Check with the respiratory manufacturer for specific care, use and maintenance procedures.

REPAIR

The following repair and testing kits are available from Standard Safety Equipment Company:

STASAFE Repair Kit 079-3401-00**:

For field repair of minor snags or rips in the GraLite family of garments. When ordering the repair kit, please specify the garment material (CPE, GraLite 20 or Winter Glo 20) on which it is to be used.

STASAFE Inflation Test Kit P/N 149-1126-0000:

This test kits gives a quantitative measure of the air tightness of the suit. Note that all suits tested should have the pressure-sealing zipper. This kit contains a sleeve jig, needle valve, pressure gauge, extension hose and rubber stoppers for the pressure relief valves. A complete description and set of instructions are available with the kit or online at our website www.standardsafety.com.

Total Encapsulating Level A Garments

Donning Instructions

Important Note: Prior to donning any garment, confirm that the appropriate inflation test was successfully performed on the suit. This test is designed to verify the garment's gas-tight integrity.

Any suit that does not meet the Inflation Test Criteria of ASTM 1052 or shows signs of deterioration must be reported and taken out of service

1. To properly suit up in a total encapsulating garment, the help of at least one person is required to assist the wearer in getting into, zipping up the suit and making sure it fits correctly.
2. Lay the suit out flat with the zipper fully open.
3. Check the breathing apparatus according to the manufacturer's recommended procedure. After the check is completed, if the TEG requires the use of a self contained breathing apparatus (SCBA), open the tank valve and don the breathing apparatus, per the manufacturer's instruction.
4. While in a **sitting** position, insert both legs in the pants and boots of the garment. If the boots supplied are over-the-shoe boots, tighten the boots straps securely.
5. With the helper holding the suit, stand up and put on the face piece of the breathing apparatus. The manufacturer's recommended procedures for tightening the face piece should be followed.
6. Complete all safety checks of the chosen respiratory equipment and connect any of the optional garment features i.e. garment air pass-through device, ventilation system, cooling systems etc.
7. Place your arms in the sleeves and gloves and have the helper zip up the suit.

Doffing Instructions

After exposure to contaminants, your specific plant safety precautions should be observed and decontamination should be completed before attempting to remove a total encapsulating suit.

Upon exiting a hazardous area and successful completion of your specific plant decontamination procedures, your helper, in appropriate apparel, should assist with the removal of the suit.

The suit should be decontaminated and/or laundered according to your plant procedures as soon as possible after use.

Washing

As a general rule, total encapsulating suits should be laundered in a mild 1% soap solution in water about 130° F to 150° F. Also, a mild alkaline solution (pH~8) may be used to combine decontamination and laundering for acid exposure uses.

To dry, hang the suit after draining all water that might have run into the boots. The suit may hang in a 120° F to 150° F dryer, if supported properly. **DO NOT TUMBLE DRY OR DRY CLEAN.** Suit must be thoroughly dry before storing.

Storage

As a precaution, make sure all zippers are fully closed before storage. If hanging the garment is preferred to folding, be certain that the hanger presents at least a 1 ½" rounded-smooth surface which would contact the material.

Suits should be kept in a dry place with an average temperature between 60° F and 75° F. Store suits where they won't be stepped on or have objects placed on top of them.

SUGGESTED SUIT CHECKLIST

Suits should be inspected twice yearly or after each use. Garment should be thoroughly cleaned and neutralized, per your company decontamination procedure.

DATE: _____ SUIT NUMBER: _____ NAME: _____

Item	Inspect For	How to Inspect	Report
Zippers	• Dry rot, tears, cracks • Corrosion and freedom of movement	Pull on zipper tab, fold outer seal looking for cracking or pulling away of the zipper from entire length of zipper and operate entire length.	
Face Masks	• Tears in seal • Dry rot • Visibility	See manufacturer's instructions	
Gloves	• SealTite joint	Bottom of insert inside glove should not be more than ¼" to ½" below the bottom of the PVC cuff when the garment is new. Never should the insert be 1" beyond the cuff.	
Boots	• Open strap • Sole	Examine sole and upper for scuff marks, cuts and excess wear.	
Suit Pressure Relief Valve	• Water placement • Operation	Examine for missing wafers. From inside of suit exhale through valve, attempt to inhale through valve.	
External Integrity	• Tears, cracks, holes, crimped areas	Lay out suit; examine seams, any patches to insure they are holding, and general fabric conditions.	
Internal Integrity	• Base material	Inspect inside of suit for wearing of the fabric backing from the PVC.	
Air Pressure Test	• Leakage	A suit in need of air pressure testing should follow the complete instructions listed in the Inflation Test Kit.	

WARRANTY AND LIABILITY

It is the duty of the buyer to evaluate the suitability of the garment material for the particular environment in which it will be used. The exclusive remedy of the buyer and all users and the limit of liability of Standard Safety Equipment Company for any and all losses, injuries or damage shall be the refund of the purchase price or the repair of the material found to be defective upon delivery of the product. Under no circumstances will Standard Safety be liable for any incidental or consequential damages. The buyers and users are deemed to have accepted the terms of this limitation or warranty and liability which may not be altered by any verbal or written agreement.

STANDARD SAFETY EQUIPMENT COMPANY

Providing Quality Safety Products Since 1921

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