

PM90

56625-2

DRAFT 1/11

RESTRICTED USE PESTICIDE

DUE TO DANGER OF ASPHYXIATION AND THE HIGHLY CORROSIVE NATURE OF LIQUID NITROGEN ON CONTACT WITH SKIN OR EYES. For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification.

BLIZZARD SYSTEM INC. [LOGO]

LIQUID NITROGEN

RESTRICTED USE

96 AUG 26 08:38

REC'D EPA/OPP/DPD1

ACTIVE INGREDIENTS:	
LIQUID NITROGEN.....	99.995%
INERT INGREDIENTS.....	0.005%
	100.000%

THIS PRODUCT CONTAINS 6.746 POUNDS OF NITROGEN PER GALLON

DANGER

KEEP OUT OF THE REACH OF CHILDREN

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CORROSIVE. CAUSES EYE AND SKIN DAMAGE ON CONTACT. DO NOT GET IN EYES, ON SKIN OR ON CLOTHING. WEAR GOGGLES OR FACE SHIELD AND PROTECTIVE CLOTHING SUITABLE FOR USE WITH CRYOGENIC LIQUIDS. CHEMICAL GOGGLES, FACE SHIELDS AND LOOSE FITTING GLOVES MADE OF THERMAL PROTECTIVE MATERIALS SHOULD BE USED DURING HANDLING OR TRANSFER OPERATIONS OR WHENEVER THE POSSIBILITY OF EXPOSURE TO LIQUID NITROGEN SPILLS EXISTS. A SELF-CONTAINED-BREATHING-APPARATUS (SCBA) MUST BE AVAILABLE AT THE SIGHT OF APPLICATION. ANIMALS IN ROOM DURING TREATMENT MAY BE SUFFOCATED. REMOVE ANIMALS, INCLUDING FISH AND BIRDS, UNTIL AFTER TREATED ROOMS ARE VENTILATED. AS LITTLE AS FORTY SECONDS EXPOSURE TO FOUR PERCENT OR LESS OXYGEN IN AIR RESULTS IN COMA, CONVULSIONS, STOPPING OF RESPIRATION, AND DEATH UNLESS PROMPTLY TREATED. SMALLER REDUCTIONS IN OXYGEN CONTENT IN AIR RESULTS IN A FEELING OF EUPHORIA AND LOSS OF JUDGMENT WHICH PREVENTS YOU FROM KNOWING THERE IS DANGER FROM OXYGEN SHORTAGE.

ACCEPTED

NOV 15 1996

Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 56625-2

RECEIVED

FEB 1996

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STORAGE AND DISPOSAL

STORAGE: This Product must be stored in locked and secured storage facilities. Store containers and cylinders in well ventilated areas. Keep cylinders away from sources of heat. To prevent accidental knocking over or damage from passing or falling objects, cylinders and containers should be stored away from heavy traffic areas and secured to walls or structural support columns. Storage area should be free of combustible materials. Keep full cylinders and empty cylinders separate. Replace the cylinder cap when the cylinder is not in use! Avoid exposure to areas where salt or other corrosive chemicals are present.

Special handling recommendations - A suitable hand truck may be used to avoid dragging, rolling, or sliding cylinders, even for a short distance.

FOR A TRANSPORTATION EMERGENCY INVOLVING CRYOGENIC LIQUIDS:

In the United States, ask for advice through Chemtrec, the Chemical Transportation Emergency Center at the Chemical Manufacturer's Association in Washington, D.C.

48 contiguous states (toll free) 1-(800) 424-9300

SPILL OR LEAK PROCEDURES

Steps to be taken in case material is released or spilled: Avoid contact of skin with liquid nitrogen or its cold boil-off gas. Flush liquid nitrogen spill with water to disperse. Ventilate enclosed areas to prevent formation of oxygen-deficient atmospheres caused by the evaporation of liquid nitrogen or the release of gaseous nitrogen.

DISPOSAL: Allow liquid nitrogen to evaporate in a well ventilated outdoor location away from the work area. Return cylinders with residual pressure. Close the cylinder valve tightly and replace valve cap. Do not drag, roll or slide cylinders. Return cylinders to supplier when empty.

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WARRANTY STATEMENT

SELLER WARRANTS THAT THIS PRODUCT CONFORMS TO THE CHEMICAL DESCRIPTION ON THE LABEL WHEN USED IN ACCORDANCE WITH DIRECTIONS, UNDER NORMAL CONDITIONS OF USE.

STATEMENT OF PRACTICAL TREATMENT

PERSONS SUFFERING FROM LACK OF OXYGEN SHOULD BE REMOVED TO AREAS WITH NORMAL ATMOSPHERE. SELF-CONTAINED BREATHING APPARATUS MAY BE NECESSARY TO PREVENT ASPHYXIATION OF RESCUE WORKERS. ASSISTED RESPIRATION SHOULD BE ADMINISTERED IF VICTIM IS NOT BREATHING. SEEK MEDICAL ATTENTION PROMPTLY.

IF ON SKIN OR EYES, FLUSH AFFECTED AREAS WITH LARGE VOLUME OF TEPID WATER (105-115 DEGREES FAHRENHEIT) TO REDUCE FREEZING. DO NOT APPLY HEAT. COVER THE AFFECTED AREA WITH STERILE DRESSING AND PROTECT AREA FROM FURTHER INJURY. DO NOT ATTEMPT TO REMOVE CLOTHING ADHERING TO DAMAGED SKIN EXCEPT UNDER PHYSICIAN'S DIRECTIONS. SEEK MEDICAL ATTENTION PROMPTLY. REFER TO THE OPERATIONAL MANUAL.

DIRECTIONS FOR USE

IT IS A VIOLATION OF FEDERAL LAW TO USE THIS PRODUCT IN A MANNER INCONSISTENT WITH IT'S LABELING.

READ THE OPERATIONAL DIRECTIONS AND TRAINING MANUAL BEFORE USING THIS PRODUCT. REFER TO THE OPERATIONAL MANUAL FOR USE DIRECTIONS AND ADDITIONAL INFORMATION.

AVISO! PRECAUCION AL USARIO: SI USTED NO PUEDE LEER O ENTENDER INGLES, NO USE ESTE PRODUCTO HASTA QUE LA ETIQUETA LE HAYA SIDO EXPLICADA AMPLIAMENTE.

NET CONTENTS: 22 GALLONS (80 LITERS)

E.P.A. REG. NO. 56625-2

E.P.A. ESTAB. NO. 56625-2-CA-0011

BLIZZARD SYSTEM INC.
1949 E. MARKET ST.
LONG BEACH CA 90805
(310) 422-5287

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OPERATIONAL DIRECTIONS AND TRAINING MANUAL
PERTAINING TO THE USE OF LIQUID NITROGEN

BY

BLIZZARD SYSTEM, INC.
A CALIFORNIA CORPORATION

THE BLIZZARD SYSTEM

INTRODUCTION

The following material is designed to train the BLIZZARD SYSTEM applicator to eliminate infestations of drywood termites by reducing the temperature of the infested areas with liquid nitrogen.

All BLIZZARD SYSTEM applicators must study and know this material prior to using the BLIZZARD SYSTEM.

The applicator must be certified in the act of cardiopulmonary resuscitation (CPR) and must have annual recertification training.

During application of the BLIZZARD SYSTEM there are two hazards, there is the potential for an oxygen deficient atmosphere to be developed and cold burns on contact of liquid. If safety procedures are not followed it could present a hazard of injury or death.

WHAT IS LIQUID NITROGEN

Nitrogen makes up the major portion of the atmosphere (78.03 percent by volume, 75.5 percent by weight). It is a colorless, odorless, tasteless and almost totally inert gas, and is colorless as a liquid. Nitrogen is nonflammable, will not support combustion, and is not life supporting.

Liquid nitrogen is produced by the distillation of liquefied air and withdrawn from the air separation equipment as a liquid.

Examples of the expansion rate of nitrogen from a liquid to a gas; your "DURA-MITE" cylinder contains 22 gallons of liquid nitrogen when full. This is equal to 3 cubic feet of liquid. When the liquid in the cylinder evaporates it expands in a ratio of 696.56:1. This means that your cylinder full of liquid nitrogen would fill up a 16 X 16 X 8 foot room with nitrogen gas if not ventilated. Nitrogen gas produced by evaporation of liquid nitrogen used to control termites must go somewhere. Nitrogen gas may be channeled into nearby rooms or confined spaces. The nitrogen gas that goes into poorly ventilated rooms, particularly places such as walk-in closets, can displace oxygen creating a hazard. One-fifth of a 22-gallon tank of nitrogen is enough to displace the air in a 6 foot by 8 foot room or closet.

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Physiological effects:

Asphyxia develops slowly as the oxygen content of the air is gradually reduced from 21 percent. The victim will not be aware of a problem, as he generally will not recognize the symptoms of gradual asphyxia as described below for decreasing oxygen levels.

As blood passes through the lungs, it gives up carbon dioxide and accepts oxygen through the thin walls of tiny air sacs. Blood which becomes enriched in oxygen in the lungs takes less than 10 seconds to reach the brain.

When an individual takes a few breaths of gas containing no oxygen (pure nitrogen for example), lung oxygen is washed out and replaced by gas containing no oxygen. Blood flowing through the lungs receives insufficient oxygen, because none has been inhaled. In fact, the blood gives up whatever residual oxygen it may be carrying. Blood severely depleted in oxygen then flows to the brain which contains the body tissue most sensitive to the lack of oxygen. Within 5 seconds after inhaling only a few breaths of oxygen-free gas, there is a rapid drop in oxygen content in the blood. Mental failure and coma follow a few seconds later. Symptoms or warnings are generally absent, but even if present, the loss of mental competence, weakness, incoordination, or fainting prevents the victim from talking. Death follows in 2 to 4 minutes.

At normal 21% concentrations: The normal oxygen concentration in air is about 21 percent by volume and provides a safe working environment with respect to the oxygen required to support life.

Effect of elevation above sea level: Depletion of oxygen in a given volume of air by combustion, displacement with inert gas, or by increased elevation is a potential hazard to personnel. The true measure of oxygen availability is the oxygen partial pressure. While the percent of oxygen in the atmosphere is always 20.9 percent at all elevations, the partial pressure of the atmosphere varies with the ratio of the atmospheric pressure at the elevation being considered to the atmospheric pressure at sea level. In Denver, at an elevation of 5280 feet, there is only about 82 percent as much oxygen available in each volume of air as at sea level.

At 16% concentration: When the oxygen content of air is reduced to about 15 to 16 percent, the flame of ordinary combustible materials, including those commonly used as fuel for heat or light, will be extinguished. Somewhat below this concentration, an individual breathing the air is mentally incapable of diagnosing the situation, because the symptoms of sleepiness, fatigue, lassitude, loss of coordination, errors in judgment, and confusion will be masked by a state of "euphoria," giving the victim a false sense of security and well-being.

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At 12% or lower concentration: Human exposure to atmospheres containing 12 percent or less oxygen will bring about unconsciousness without warning, so quickly that the individual cannot help or protect himself. This is true if the condition is reached by immediate change of environment or by gradual depletion of oxygen. The victim's condition and degree of activity will have an appreciable effect on signs and symptoms at various oxygen levels. In some instances, prolonged reduction of oxygen may cause brain damage if the individual survives.

RECOMMENDED FIRST-AID TREATMENT

Persons suffering from lack of oxygen should quickly be moved to areas with normal atmospheres. Self-contained breathing apparatus may be required to prevent asphyxiation of rescue workers. Assisted respiration should be given to the victim if he is not breathing.

NOTE: Coma due to lack of oxygen is not always fatal. Know, practice, and use cardiopulmonary resuscitation (CPR) techniques. Obtain medical assistance as soon as possible.

NOTE TO PHYSICIAN

Frozen tissues should be treated promptly by immersion in a water bath at a temperature between 105-115oF (41-46oC). Avoid the use of dry heat.

Frozen tissues are painless and appear waxy with a pallid yellow color. Tissues become painful and edematous upon thawing and the pale color turns to pink or red as circulation of blood is restored. Potent analgesics are often indicated. Tissues which have been frozen show severe, wide-spread cellular injury and are highly susceptible to infections and additional trauma. Therefore, rapid rewarming of tissues in the field is not recommended if transformation to a medical facility will be delayed.

If the body temperature is depressed, the patient must be warmed gradually. Shock may occur during the correction of hypothermia. Cardiac dysrhythmia may be associated with severe hypothermia.

Workers will rarely if ever come in contact with a cryogenic liquid if proper handling procedures are used. But in the unlikely event of contact with a liquid or cold gas, a cold-contact "burn" may occur. Actually, the skin or eye tissue freezes. Following are the recommended emergency treatments for a cold-contact burn:

Remove any clothing that may restrict circulation to the frozen area. Do not rub frozen parts, as tissue damage may result. Obtain medical assistance as soon as possible.

As soon as practical, place the affected area of the body in a warm water bath which has a temperature of not less than 105oF or more than 115oF (40oC to 46oC). Never use dry heat or hot water. The victim should also be in a warm room, if possible. Cryogenic burns, which result in blistering or deeper tissue freezing, should be examined promptly by a physician.

If there has been massive exposure so that general body temperature is depressed, the patient must be rewarmed by being immersed in a warm-water bath. Supportive treatment for shock should be provided.

Frozen tissues are painless and appear waxy with a possible yellow color. They will become swollen, painful, and prone to infection when thawed. Do not rewarm rapidly if the accident occurs in the field and the patient cannot be transported to medical help immediately. Thawing may require from 15 to 60 minutes and should be continued until the pale tint of the skin turns pink or red. Narcotics, such as morphine or tranquilizers, may be required to control the pain during thawing and should be administered under professional medical supervision.

If the frozen part of the body has thawed by the time medical attention has been obtained, cover the affected area with dry sterile dressing and with a large bulky protective covering.

Alcoholic beverages and smoking decrease blood flow to the frozen tissues and should not be used. Warm drinks and food may be administered to a conscious victim.

APPLICATION DIRECTIONS

Prior to a BLIZZARD SYSTEM application of liquid nitrogen being performed in CALIFORNIA a NOTICE OF INTENT must be reported to the COUNTY AGRICULTURAL COMMISSIONER'S office of the county in which the application will be conducted.

Before Liquid Nitrogen application, vacate the work area of all people other than the applicators and all pets except fish aquariums. Disconnect the aeration system to the aquarium and cover the aquarium with a plastic sheet. Install a fan to aid the room ventilation. Open any cabinets near the application area to allow air exchange.

~~Before treatment,~~ The extent of the infestation of drywood termites and the elements of construction must be determined. The location of all studs, electrical boxes and plumbing must be identified before treatment. Fiber optic equipment and stud finders will facilitate this examination. Care should be taken to avoid freezing or condensation damage to sensitive points of construction. Drill a hole in the wall and insert temperature probe, usually into the bottom plate. If the fire blocks are nailed well, additional holes must be drilled. If nails on the blocks leave gaps, extra holes may not be necessary.

Apply liquid nitrogen through pre-drilled holes in the wall, in the infested area, until the temperature reaches minus 20 degrees ~~Fahrenheit~~ ~~fahrenheit~~ as measured by the wood probe. This temperature should be maintained for at least 5 minutes.

During application of the BLIZZARD SYSTEM there is the potential for an oxygen deficient atmosphere to be developed. If safety procedures are not followed this could present a hazard of injury or death.

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Oxygen monitors must be used to inform workers of a possibly oxygen deficient atmosphere. The monitor must be set to give an audible alarm when the oxygen content in the atmosphere reaches 19.5% or lower.

A work crew of two people is required at all times while the BLIZZARD SYSTEM is in operation, ~~and both~~ Both people must maintain visual or verbal contact during the entire time of use application. If conditions on the job site don't allow for visual contact between the Applicator and the Buddy, constant spoken communications is required. Electronic communications equipment, such as use of Two Way Radios is acceptable as long as continuous verbal communications is maintained and the Buddy can respond immediatly to an emergency. The use of any electronic communications devices should not be construed as allowing the Buddy to be any further away from the application area than is necessary for safety reasons. If the applicator and the attendant move beyond the range for constant verbal communication, work must stop and the applicator must leave the application area until communication can again be restored. Both people the applicator and the attendant must don oxygen monitors before starting the BLIZZARD application and continue to wear them until after the application has ended and measurements show a safe level of oxygen is present in the area.

A An oxygen monitor must be in the immediate vicinity of the applicator or, if it is designed to be worn, on the applicator.

An oxygen monitor must be set up in the room / area that the application is taking place. It shall be set up prior to the start of the application and shall not be turned off until after the application has ended and oxygen levels are confirmed to be at a safe level.

All oxygen monitors are to be maintained and calibrated according to the manufacturer's recommendations.

The SCBA on site must be inspected every time prior to the beginning of work to ensure that the equipment is in good condition, the air tank is full, and that the SCBA has been last inspected and sealed within thirty days.

If the oxygen monitor's alarm sounds, shut off the cylinder and vacate all people from the area immediately. Do not reenter the area until the oxygen content has returned to safe levels. Evaluate the cause of the oxygen deficiency and make changes as needed.

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If an area of a structure is suspected of having an oxygen deficient atmosphere the following precautions must be taken to prevent being exposed to an oxygen deficiency.

First, get another crew person and a SCBA on hand. Both members of the work crew must cooperate in carrying out the following procedures.

- a. Without entry into the structure, take oxygen readings at all open windows and doors in the area of concern. If there is a low reading at one of these openings then continue to monitor the readings and do not enter the structure until they return to a safe level.
- b. From outside, set up fans (IF THEY ARE SAFELY OBTAINED) to ventilate the area of concern.
- c. Any entry afterward should be done into the largest rooms first and only with holding an oxygen monitor ahead of you.
- d. If the situation is questionable, wait for either 1 hour after the time the cylinder was turned off or 2 hours after you exited if the cylinder was left open. This will allow enough time to minimize any danger. Then proceed according to letter "c" above.
- e. ~~If an emergency situation arises and you must enter a suspect area, other than as outlined here, then you must don a SCBA and have the other crew person stand by with another SCBA and stay in constant contact.~~

A SCBA must be worn before entering an area where an alarm indicates an oxygen-deficient atmosphere. A third worker, equipped with additional SCBA for himself and the other crew member, must be summoned to the work site before anyone enters an area where the oxygen monitor alarm is sounding, except in a situation where an immediate rescue must be initiated to remove an unconscious worker.

APPLICATOR PROTECTION

Oxygen monitors must be used to inform workers of a possibly oxygen deficient atmosphere. The monitor must be set to give an audible alarm when the oxygen content in the atmosphere reaches 19.5% or lower.

Safety glasses are recommended during transfer and normal handling of cryogenic liquids. Face shields or chemical goggles must be worn for additional protection should severe spraying or splashing occur.

Insulated gloves must always be worn when handling anything that comes in contact with cold liquids and vapor. Gloves should be loose fitting so they can be removed quickly if liquids are spilled into them.

Trousers or coveralls should be worn outside of boots or work shoes.

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PRECAUTIONS

Multiple precautions for oxygen-deficient area: Areas where it is possible to have low oxygen content must be well ventilated. Whenever personnel enter enclosed areas, the breathing atmosphere must be constantly monitored by appropriate instrumentation. When there is any doubt about the safety of the breathing atmosphere, self-contained breathing apparatus must be used.

Buddy system

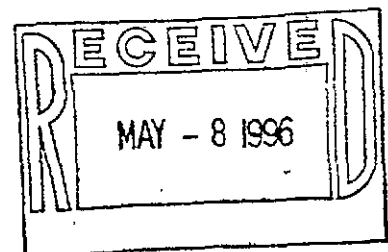
Most personnel working in or around oxygen-deficient atmospheres rely on the buddy system for protection, but the buddy is equally susceptible to asphyxiation if he enters the area to rescue his unconscious partner without a portable air supply. ~~The best protection is obtained by providing both the worker and his buddy with a portable supply of respirable air.~~ Lifelines are acceptable only if the area is free of obstructions and the buddy is capable of lifting his partner's weight rapidly and without straining himself. In practice, this has seldom been possible. If lifelines are used, have additional help available and use use more than one person if it is necessary to remove a worker in an emergency.

Vacating of work area: during application of the liquid nitrogen, the room containing the application site will be vacated by all pets and people other than applicators, as well as the rooms above, below and adjacent to the room. In other words, all rooms adjacent to the room being treated, regardless of whether they are adjacent to the actual site of the application are to be vacated until oxygen levels inside the building have been measured and are at a safe level. If the structure is not a single family dwelling, any attached residences that have a common wall to the one being treated shall also be subject to the room vacating procedures.

The area surrounding the treatment site must be evaluated for it's probability of harboring an oxygen deficient atmosphere. Any rooms, where the BLIZZARD SYSTEM is being used in, must have a fan set up to aid ventilation. Also any cabinets near the application area should be opened to allow air exchange. The only time a fan is not necessary is when the work is being performed outside of the building. Under no circumstances is work to be performed without adequate ventilation present.

Liquid nitrogen should be used and stored in well-ventilated areas. Oxygen is the only gas that will support life. High concentrations of nitrogen gas reduce the breathable oxygen in the air below a safe level.

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RESPIRATORY PROTECTION EQUIPMENT

Asphyxiation can occur suddenly or develop slowly without the worker being aware that he is in trouble. If large quantities of inert gas are present, the problem is easily avoided by simply using proper ventilation at all times. When it is absolutely necessary to enter a work area that may have an oxygen content below 19.5 percent by volume, Self Contained Breathing Apparatus (SCBA) must be used. An absorptive gas mask will not prevent asphyxiation.

Oxygen-deficient atmospheres: Use self-contained breathing apparatus. CAUTION! Air purifier will not function. Use may result in asphyxiation.

To clarify respiratory protection; AIR PURIFYING RESPIRATORS DO NOT SUPPLY OXYGEN AND SHOULD NOT BE USED FOR PROTECTION AGAINST OXYGEN DEFICIENCY. ONLY A SELF CONTAINED BREATHING APPARATUS IS APPROVED FOR ENTRY INTO AN OXYGEN DEFICIENT ATMOSPHERE.

HEALTH HAZARD DATA

SYMPTOMS, IF CONTACTED WITH SKIN, OR VAPOR INHALED

Personnel, including rescue workers, should not enter areas where the oxygen concentration is below 19.5% unless wearing a self-contained breathing apparatus.

Exposure to oxygen-deficient atmospheres may produce dizziness, nausea, vomiting, loss of consciousness, and death. Death may result from errors in judgment, confusion, or loss of consciousness which prevents self-rescue. At low oxygen concentrations, unconsciousness and death may occur in seconds without warning.

Extensive tissue damage or burns may result from exposure to liquid nitrogen or cold nitrogen vapors.

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