PM 18 56625-2

APR 28 1992

Mr. Pete Horning
Education Director
Blizzard System, Inc.
1949 East Market Street
Long Beach, CA 90805

Dear Mr. Horning:

Subject: Blizzard System Liquid Nitrogen
EPA Registration No. 56625-2
Your Submission of an Application for Pesticide Registration Amendment Dated July 12, 1991

The amendment referred to above, submitted in connection with registration under section 3(c)(7)(A) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), is acceptable provided that you:

1. Submit/cite all data required for registration/reregistration of your product under FIFRA section 3(c)(5) or 4(a) when the Agency requires all registrants of similar products to submit such data.

2. Make the labeling changes listed below before you release the product for shipment bearing the amended labeling:

   a. Under "Restricted Use" on the label, add "danger of asphyxiation."

   b. Under "Hazards to Humans and Domestic Animals," add:

      Animals in room during treatment may be suffocated. Remove animals, including fish and birds, until after treated rooms are ventilated.

57662:I:CR-44:Schroeder:C.Disk:KEVRIC:08/08/91:CL:WO:CL:WO:RJ:WO:RJ

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c. Also under "Hazards to Humans and Domestic Animals," add a statement that 40 seconds' exposure to 4 percent or less oxyger in air results in coma, convulsions, stopping of respiration, and death unless promptly treated. Smaller reductions in oxygen level in air results in a feeling of euphoria and loss of judgment precluding recognition of oxygen shortage.

d. Also under "Hazards to Humans and Domestic Animals," stipulate that a self-contained breathing apparatus must be available at the site of application.

e. Under "Directions For Use," add "Read Operational Directions and Training Manual before using this product."

f. Under "Statement of Practical Treatment," add a statement warning against removing clothing adhering to damaged skin except under physician's directions.

g. Consider a statement in Spanish warning against using this product unless this label and the manual are read and understood or carefully explained by supervisor.

h. Under "Physiological Effects" in the "Operational Directions and Training Manual," include the following statement:

> 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 take 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, uncoordination, or fainting prevents the victim from talking. Death follows in 2 to 4 minutes.

i. Under "What is liquid nitrogen," add the following statement to the end of the third paragraph:

Nitrogen gas produced by evaporation of liquid nitrogen used to control termites must go somewhere. Nitrogen gas may be channelled 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.

3. Note that Part 153.75 of Title 40 of the Code of Federal Regulations requires prompt reporting of toxic or adverse effect incidents affecting humans as well as other nontarget organisms.

4. Submit five (5) copies of your final printed labeling before you release the product for shipment.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6(e). Your release for shipment of the product bearing the amended labeling constitutes acceptance of these conditions.

A stamped copy of the label is enclosed for your records.

Sincerely yours,

Phil Hutton
Product Manager (18)
Insecticide-Rodenticide Branch
Registration Division (H7505C)

Enclosure

DRAFT

BLIZZARD SYSTEM INC

ACCEPTED
with COMMENTS
In EPA Letter Dated
APR [illegible]

Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No. 56425-2

LIQUID NITROGEN

RESTRICTED USE

RESTRICTED USE DUE TO THE HIGHLY CORROSIVE NATURE OF LIQUID NITROGEN ON CONTACT WITH SKIN OR EYES.

FOR RETAIL SALE TO AND USE BY CERTIFIED APPLICATORS OR PERSONS UNDER THEIR DIRECT SUPERVISION AND ONLY FOR THOSE USES COVERED BY THE CERTIFIED APPLICATOR'S CERTIFICATION.

ACTIVE INGREDIENTS:

LIQUID NITROGEN	99.995%
INERT INGREDIENTS	.005%
	100.000%

THIS PRODUCT CONTAINS 6.746 POUNDS OF NITROGEN PER GALLON

KEEP OUT OF THE REACH OF CHILDREN

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DANGER

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.

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. Storage areas should be free of combustible materials. 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 or 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.

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. 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 ITS LABELING.

REFER TO THE OPERATIONAL MANUAL FOR USE DIRECTIONS AND ADDITIONAL INFORMATION

NET CONTENTS: [illegible] GALLONS (50 LITERS)

E.P.A. REG. NO. [illegible] E.P.A. EST. NO. [illegible]

[illegible]
[illegible]
[illegible]
[illegible]

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

BY

BLIZZARD SYSTEMS, INC.

THE BLIZZARD SYSTEM

INTRODUCTION

WHAT IS LIQUID NITROGEN

Physiological effects:

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.

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 or 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 100oF or more than 110oF (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.

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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.

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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 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 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.

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 PEOPLE MUST MAINTAIN VISUAL CONTACT DURING THE ENTIRE TIME OF USE. BOTH PEOPLE MUST PUT ON OXYGEN MONITORS BEFORE STARTING THE BLIZZARD APPLICATION AND CONTINUE TO WEAR THEM UNTIL AFTER THE APPLICATION HAS ENDED AND MONITORS [illegible] TO SHOW A SAFE LEVEL OF OXYGEN IS PRESENT IN THE AREA.

A monitor must be in the immediate [illegible] of the applicator [illegible] it is designed to be worn [illegible] the applicator.

AN OXYGEN MONITOR MUST BE SET UP IN THE [illegible] THE APPLICATION IS TAKING PLACE. IT SHALL BE [illegible] THE APPLICATION AND SHALL NOT BE TURNED [illegible] APPLICATION HAS ENDED AND OXYGEN LEVELS [illegible] LEVEL.

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ALL OXYGEN MONITORS ARE TO BE MAINTAINED AND CALIBRATED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

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.

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.

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. AN 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 IS TURNED OFF OR 2 HOURS AFTER YOU NOTICE 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.

APPLICATOR PROTECTION

Oxygen monitors must be used to insure 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 to stop splashes from [illegible].

PRECAUTIONS

Multiple precautions for oxygen deficient area: Areas where it is possible to have low oxygen content must be well ventilated. No person should enter enclosed areas the breathing atmosphere of which is not being monitored by appropriate instrumentation. When there is any doubt about the safety of the breathing atmosphere, self contained breathing apparatus must be used.

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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 [illegible] has seldom been possible. 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 B[illegible] 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 [illegible] 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 [illegible] HAVE A [illegible] UP TO AIR VENT [illegible] ALSO [illegible] CABINETS NEAR THE [illegible] SHOULD BE OPENED [illegible] ALLOW AIR EXCHANGE. THE [illegible] A FAN IS [illegible] NECESSARY IS WHEN THE WORK IS [illegible] OUTSIDE OF THE BUILDING. UNDER NO CIRCUMSTANCES IS WORK TO BE PERFORMED WITHOUT ADEQUATE VENTILATION PRESENT.

Liquid nitrogen should be [illegible] in well-ventilated areas. [illegible] gas that will support life. High concentration [illegible] the [illegible] oxygen in the [illegible] below a safe level.

RESPIRATORY [illegible] 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 [illegible] 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.

[illegible] oxygen-deficient atmosphere [illegible] contained breathing apparatus. CAUTION! Air purifier will not [illegible]. [illegible] may result in asphyxiation.

TO CLARIFY RESPIRATORY PROTECTION [illegible]

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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.

Severe tissue damage or burns may result from exposure to liquid air, gox or cold nitrogen vapors.