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5785-17

12/16/97

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

DEC 16 1997

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

Pamela J. Bricker
Regulatory Specialist
Great Lakes Chemical Corporation
P.O. Box 2200
West Lafayette, IN 47906

Subject: Review of Basic Confidential Statement of Formula (CSF) and
Label Review
Chlor-O-Pic
EPA Reg. No. 5785-17
Letter Dated September 24, 1997

Ms. Bricker:

Below are the conclusions from the Agency's review of the above submission:

1. The basic formulation (Confidential Statement of Formula) dated September 24, 1997 requested in your letter of the above date is acceptable subject to the comments below:

Delete Sinochem/Dalian Chemical as a supplier's name because their product is not registered and its composition is not known to the Agency. Please resubmit revised formulas deleting this supplier.

The amendment has been inserted in the file for the subject product.

2. The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended, is acceptable subject to the following conditions:
 - a. Per the Special Review and Reregistration Division's letter from Arnold Layne dated November 14, 1997, revise the **ENVIRONMENTAL HAZARDS** section to read: "This pesticide is toxic to fish and aquatic invertebrates. Do not apply to water, areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment washwaters or rinsate."
 - b. Realign the uses with the correct application rates in Table II CHLOR-O-PIC SOIL FUMIGATION USES.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release of the product for shipment constitutes acceptance of these conditions. Please submit one copy of your final printed labeling before you release the product for shipment. A stamped copy is enclosed for your records.

If you have any questions, then please contact Terri Stowe of my staff at (703) 305-6117.

Sincerely,

Mary L. Waller

Mary L. Waller
Acting Product Manager (21)
Fungicide Branch
Registration Division (7505C)

Enclosure

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RESTRICTED USE PESTICIDE DUE TO ACUTE TOXICITY
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.

CHLOR-O-PIC®

FUMIGANT

ACCEPTED
with COMMENTS
In EPA Letter Dated

DEC 16 1997
Under the Federal Insecticide,
Fungicide, and Rodenticide Act
as amended, for the pesticide
registered under EPA Reg. No. 5785-17

ACTIVE INGREDIENTS	..	By. Wt.
Chloropicrin	99%
INERT INGREDIENTS	1%
TOTAL	100%

KEEP OUT OF REACH OF CHILDREN



DANGER

POISON



PELIGRO

Si Usted no entiende la etiqueta, busque a alguien para que se la explique a Usted en detalle.
(If you do not understand the label, find someone to explain it to you in detail).

Statement of Practical Treatment.

In all cases of overexposure, get medical attention immediately. Take person to a doctor or emergency treatment facility.

IF INHALED: Get exposed person to fresh air. Keep warm. Make sure person can breathe freely. If breathing has stopped, give artificial respiration, preferably mouth-to-mouth. Do not give anything by mouth to an unconscious person.

ON SKIN: Immediately remove contaminated clothing, shoes, and other items covering skin. Wash contaminated skin area thoroughly with soap and water.

IF IN EYES: Hold eyelids open and flush with a steady, gentle stream of water for at least 15 minutes.

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS.

NET WEIGHT: _____ LBS.
LOT NO.: _____

EPA REG. NO. 5785-17
EPA EST. NO. 5785-A.R-1

GREAT LAKES CHEMICAL CORPORATION
P O BOX 2200
WEST LAFAYETTE, IN 47906

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PRECAUTIONARY STATEMENTS

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HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER. Poisonous liquid and vapor. Inhalation of vapors may be fatal. Chloropicrin is readily identifiable by smell. Exposure to very low concentrations of vapor will cause irritation of eyes, nose, and throat. Continued exposure after irritation, or higher concentrations may cause painful irritation to the eyes or temporary blindness. Liquid will cause chemical burns to skin or eyes. Do not get on skin, in eyes, or on clothing. Harmful or fatal if swallowed.

AIR CONCENTRATION LEVEL

The acceptable air concentration level for persons exposed to chloropicrin is **0.1 ppm (0.7 mg/m³)**. If the air concentration level exceeds **0.1 ppm**, an air purifying respirator must be worn. If the air concentration level exceeds **4 ppm**, an air-supplying respirator must be worn. The air concentration level is measured by a direct reading detection device, such as a Matheson-Kitagawa.

PERSONAL PROTECTIVE EQUIPMENT

Applicators and other handlers must wear:

Loose-fitting or well ventilated long-sleeved shirt and long pants.

Shoes and socks.

Full-face shield or safety glasses with brow and temple shields (Do NOT wear goggles).

When the acceptable air concentration level is above **0.1 ppm** and a respirator is required, protect the eyes by wearing a full-face respirator.

No respirator is required, if the air concentration level of chloropicrin in the working area is measured to be less than **0.1 ppm**.

A respirator is required under the following circumstances:

--if the air concentration level exceeds **0.1 ppm** at any time, applicators and other handlers must wear (a) a respirator with an organic-vapor-removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C), OR (b) a respirator with a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G).

--if the air concentration level exceeds **4 ppm** at any time, applicators and other handlers must wear (a) a supplied-air respirator (MSHA/NIOSH approval number prefix TC-19C) OR (b) a self-contained breathing apparatus (SCBA) (MSHA/NIOSH approval number prefix TC-13F).

WORK SAFETY REQUIREMENTS

1. Do not wear jewelry, gloves, goggles, tight clothing, rubber protective clothing, or rubber boots when handling. Chloropicrin is heavier than air and can be trapped inside clothing and cause skin injury.

2. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product. Do not reuse them.
3. Clean PPE after each day's use. Immediately after contamination remove outer clothing, shoes, and socks and do not reuse until thoroughly aerated or ventilated. Keep such clothing and shoes outdoors until thoroughly aerated. Then follow the PPE manufacturer's instructions for cleaning/maintaining PPE. If there are no such instructions for washables, use detergent and hot water. Keep and wash PPE and work clothing separately from other laundry.
4. Follow PPE manufacturer's instructions for cleaning/maintaining protective eyewear, face shields and respirators.

USER SAFETY RECOMMENDATIONS

Users should:

- * Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- * Remove clothing immediately if pesticide gets inside, then wash thoroughly and put on clean clothing.
- * Remove PPE immediately after handling this product. As soon as possible, wash thoroughly and change into clean clothing.

NOTE TO PHYSICIAN. Chloropicrin is a volatile liquid that is the active ingredient in tear gas. As a gas it is a powerful lachrymator. Early symptoms of overexposure are lachrymation, respiratory distress and vomiting. Pulmonary edema may develop later. Treatment is symptomatic.

ENVIRONMENTAL HAZARDS

This product is toxic to fish and wildlife. For terrestrial uses, do not apply to water, areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters. Open dumping is prohibited.

Do not allow Chlor-O-Pic or its vapors to come into contact with any desirable living plants. Avoid spilling, dripping or otherwise contacting Chlor-O-Pic with crops in adjacent fields as plant injury may result. Do not apply Chlor-O-Pic when there is little or no air movement or during air inversion conditions.

PHYSICAL OR CHEMICAL HAZARDS

Chlor-O-Pic may be corrosive under certain conditions. DO NOT USE WATER to clean equipment. Flush equipment with kerosene or fuel oil. Do not use handling equipment or containers made from magnesium, aluminum, or alkali metals. Chlor-O-Pic is a nonflammable liquid.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

Chlor-O-Pic is a highly hazardous material and must be used only by persons trained in its proper use. Before using, read and follow all label precautions and directions.

All persons working with this fumigant must be trained in the hazards, use of required respirator equipment and detector equipment, emergency procedures, and proper use of the fumigant.

When used for fumigation of empty potato storages or empty grain bins, two persons trained in the use of this product must be present at all times during introduction of the fumigant, testing and aeration periods.

STORAGE AND DISPOSAL

Storage and Handling. Store upright in a cool, dry, well-ventilated locked area. Post as a pesticide storage area. Do not contaminate water, food, or feed by storage or disposal. Persons moving, handling, or opening containers must wear the personal protective equipment (including prescribed respirator) specified in the Hazards to Humans section of this labeling. Open container only in a well-ventilated area.

Disposal. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance. Return empty cylinders freight collect to the Great Lakes Chemical Corporation location from which shipment was made. Close cylinder valve by turning clockwise until hand tight. Disconnect lines. Replace safety caps and bonnet. Return partial cylinders only after consulting Great Lakes Chemical Corporation for proper shipping instructions.

SPILL AND LEAK PROCEDURES. Evacuate everyone from the immediate area of the spill or leak. For entry into affected area to correct problem, wear the personal protective equipment (including prescribed respirator) specified in the Hazards to Humans section of this labeling. Move leaking or damaged containers outdoors or to an isolated location. Observe strict safety precautions. Work upwind, if possible. Allow spilled fumigant to evaporate or to absorb onto vermiculite, dry sand, earth, or similar absorbent material. Such material should be disposed of on site or at an approved disposal facility. Only correctly trained and PPE-equipped handlers are permitted to perform such cleanup. Do not permit entry into the spill or leak area by any other person until the concentration of chloropicrin is measured to be less than **0.1 ppm**.

PLACARDING OF FUMIGATED AREAS

The applicator (or supervisor of the application) must placard all entrances to the fumigated area with signs bearing:

- * skull and crossbones symbol
- * "DANGER/PELIGRO,"
- * "Area under fumigation, DO NOT ENTER/NO ENTRE,"
- * "Chloropicrin Fumigant in use,"
- * the date and time of fumigation, and
- * name, address, and telephone number of the applicator.

Do not allow entry by unprotected persons into the fumigated area until the signs are removed. Such signs must only be removed when the air concentration level of chloropicrin is measured to be less than **0.1 ppm**. Signs must remain legible during the entire posting period.

Only a certified applicator (or someone under his/her supervision) may remove warning signs at entrances to fumigated structures.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements in this labeling about personal protective equipment, restricted-entry intervals, and notification to workers. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard (WPS).

No instructions elsewhere on this labeling relieve users from complying with the requirements of the WPS.

ENTRY RESTRICTIONS:

Greenhouse Soil Fumigation: Entry (including early entry that would otherwise be permitted under the WPS) by any person -- other than a correctly trained and equipped handler who is performing a handling task permitted by the WPS -- is **PROHIBITED** in the entire greenhouse (entire enclosed structure/building) from the start of application until 48 hours after application **AND** until the air concentration level of chloropicrin in the working area is measured to be to less than **0.1 ppm**. Until the **aeration of the soil** is complete (usually 10-14 days), non-handlers are permitted in the greenhouse **ONLY** while the air concentration level of chloropicrin in the working area remains less than **0.1 ppm**. If tarps are used for the application, non-handler entry is prohibited during tarp removal and until the air level is measured to be less than **0.1 ppm**.

Outdoor Soil Fumigation: Entry (including early entry that would otherwise be permitted under the WPS) by any person -- other than a correctly trained and equipped handler who is performing a handling task permitted on this labeling -- is **PROHIBITED** from the start of application until 48 hours after application. **In addition**, if tarps are used for the application, non-handler entry is prohibited while tarps are being removed.

NOTIFICATION: Notify workers of the application by warning them orally and by posting fumigant warning signs, as described in the "Placarding of Fumigated Areas" section of this labeling. Post the fumigant warning sign instead of the WPS sign for this application, but follow all WPS requirements pertaining to location, legibility, size, and timing of posting and removal. **Greenhouses -- Soil Fumigation:** Post the fumigant warning signs outside all entrances to the entire greenhouse (entire enclosed structure/building).

Outdoor Soil Fumigation: Post the fumigant warning signs at entrances to treated areas.

PPE FOR ENTRY DURING THE ENTRY-RESTRICTED PERIOD:

PPE for entry that is permitted by this labeling is listed in the "Hazards to Humans and Domestic Animals" section of this labeling.

I. SPACE FUMIGATION DIRECTIONS

When using Chlor-O-Pic as a space fumigant, the applicator must placard or post all entrances to the fumigated area with signs bearing the information previously listed under "Placarding of Fumigated Areas".

A. SPACE FUMIGATION. For specific treatment sites, pests to be controlled, rates of application and exposure times, see Table I.

After fumigation, fumigated areas must be aerated until the air concentration level of chloropicrin is measured to be less than **0.1 ppm**. Until the acceptable air concentration level is reached, do not allow any person to enter into the fumigated area unless he/she is wearing the specified personal protective equipment (including prescribed respirator) specified in the Hazards to Humans section of this labeling.

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TABLE I
CHLOR-O-PIC
RECOMMENDED DOSAGES FOR SPACE FUMIGATION

Treatment Site	Pests	Rate	Exposure Time (Hrs)
Empty Potato Cellars, Houses, Storages	fungi, insects, mites, rats and mice	0.35 - 0.7 lb. per 1000 cu. ft.	12 - 24
Empty grain bins (subfloor aeration space)	insects, mites, fungi, rats and mice	2 - 4 lb. per 1000 sq. ft.	12 - 24

*Use more than 1 lb/1000 cu. ft. only when premises contain significant quantities of absorbent material.

General Application Information. Prior to application, all openings should be sealed to make the structure as gas tight as possible. For rat and mouse control in structures not tightly constructed seal any cracks or openings which might allow fumigant to escape or allow rodents to enter or leave the premises. Temperature at the time of application should be 60°F. or higher and wind should be relatively calm. For fumigation of potato houses, the air inside should be saturated with moisture at a temperature of at least 70°F. In all cases, extinguish flames and shut off heating elements prior to application. Introduce Chlor-O-Pic into a shallow pan (except aluminum) or onto absorbent material such as burlap sacks located inside the structure. Arrange a fan to direct an air stream over the pan or absorbent material to hasten evaporation.

Additional fans should be used as necessary to keep the fumigant in circulation except for the fumigation of subfloor aeration spaces. At the end of the exposure period, ventilate the area by opening doors and hatches and run fans for 12 to 24 hours. Observe all aeration, entry, and placarding instructions listed earlier.

B. WARNING AGENT. Chlor-O-Pic may be used for clearing structures prior to fumigating with methyl bromide or sulfuryl fluoride. Use 1 ounce per 10,000 cubic feet of space to be fumigated. Dispense Chlor-O-Pic into a shallow pan made of plastic or metal (except aluminum) and arrange a fan to direct an air stream across the pan to hasten evaporation. Use additional fans to distribute the warning agent throughout the structure. Insure the building is empty of personnel before sealing the last entrance. Five to ten minutes later, introduce the methyl bromide or sulfuryl fluoride structural fumigant.

II. SOIL FUMIGATION

Chlor-O-Pic may be used as a preplant soil fumigant for control of many economic soilborne pests if present in soil at time of treatment. Soil fumigation with Chlor-O-Pic provides control or suppression of plant-parasitic disease causing organisms including nematodes, the bacterial pathogen Pseudomonas solanacearum, fungi in the genera Cylindrocladium, Fusarium, Phytophthora, Pyrenochaeta, Pythium, Rhizoctonia, Sclerotinia, Sclerotium, and Verticillium, the clubroot organism Plasmodiophora, and the soil pox organism Actinomyces ipomoea. Control of certain soil-infesting insects such as cutworms, grubs and wireworms may also be obtained as well as suppression of weeds if used with a tarpaulin.

Keep pets, livestock, and other domestic animals out of the treated area during application, during the exposure period as specified for applications in Directions for Use, and during removal of tarpaulin, if used.

WHEN TO TREAT: Fumigate with Chlor-O-Pic at least 14 days prior to planting whenever soil conditions are suitable. For best results, soil should be tilled to a fine, loose condition with soil temperature at depth of application between 60°F and 85°F. Do not fumigate when soil temperature is below 50°F. Soil should contain adequate moisture to support good seed germination. Fall treatment is suggested for fields that will be planted too early to allow for adequate soil temperatures.

SOIL PREPARATION: For best fumigant penetration and soil sealing, plant remains should be worked into the soil long enough before treatment to allow for maximum decomposition. Deep tillage (e.g. 12 to 18 inches) often improves results. Till the soil to a very fine condition, leaving as few clods as possible. Optimum seedbed moisture is an essential factor for effective fumigation. Do not fumigate dry soil.

Application: For field application as an overall treatment, inject Chlor-O-Pic with a chisel type applicator having chisels spaced no more than 12 inches apart and injecting the fumigant 6 - 8 inches below the soil surface. To seal in fumigant after application, cover treated area with a plastic tarp. Alternate sealing methods include the use of a drag, cultipacker, roller or float to firm the soil surface immediately behind chisels, or the application of water to wet the surface of soil 1 inch deep. For application as a row or bed treatment in the field, Chlor-O-Pic should be applied using one chisel shank per row to inject fumigant 6 - 8 inches below the original soil surface and sealed by listing a high, wide bed over the row or firming the bedded area with a bed-shaper. Fumigation of small areas or volumes of soil, potting mix or mushroom casing may be made by applying Chlor-O-Pic with a probe type point-injection device to a 6 - 8 inch depth in a grid pattern with injection points on a 12-inch spacing. For all applications involving the use of a plastic tarpaulin, remove the tarp after 24 - 48 hours of exposure. Refer to Table II for dosage rates for specific crops.

TABLE II

CHLOR-O-PIC SOIL FUMIGATION USES

Field soils to be planted to:	Lbs. per acre overall ^a non-tarp ^b	Special small areas or volumes of:	cc/cu.ft. or sq. ft.
Cucumbers, eggplant, melons	300 - 500	Mushroom casing	5 -
Onions	200 - 400	Potting mix	10/cu.ft.
Sweet potatoes	150 - 400	Seed bed	3 - 4/sq. ft.
Tobacco	150 - 500		3 - 6/sq. ft.
All Other Crops			ft.

^aRow or bed applications are made at the overall rate, but amount used is proportionately less per acre depending on the row spacing and width of treatment in the row or bed.

^bIf treated area is covered with a plastic tarp immediately after application, reduce dosage by 33%.

WHEN TO PLANT: The soil should not be disturbed for 14 days following treatment. Do not plant seeds or transplants until the fumigant odor has left the soil. Cool or wet weather following treatment will retard diffusion of the fumigant, requiring a longer exposure and aeration period. Should these conditions occur, hasten aeration after 14 days by working the bed to the depth of injection, taking care to avoid reinfestation of the fumigated zone with contaminated equipment and untreated soil.

III. DIRECTIONS FOR TREATMENT OF STANDING DOUGLAS FIR UTILITY POLES, LAND PILINGS, AND SIMILAR TIMBERS TO CONTROL INTERNAL DECAY.

Not For Use in The State of California.

Drill a minimum of four treatment holes of 3/4" diameter spaced evenly around the wood pole. The holes should be approximately at a 45° downward angle and deep enough to reach the center of the pole. The first hole should be near the groundline and each succeeding hole drilled 6-12 inches higher. Distribute the total amount of fumigant equally among the holes. Refer to TABLE III for the appropriate amount of fumigant. Wear appropriate respiratory protection or use application equipment that will prevent worker exposure to fumigant liquid or vapor. Seal treatment holes by plugging with treated wood plugs.

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TABLE III

**CHLOR-O-PIC DOSAGE RATE TABLE FOR DOUGLAS FIR
UTILITY POLES, LAND PILINGS AND SIMILAR TIMBERS
Not For Use in The State of California.**

DIAMETER (Inches)	8	12	16	20	24	28	30	36	40
Fluid Ounces	3	7	12	19	30	43	59	78	102

Seller warrants that this product complies with the specifications expressed in this label. SELLER MAKES NO OTHER WARRANTIES; AND DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY AND FITNESS FOR THE INTENDED PURPOSE. Seller's liability for default, breach, or failure under this label shall be limited to the amount of the purchase price. Seller shall have no liability for consequential damages.

COP-1 REV. AR-17-Q

ADDITIONAL "STORAGE AND DISPOSAL" STATEMENTS
(to be used on plastic containers)

STORAGE AND HANDLING. Store upright in a cool, dry, well-ventilated locked area. Post as a pesticide storage area. Do not contaminate water, food, or feed by storage and disposal. Persons moving, handling, or opening containers must wear the personal protective equipment (including prescribed respirator) specified in the Hazards to Humans section of this labeling. Open container only in a well-ventilated area.

DISPOSAL. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance. Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.