



Cardinal Chemical Company

SAN FRANCISCO, CALIFORNIA 94111

AN EFFECTIVE FUMIGANT FOR CONTROLLING INSECT PESTS IN STORED GRAIN

c. Ingredients

Chloroform 70.2% **Carbon Tetrachloride** 29.8% 100%

The Cardinalfume contains the following insecticides: flour beetle, mealworm, grain borer, rice weevil, lesser grain borer, and beetles of the genus *Acanthoscelides*, *Trichomma*, *Tribolium*, *Callosobius*, *Ephestia*, *Cnephia*, *Lasioderma*, *Neothallis*, *Mediterraneum*, *Confusum*, *Blattella*, *Agromyzidae* in the moth, flat grubs of the psyllid, and fruit fly.

GENERAL INFORMATION AND SAFETY PRECAUTIONS

The successful use of liquid grain fumigants depends upon several details: (1) All grain storages should be tightly built. Before applying the fumigant, seal the structure as gas-tight as possible, especially below the surface of the grain. (2) Have the grain surface level and no higher than six inches below the top of the bin sides. (3) Apply the fumigant in a safe manner, from outside the building if at all possible. During actual application always have someone on hand to help in case of accident. Have him stand outside, where he can see the man working inside. If it is necessary to enter a large bin for application or to enter an area already under fumigation, wear a suitable gas mask, such as a full face mask with a fresh block canister for organic vapors. (4) In general, fumigant should be applied with a hand or power sprayer. Replace the nozzle with a tube or pipe flattened at the end to give a broad, coarse stream. (5) After treatment do not disturb the grain for at least three days, and preferably for a week (except as recommended below). (6) Do not fumigate more often or at higher dosages than recommended here. (7) Best results are obtained during cool, calm periods of the day, since high air temperatures and strong winds increase vaporization and loss of the fumigant.

In fumigating, the temperature of the grain itself is important, rather than the temperature of the air outside the grain mass. It is not advisable to fumigate grains when the average grain temperature is below 60° F. It is better to fumigate when the grain temperature is above 60° F., since at lower temperatures the insects are relatively inactive, and the fumigant is less effective because of its reduced volatility. Several methods are available for determining grain temperature. Consult your dealer or other authorities for suggestions.

DIRECTIONS

FLAT STORAGE: Large flat storages, such as quonset huts, should be treated with power equipment. Speed of application and observance of above safety precautions are essential in this type of fumigation.

ELEVATOR STORAGE: Fumigate when grain is being put into the bin or being turned. The fumigant may be pumped or poured from outside over the grain between drafts, which should not exceed 10-foot drafts in the bin. Give double dosages to top and bottom drafts. Under conditions of long storage or intense insect attack, retreatment may be necessary. Need may be determined by observation of live insects and by overheating of grain because of insect activity.

BOX CARS: Apply Cardinalfume from outside the doorway of the car or wear a gas mask, using hand or power sprayer with special pipe nozzle. (See item 4) under General Information section.) Close and seal doors immediately. For best results, do not move the car for at least 12 hours.

BULK CERTIFIED OR HYBRID SEED GRAIN: Follow dosage recommendations carefully, and observe these precautions to avoid loss of seed viability. (1) Moisture content of seed must be less than 12% and preferably less than 10%. (2) Have seed temperature during exposure period between 65° F and 85° F. (3) Expose for not more than 24 hours and make provision for aeration immediately after the 24 hour exposure. This may be accomplished in tight structures by the use of aeration fans, and in loosely constructed storages by breaking all seals applied when preparing for fumigation. Do not fumigate low viability seed, as germination may be further reduced. (See Safety Precautions.)

POISON



DO NOT REUSE EMPTY CONTAINERS.
Wash thoroughly with water after
removing fumigant. Do not use containers
as food or feed containers.

DO NOT DRINK FUMIGANT.

PROTECTING THE FOODS THAT FEED THE NATION

RECOMMENDED DOSAGES

Grain Temperature 60° F. or Higher

Type of Storage

Flat Storage Wooden Bins

Flat Storage Steel and Concrete bins

Elevator Storage Wooden cribbed bins

Elevator Storage Steel and Concrete bins

Wheat, Corn, Oats, Grain
Rye Barley Sorghums
Gallons per 1000 Bushels*

6 7 10

5 6 9

4 5 8

3 4 7

Gallons per Box Car

5 9 14

*NOTE: On less than 1000 bushel lots, use the same dosage as recommended for 1000 bushels. With very small lots, saturate the entire surface with fumigant.

RICE: Use 4 gallons of fumigant per 1000 bushels if average grain temperature is 75° F. or above. If temperature is between 60° F and 75° F, use 6 gallons per 1000 bushels. If necessary to fumigate when grain temperature is below 60° F, use 8 gallons per 1000 bushels. See Safety Precautions.

NOTICE: Seller makes no warranty of any kind, express or implied, concerning the use of this product. Buyer assumes all risk of use or handling, whether in accordance with directions or not.

SEE STATE AGRICULTURAL EXPERIMENT STATION OR
STATE EXTENSION SERVICE SPECIALISTS FOR
GENERAL INFORMATION

NOTE: Do not use containers or handling equipment of aluminum, magnesium, or their alloys, as under certain conditions Cardinalfume may be severely corrosive to such metals. Partial evaporation leaves flammable liquid.

STORE IN A TIGHTLY CLOSED CONTAINER, IN A COOL LOCATION AWAY FROM DWELLINGS. KEEP FUMIGANT PROPERLY LABELED.

DANGER

HAZARDOUS VAPOR AND LIQUID

MAY BE FATAL IF INHALED OR SWALLOWED

CAUSES SKIN IRRITATION AND BLISTERS ON PROLONGED CONTACT

USE ONLY WITH ADEQUATE VENTILATION

DO NOT BREATHE VAPOR • DO NOT TAKE INTERNALLY

AVOID CONTACT WITH EYES, SKIN AND CLOTHING

WHEN NECESSARY, USE GAS MASK SUITABLE FOR ORGANIC VAPORS

KEEP OUT OF REACH OF CHILDREN

In case of contact, wash with soap and water. Remove and wash clothing before re-use. Do not wear shoes until free of all chemical odor. If illness results from inhalation, remove to fresh air and call a physician.

If swallowed, call a physician. Induce vomiting by giving an emetic such as two tablespoonsfuls of salt in a glass of warm water.

Do not use fumigated material or feed it to livestock until aeration has eliminated the odor of the fumigant.

In case of eye contact, eyewash should be flushed with water for 15 minutes.

In respect to fire hazard Cardinalfume is rated by Underwriters Laboratories Inc., 50 to 60 according to a schedule in which

Ether is rated 100 Kerosene 30-40
Alcohol (ethyl) 60-70 Paraffin Oil 10-20

CAUTION:

KEEP OUT OF REACH OF CHILDREN

U.S. DEPARTMENT OF COMMERCE