

**Cornell Cooperative Extension**

**Capital Area Agriculture and Horticulture Program**

# **Using Carbon Dioxide to Control Stored Grain Insects**

**Aaron Gabriel, CCE, Capital Area Agriculture & Horticulture Program**

**518-380-1496**

**[adg12@cornell.edu](mailto:adg12@cornell.edu)**



## **Points to Remember**

- **Two Carbon Dioxide labels are approved and labelled, but not yet available locally. Distribution is progressing.**
- **It is illegal to use any cylinder of CO<sub>2</sub> or dry ice to fumigate grain; it has to be a product that has a pesticide label.**
- **The label is necessary so that the product is used safely and effectively.**
- **NYS DEC will allow pesticide applicators in the field and forage category use CO<sub>2</sub> for stored grain pests.**



Doc ID: 565917



ACCEPTED  
FOR REGISTRATION

JAN 09 2020

New York State Department  
of Environmental Conservation  
Division of Materials Management  
Pesticide Product Registration

# IGI CARBON DIOXIDE

For Storage and Containment Structure and Outdoor Burrowing Pest Control

|                                 |        |
|---------------------------------|--------|
| <b>ACTIVE INGREDIENT:</b>       |        |
| Carbon Dioxide .....            | 99.9%  |
| <b>OTHER INGREDIENTS:</b> ..... | 0.1%   |
| <b>TOTAL</b> .....              | 100.0% |

**KEEP OUT OF REACH OF CHILDREN**  
**WARNING** ← **WHY?**

| FIRST AID  |  |
|--|--|
| <b>If Inhaled</b>  | <ul style="list-style-type: none"> <li>• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.</li> <li>• Call a poison control center or doctor immediately for treatment advice.</li> </ul> |
| Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For emergency information concerning this product, call 1-800-222-1222. |  |

### PRECAUTIONARY STATEMENTS

**HAZARDS TO HUMANS AND DOMESTIC ANIMALS – WARNING:** May be fatal if inhaled. Do not breathe vapor. Exposure may cause suffocation and death. Ventilate areas before entering. For handling activities in enclosed areas during and after application, use either a supplied-air respirator with NIOSH approval number TC-19C or a self-contained breathing apparatus (SCBA) with NIOSH approval number TC-13F.

Net Wt.: 20 lb

See application booklet for Directions for Use.

### STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

**PESTICIDE STORAGE:** Store in dry, cool, well-ventilated area under lock and key. Post as a pesticide storage area. Store cylinders upright, secured to a rack or wall to prevent tipping. Do not subject cylinders to rough handling or mechanical shock such as dropping, bumping, dragging or sliding. Do not use rope slings, hooks, tongs or similar devices to unload cylinders. Transport cylinders using hand truck or fork truck to which the cylinder can be firmly secured. Do not remove valve protection bonnet and safety cap until immediately before use. Replace safety cap and valve protection bonnet when cylinder is not in use.

**PESTICIDE DISPOSAL:** Vent unusable carbon dioxide to open air.

**CONTAINER HANDLING:** Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Return empty cylinders for reuse and disposal. When cylinder is empty, close valve, screw safety cap onto valve outlet and replace protection bonnet before returning to shipper. Do not use cylinders for any other purpose. Follow registrant's instruction for return of empty or partially empty cylinders.

### SPILL AND LEAK PROCEDURES

Evacuate immediate area of leak. Use respiratory device (see PRECAUTIONARY STATEMENTS) for entry into affected enclosed area to correct problem. Move leaking or damaged cylinders outdoors or to an isolated location, observing strict safety precautions. When completely empty, return to manufacturer or, if instructed, recycle/dispose of leaking or damaged cylinders or containers in accordance with State and Local waste disposal regulations. Do not permit entry into spill area by unprotected persons until concentration of carbon dioxide is determined to be less than 5,000 ppm.

Produced for:  
IGI, LLC  
600 West Taddel Road  
Acampo, CA 95220

EPA Reg. No.: 91274-1  
EPA Est. No.: 89867-CA-1,  
89867-CA -2,  
89867-WA-1



**Essentially every stored grain  
 (“and other products” - buckwheat & sunflower?)  
 and  
 stored grain insect is on the label.**

The following agricultural commodities and other products may be treated: corn, including popcorn, barley, oats, rice (milled and/or enriched), sorghum, wheat, rye and other small grains, cocoa beans, coffee beans, flour, cereal and related products, all dry beans, peas, macaroni and pasta products, dry milk and products made with dry milk, nuts including peanuts, almonds, walnuts, pecans, filberts, cashews and brazil nuts, dried fruits including apples, apricots, currants, dates, figs, peaches, prunes, pears and raisins, raw and processed tobacco, brewer's grits, candy, all spices, all herbs, animal feed in bulk or bags, birdseed, mammal skins, stuffed animals, herbarium, specimens, rare books and wood products such as carvings.



## **Storage, Transport, and Containment Structure Pest Control**

For storage and structural fumigation, dosage rates vary from 60% atmosphere to 88% atmosphere. Treatment times vary from 24 hours to 4 days. Do not fumigate if temperature is less than 40°F. Structure should be as gas tight as possible before treatment. Maintain as near as 60% ±10% CO<sub>2</sub> as possible.

### **Storage Vessels**

Purge storage vessel (bin, silo, or sealed railcar) to a minimum concentration of 60% (600,000 ppm) atmosphere. Use a two-day treatment for killing adult insects and a four-day treatment for killing all life stages of insects. For specific flows to use, contact a qualified fumigation engineer.

## **AERATION**

After application of product in enclosed spaces, **aerate treated areas until the level of CO<sub>2</sub>, as measured by commercially available analyzers, is below 5,000 ppm.** Follow the instructions as written in the manufacturer's operation manual.

### **RE-ENTRY (below 5,000 ppm CO<sub>2</sub>):**

**Persons may re-enter the treated area without respiratory protection.**

### **RE-ENTRY (between 5,000-30,000 ppm CO<sub>2</sub>):**

Persons may re-enter the treated area without respiratory protection, **provided that the exposure period is 15 minutes or less. For periods longer than 15 minutes, persons must wear the respiratory protection device specified in the PRECAUTIONARY STATEMENTS.**

**RE-ENTRY (greater than 30,000 ppm CO<sub>2</sub> or if the concentration is unknown): Persons must always wear the respiratory protection device specified in the PRECAUTIONARY STATEMENTS.**

**The U.S.D.A. has set a limit of 0.5% (5,000 ppm) maximum CO<sub>2</sub> concentration in work areas.**



## **TRAINING**

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

## **PLACARDING STATEMENT**

The applicator must placard or post all entrances to all enclosed fumigated areas with signs conforming to the following requirements:

## **Spill AND LEAK PROCEDURES**

## **STORAGE AND DISPOSAL**



- **Are bins and containers air tight?**
- **Are bins/containers near a farm office or inhabited area?**
- **How would you treat:**
  - **50-lb bags?**
  - **Hopper bottom bin?**
  - **Larger flat bottom bin?**
- **Proper safety equipment**
- **Large Barn fan to disperse CO<sub>2</sub> as you aerate a treated “container”**
- **A reliable CO<sub>2</sub> meter is necessary (\$100 - \$500)**





- **Regular food-grade CO2 is not expensive, but I do not know the price for CO2 labelled for pest control. There is the added cost of several years of work to obtain the EPA & DEC approval.**

**QUESTIONS?**