Pest Management Regulatory Agency
Agence de réglementation de la lutte antiparasitaire

Re-evaluation Decision Document RRD2005-10

Carbon Dioxide

The purpose of this Re-evaluation Decision Document (RRD) is to notify registrants, pesticide regulatory officials and the Canadian public that the re-evaluation of carbon dioxide is now complete.

Health Canada's Pest Management Regulatory Agency (PMRA) has determined that carbon dioxide is acceptable for continued registration provided that the proposed mitigation measures are adopted. Additional data requirements are identified. This RRD includes the regulatory decisions resulting from the re-evaluation of carbon dioxide as published in Proposed Acceptability for Continuing Registration (PACR) document PACR2004-31, *Re-evaluation of Carbon Dioxide*, on 6 August 2004.

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1.0 Introduction

The re-evaluation of the available information for the active ingredient carbon dioxide and its associated use as a fumigant has been completed by the PMRA.

2.0 Background

The purpose of this RRD is to notify registrants, pesticide regulatory officials and the Canadian public that the re-evaluation of carbon dioxide is now complete.

On 6 August 2004, the PMRA published PACR2004-31, *Re-evaluation of Carbon Dioxide*, for consultation on the proposed regulatory decision for carbon dioxide. No comments were received by the PMRA concerning this PACR.

This RRD presents the regulatory decisions resulting from the re-evaluation of carbon dioxide.

3.0 Regulatory Decision

The PMRA has determined that carbon dioxide is acceptable for continuing registration provided that the mitigation measures specified in Section 4.0 of the PACR are implemented. These mitigation measures include label statements to protect workers. The PMRA has further refined the label statements found in the PACR, and the revised label statements are outlined in Appendix I of this RRD.

Section 5.0 of the PACR outlined additional requirements for continued registration of carbon dioxide. The registrant will be informed by letter of the specific requirements and the regulatory options available to comply with this decision.

Appendix I Use Standard for the Commercial Class Products Containing Carbon Dioxide

(**Note:** The information in this appendix summarizes the uses and precautions for the commercial class products containing carbon dioxide, but does not identify all label requirements for such products. Registrants are referred to the PMRA Registration Handbook for further guidance on label requirements for pest control products.)

COMMON NAME: Carbon dioxide

CHEMICAL NAME: Carbon dioxide

FORMULATION TYPE: Pressurized product

USE-SITE CATEGORIES: 03—Empty Food Storage Areas
12—Stored Food and Feed
20—Structural

[The word "RESTRICTED" must appear on the Primary Panel of the label in capital letters.]

Only to be used by individuals holding an appropriate pesticide applicator certificate or licence recognized by the provincial/territorial pesticide agency where the application occurs.

PRECAUTIONARY STATEMENTS

Exposure may result in suffocation or death. For handling activities in enclosed areas during fumigations, use either a NIOSH/MSHA approved supplied-air respirator or a NIOSH/MSHA approved self-contained breathing apparatus (SCBA) with a full face shield. Work spaces under and adjacent to treatment area should be monitored for carbon dioxide.

AERATION

After fumigation, aerate treated areas until the level of CO_2 (as measured by a CSA approved CO_2 detection device capable of providing accurate measurements from below 5000 ppm to at least 30 000 ppm) is **below 5000 ppm**.

Re-entry (below 5000 ppm): If CO_2 levels are below 5000 ppm, persons may re-enter the treated area without respiratory protection.
Re-entry (5000–30 000 ppm CO_2): If CO_2 levels are between 5000 and 30 000 ppm, persons may re-enter the treated area without respiratory protection for 15 minutes or less. For periods longer than 15 minutes, use either a NIOSH approved supplied-air respirator or a NIOSH/MSHA approved self-contained breathing apparatus (SCBA) with a full face shield.
Re-entry (Over 30 000 ppm CO_2 or unknown): If CO_2 levels are over 30 000 ppm or are unknown, a person must always wear the following:

1. an approved self-contained breathing apparatus that has a full face shield and is operated in a pressure-demand or other positive mode; **OR**
2. an approved supplied-air respirator that has a full face shield and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus.

A self-contained breathing apparatus should always be available for emergency use.

TRAINING REQUIREMENT

All persons working with this product should be knowledgeable of this chemical's hazards, and trained in the use of required respirator equipment and detector devices, in emergency procedures and in the use of the product. When used for fumigation of enclosed spaces, (boxcars, silos, ship containers, and other transport vehicles), two persons familiar with the use of this product must be present during introduction of the fumigant, initiation of aeration and after aeration when testing for re-entry. Two persons do not need to be present if monitoring is conducted remotely (outside of area being fumigated).

PLACARDING INSTRUCTIONS

The applicator must placard or post signs on all entrances to the fumigated area that conform to the following requirements.

a) The sign shall be at least 35 cm by 25 cm in size and the letters shall be at least 7 cm in height unless a smaller sized sign is necessary because the treated area is too small to accommodate a sign of this size. Letters shall be clearly legible.
b) The signal word "DANGER" and the skull and crossbones symbol must be on the placard.
c) The statement "Fumigation – DO NOT ENTER/ENTRÉE INTERDITE."
d) The date of fumigation.
e) The name of the fumigant (carbon dioxide).
f) The name, address and telephone number of the applicator or pesticide handler.

These signs must be posted at eye level and must be visible from all visible points of entry to the treated area. They must remain posted during application and throughout the restricted-entry interval until the concentration of carbon dioxide is below 5000 ppm. Each separate treated area (i.e., boxcar, silo, ship container) must be posted or placarded with these signs.

The applicator or person responsible for monitoring levels of carbon dioxide may remove the placard when the concentration of carbon dioxide is at or below 5000 ppm.

STORAGE AND DISPOSAL

STORAGE

Do not contaminate water, food or feed by storage or disposal. Store in bulk CO_2 vessels that are permanent or semi-permanent installations or in approved CO_2 cylinders. Store cylinders in dry, cool, well-ventilated area under lock and key. Placard as a pesticide storage area. Store cylinders upright and secured to a rack or wall to prevent tipping. Cylinders should not be subjected 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 a hand crank 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.

SPILL AND LEAK PROCEDURE

Evacuate the immediate area where the leak has occurred. Use a SCBA or combination air-supplied/SCBA respirator for entry into affected area to correct problem. Move leaking or damaged cylinders outdoors to an isolated location, observing strict safety precautions. When completely empty, return to manufacturer if instructed or dispose of leaking or damaged cylinders or containers in accordance with provincial and local waste disposal regulations.

Do not permit entry into spilled area by unprotected persons until concentration of carbon dioxide is determined to be less than 5000 ppm.

LEAKING BULK CO_2 VESSEL OR ITS ATTACHED PIPING

In the event of a leakage from a bulk CO_2 vessel or its attached piping, close the upstream valve to isolate the leaking section. Depressurize the affected section and remove or repair the leak. If shutting off the valves at the vessel fail to stop the leakages, contact the local CO_2 service personnel to pump out or unload the vessel before proceeding with repairs.

LEAKING OR DAMAGED CYLINDERS

Move leaking or damaged cylinder outdoors or to an isolated location, observing strict safety precautions. When completely empty, return to manufacturer if instructed or dispose of leaking or damaged cylinders or containers in accordance with provincial 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 5000 ppm.

PESTICIDE DISPOSAL

Bulk CO_2 vessels are generally moved empty and depressurized. The usual method to dispose of excess CO_2 is to dilute it with air by venting. Care must be exercised to prevent accumulations of high concentration of vented CO_2 gas in an enclosed or low lying area. This is usually accomplished by very slow venting of the CO_2 to avoid a local asphyxiation hazard.

CONTAINER DISPOSAL

Bulk CO_2 vessels should be removed and disposed of only by qualified CO_2 service personnel. Return empty CO_2 cylinders for re-use or disposal. When cylinder is empty, close valve, screw safety cap onto valve outlet and replace protection bonnet before returning to shipper. Only the registrant is authorized to refill cylinders. Do not use cylinders for any other purpose. Follow registrant’s instruction for return of empty or partially empty cylinders.