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Grain Inspection, Packers and Stockyards
Administration
Federal Grain Inspection Service
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FUMIGATION HANDBOOK
CHAPTER 3
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CHAPTER 3

LAND CARRIER FUMIGATION

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3.1 POLICY

The fumigation of bulk grain in a land carrier(s) is authorized by section 800.84(b)(3) of the regulations under the United States Grain Standards Act as amended. Additionally, the fumigation of bulk rice in land carriers is approved under the provisions of the Agricultural Marketing Act. If grain/rice is found to contain live insects in sufficient quantity to affect the grade, the applicant is promptly notified and has the option of:

- a. In grain or Rough rice, receiving a certificate with the special grade "Infested" or in the case of Brown rice for Processing receiving a certificate with the U.S. Sample grade designation; or
- b. Fumigating the grain or rice in accordance with the provisions of this chapter, in which case, a certificate is issued as though the infestation did not exist.

Note: No live or dead insects are permitted in Milled rice; therefore, fumigation would not remove the "Infested" designation on the certificate grade line.

FGIS will require official personnel to witness subsequent fumigant applications by applicator and/or facility if complaints are received concerning infested carriers which were fumigated under these procedures. Witnessing fumigation will ensure that the carrier is properly sealed and the correct dosage, as specified by the applicator, is applied. If witnessing is warranted, the director of the Field Management Division will determine which applicators and/or facilities must have official personnel witness the fumigant application before a clear certificate is issued.

3.2 SCOPE

Fumigation of infested bulk grain and rice in land carriers is approved only within the following parameters as minimum requirements: (Procedures are the same for stationary and in-transit fumigation unless noted).

- a. Acceptable Carriers.
 - (1) Stationary (Static) Fumigation. Boxcars, hopper cars with covered tops that can be closed and secured, containers, and trucks with permanently enclosed tops are approved.

(2) In-transit Fumigation. Boxcars are not approved. Hopper cars (hatch or trough type) must have covered tops that can be closed and secured. Trucks, trailers, containers, and vans are not approved while traveling on public roads; however, these carriers are acceptable if they have permanently enclosed tops, sides, and bottoms, and are transported by rail. Aeration of these carriers is prohibited while en-route.

b. Acceptable Bulk Commodities.

Bulk grains that are acceptable include: barley, canola, corn, oats, rye, sorghum, soybeans, sunflower, triticale, wheat, and mixed grain. Additionally, bulk rice (includes Brown rice for processing, Rough rice, and Milled rice), edible beans, peas, and lentils are acceptable for fumigation.

c. Acceptable Commodity Temperatures.

Commodity temperatures must not be below 40 degrees Fahrenheit.

d. Acceptable Fumigant Use.

<u>Fumigant</u>	<u>Acceptable Use</u>
Methyl Bromide	Stationary
Metal Phosphide	Stationary or In-Transit
Carbon Dioxide	Stationary or In-Transit

e. Acceptable Fumigant Application Methods.

The application method and dose of the fumigant must be in accordance with the EPA-registered product label and labeling as well as Department of Transportation (DOT) and State regulations. Dust retention devices are required when bulk Brown rice or Milled rice is fumigated. The carrier must be placarded.

f. Acceptable Retention Period.

- (1) Stationary Fumigation. The carrier must remain sealed and stationary for minimum retention period as outlined below for an effective kill:

<u>Fumigant</u>	<u>Minimum Retention</u>
Methyl Bromide	24 hours
Metal Phosphide	72 hours
Carbon Dioxide	96 hours

Note: The carrier may not be moved within the local switching area during the minimum retention period when methyl bromide is used.

- (2) In-transit Fumigation. Applicants may ship acceptable carriers treated with fumigants as permitted by EPA and DOT regulations.

3.3 PROCEDURES

a. Applicant's Responsibilities.

The applicant for inspection must:

- (1) Notify official personnel of the intent to fumigate infested grain and the location of carrier to be fumigated.
- (2) Arrange for a certified applicator to fumigate the infested grain.
- (3) Verify that the applicator as well as the applicant follows the procedures outlined in this chapter and applicable EPA, DOT, and State requirements.
- (4) If the grain is aerated prior to shipping (stationary fumigation), arrange for a person trained in properties of fumigants to remove the placards. This person must know and understand fumigants, aeration, disposal of spent fumigants, use of respiratory protection equipment, and removal of placards. Contact the consignee if the carrier (See section 3.2, a, for acceptable carriers) is not aerated prior to shipping (in-transit fumigation) and arrange for an individual trained in the properties of fumigants to remove the placards at destination.

b. Certified Applicator's Responsibilities.

A certified applicator must:

- (1) Inspect the involved carrier(s) to determine if it is suitable for fumigation. Fumigate only those carriers deemed suitable. Apply any additional sealing necessary to ensure fumigant gas retention. Make sure the vents, seams, gaskets, and moldings are well-sealed. Vents at the end of hopper cars and in the corners of containers must be sealed.
- (2) Apply the fumigant in accordance with the EPA label or labeling requirements and the provisions of this chapter.
- (3) Spray the opening of trough type hopper cars with a sticky adhesive and place a plastic film (not less than 4 mil. thickness) over the opening when fumigating in transit. The plastic film is not required for hatch type hopper cars provided the gaskets on the covers are intact.
- (4) Install warning placards in accordance with EPA, DOT, and State regulations. Place placarding on both sides of the hopper car near the ladders and next to the top hatch into which the fumigant is introduced. In addition to these locations, install placards inside the cover or on top of the plastic lining. This is an additional precaution since placards can fall off carriers.
- (5) Provide copy of fumigant labeling to official personnel and inform them of dosage used.
- (6) Arrange, in conjunction with the applicant, for an aforementioned trained person, to aerate the carrier to a permissible exposure limit as specified by EPA before removing the placards either at point of origin for stationary fumigation or at destination for in-transit fumigation.

Exposure Limits

<u>Chemical</u>	<u>Safe Level</u>
Metal Phosphide	0.3 ppm
Methyl Bromide	5.0 ppm
Carbon Dioxide	10,000 ppm

It is not necessary to aerate the carrier and remove the placards before moving the carrier if aluminum, magnesium, or hydrogen phosphide or carbon dioxide are used. Such carriers may be shipped under fumigation in accordance with EPA and DOT regulations provided the placards remain on the carriers, and the carrier is an acceptable type. A trained person must aerate these carriers at destination before removing the placards.

Methyl bromide is not approved for in-transit fumigation. Therefore, aerate carriers treated with methyl bromide to a safe level and remove the placards before shipping.

c. Official Personnel Responsibilities.

Official personnel must:

- (1) Record or maintain a record of all pertinent information (carrier identification, name of applicant, name of applicator, date, time, location of fumigant application, and amount of fumigant used) with the work records.
- (2) Issue the inspection certificate.
 - (a) Stationary Fumigation. Verify that the carrier has remained stationary for the prescribed period of time before issuing the inspection certificate. The frequency of these periodic verifications is left to the discretion of official personnel. This can be accomplished by requesting the railroad agent to provide release or shipping dates for specific car numbers. Official personnel, in conjunction with other assignments, could verify that the individual carrier has not been moved.

Date and issue the certificate on the date the minimum retention period is met. Do not issue certificates before the minimum fumigant exposure time has elapsed.
 - (b) In-transit Fumigation. Issue the certificate after the required information is received from the applicant and applicator.

3.4 CERTIFICATION

"Infested" grain or Rough rice fumigated in accordance with this chapter is certificated as though the "Infested" designation had never been assigned. If all conditions of this chapter are not met, the grain in the subject carrier is certificated as "Infested."

U.S. Sample grade Brown rice for Processing which is U.S. Sample grade due to live insects is certificated as though the insects did not exist provided the carrier is fumigated in accordance with this chapter and the rice is loaded in bulk.

Fumigation does not remove the U.S. Sample grade designation from Milled rice if the rice is U.S. Sample grade due to live insects.

Statements

Place the following information in the "Remarks" section of the certificate:

a. For individual lots:

"This grain/commodity was fumigated according to official procedures."

b. For unit trains and container booking lots:

"The grain/commodity in carrier(s) (Carrier Identification) was/were fumigated according to official procedures."