as amended, for the pesticide
No. 148-1114

CHEMSTOR®

LIQUID PRESERVATIVE FOR HIGH MOISTURE CORN, SORGHUM, WHEAT, OATS, BARLEY, GRASS FORAGE AND LEGUME FORAGE

TO BE USED IN ANIMAL FEED ONLY

DANGER:

CAUSES SEVERE BURNS

KEEP OUT OF REACH OF CHILDREN

ACTIVE INGREDIENTS:

Organic Acids 99% Min. (19% Acetic and 80% Propionic)

INERT INGREDIENTS: (Water) 1% Max.

*ChemStor® is a Trademark of Celanese Corporation under License to Thompson-Hayward.

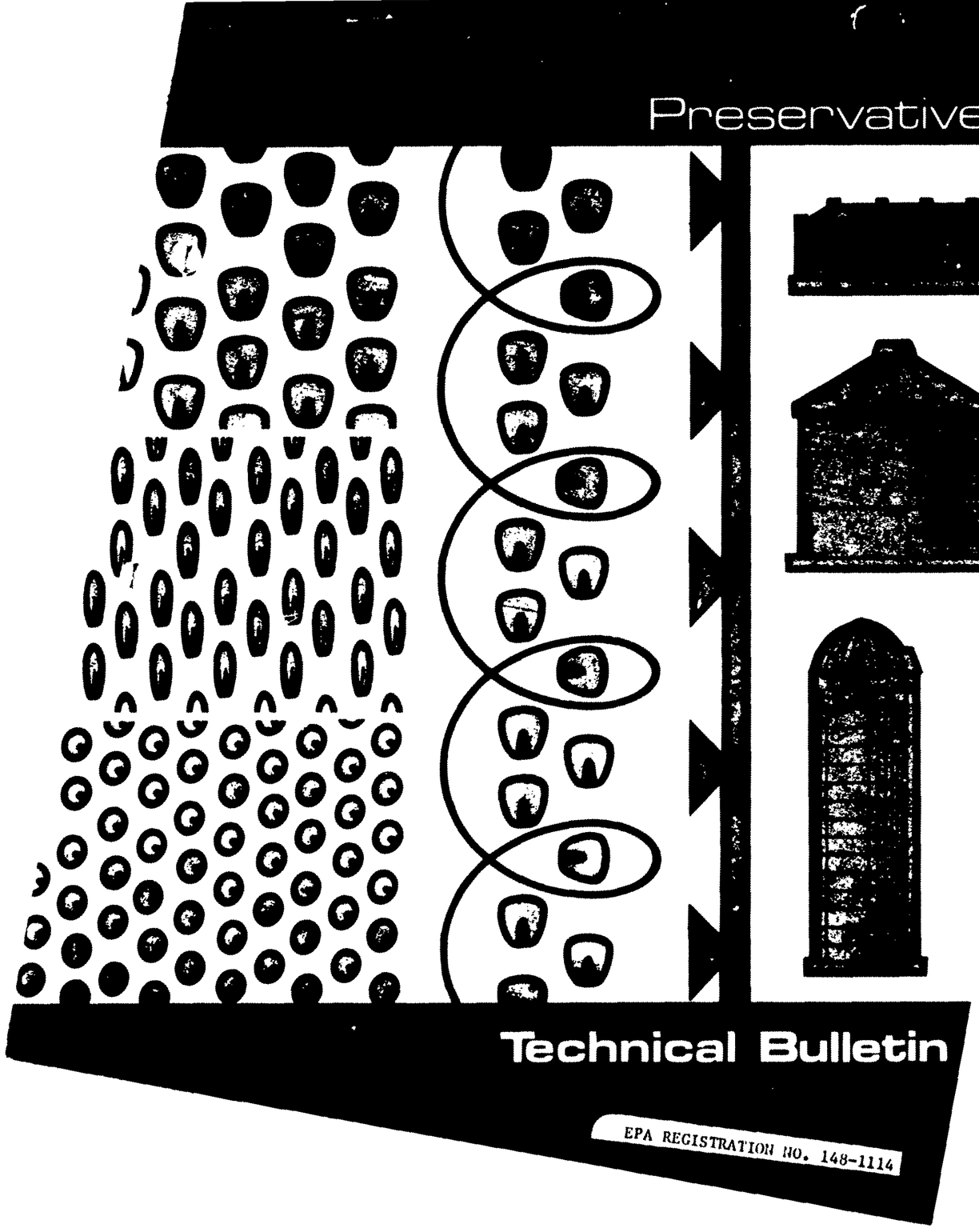
EPA Reg. No. 148-1114 CG-4-75

Do not get liquid or vapor in eyes, on skin, or clothing. Use in well ventilated area and do not inhale. Wear goggles, rubber gloves and protective clothing when handling ChemStor®. Do not use, pour, spill, or store near heat or open flame. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. For eyes, get medical attention. After contents have been removed, drums should be washed and completely drained. Do not contaminate water by cleaning of equipment, or disposal of wastes.

IMPORTANT: BEFORE USE SEE MANUFACTURERS TECHNICAL BULLETIN FOR DIRECTIONS AND OTHER CAUTIONS

WARRANTIES: Apart from the representations in the ChemStor® Product and Technical Bulletins, there's NO WARRANTY, representation or condition of ANY KIND, expressed or implied (including NO WARRANTY OF MERCHANTABILITY) concerning material sold hereunder or containers in which shipped. Thompson-Hayward shall have no responsibility, whether for breach of warranty, negligence, or otherwise, for any loss, damage or injury to persons or property arising out of the use, storage or handling of ChemStor® otherwise than in strict accordance with the directions contained in the ChemStor® Technical Bulletin.

THOMPSON-HAYWARD CHEMICAL COMPANY
P O BOX 2383 KANSAS CITY KANSAS 66110


Preservative
Technical Bulletin
EPA REGISTRATION NO. 148-1114

ChemStor^{R}

TECHNICAL BULLETIN
Supplement

USE IN FORAGE PRESERVATION

INTRODUCTION

In this Technical Bulletin Supplement are those directions for use of ChemStor^{R} when used as a forage preservative.

FOR PRESERVATION OF FORAGE TO BE STORED IN BALES OR AS LOOSE HAY

Spray ChemStor^{R} completely over entire fresh forage prior to storage in a well ventilated barn or shed. The following application rates should be used:

15-20% moisture at 10 pounds ChemStor^{R} per ton of forage

20-25% moisture at 20 pounds ChemStor^{R} per ton of forage

25-30% moisture at 30 pounds ChemStor^{R} per ton of forage

FOR PRESERVATION OF FORAGE INTENDED TO BE STORED AS SILAGE OR HAYLAGE

Apply 20 lbs ChemStor^{R} preservative per ton of fresh forage by metering the preservative into the blower housing continuously as the forage is blown into upright silos, or by metering the preservative into the blower housing of the forage harvester if silage is to be stored in pack bunkers or pits. Follow customary best practices for moisture levels and compaction of forages.

For peripheral protection of the top layers of spoilage which often spoil on exposure to the air, surface spray with ChemStor^{R} preservative at a rate of 0.25 lb per sq. ft. of surface.

In either of the above applications, the ChemStor^{R} preservative can be diluted by adding an equal volume of water, to improve coverage and make it a little easier, but such dilution is not necessary for good results.

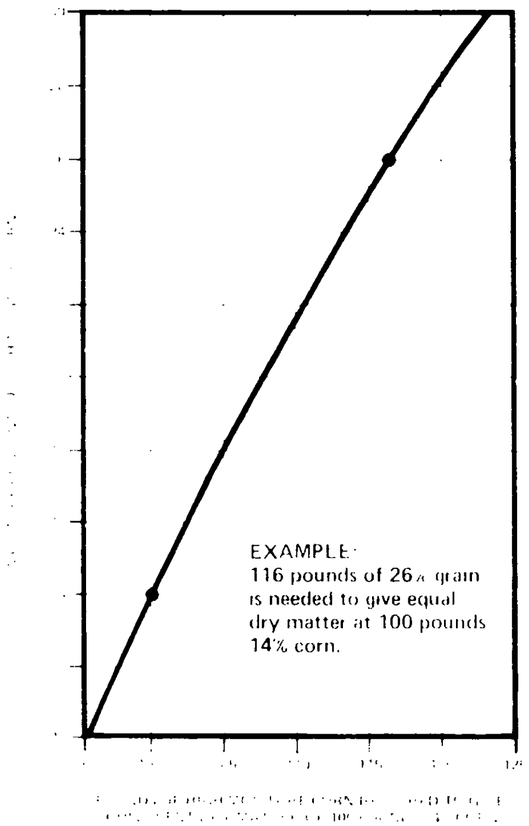
This supplement is to be affixed inside the front cover of the ChemStor^{R} Technical Bulletin.

ChemStor preservative is a liquid fungicide developed for use on high moisture whole and ground feed corn, sorghum, wheat, oats and barley. It is a mild blend of organic acetic and propionic acids, which allows the farmer to store shelled corn and other high moisture cereal grains for animal feeds, without drying or the use of air tight silos.

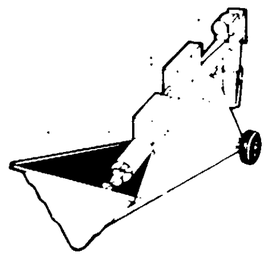
ChemStor acts as a preservative by preventing the growth of molds and most bacteria in high moisture cereal grains during storage, and is effective for the storage and preservation of both whole and ground cereal grains for animal feeds only.

The purpose of this manual is to provide a basic introduction to the general aspects of preservation of high moisture cereal grains via the ChemStor system. More comprehensive literature is available on such specific subjects as treatment of grain, storage, and comparative economics.

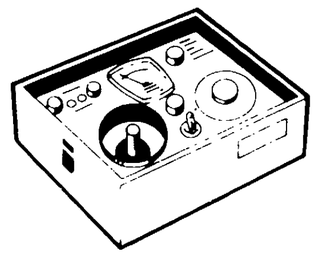
For further information on these and other subjects, contact your ChemStor dealer.



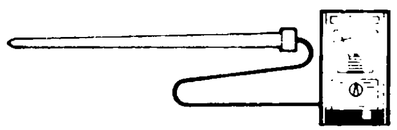
APPLICATOR



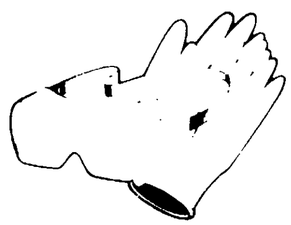
MOISTURE METER



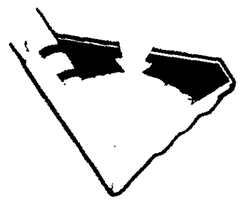
TEMPERATURE PROBE



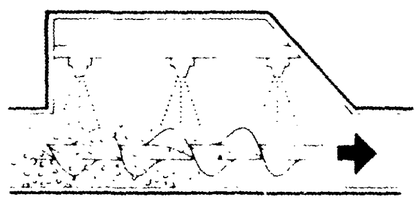
RELATED SAFETY EQUIPMENT



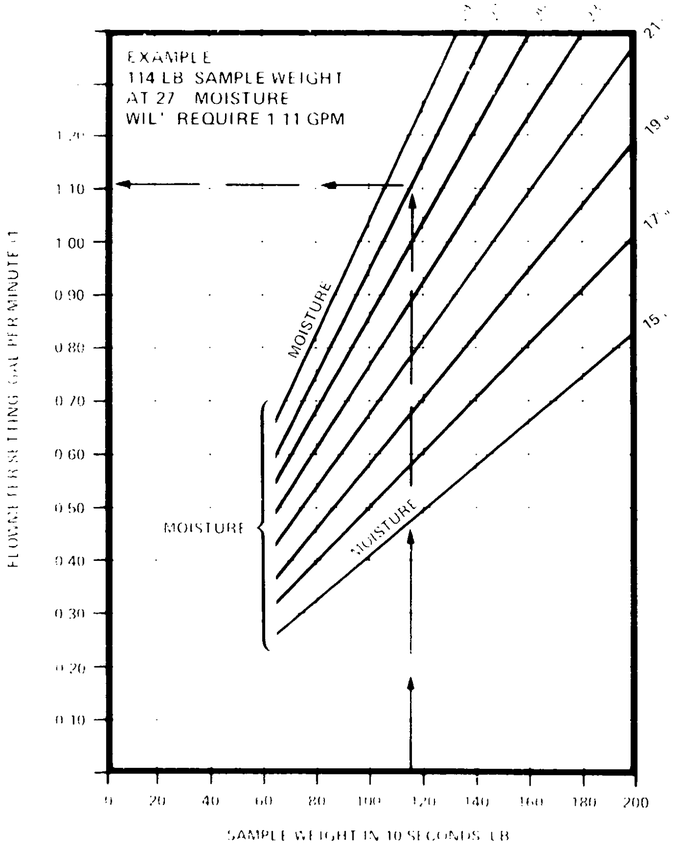
PROCEDURE



Note



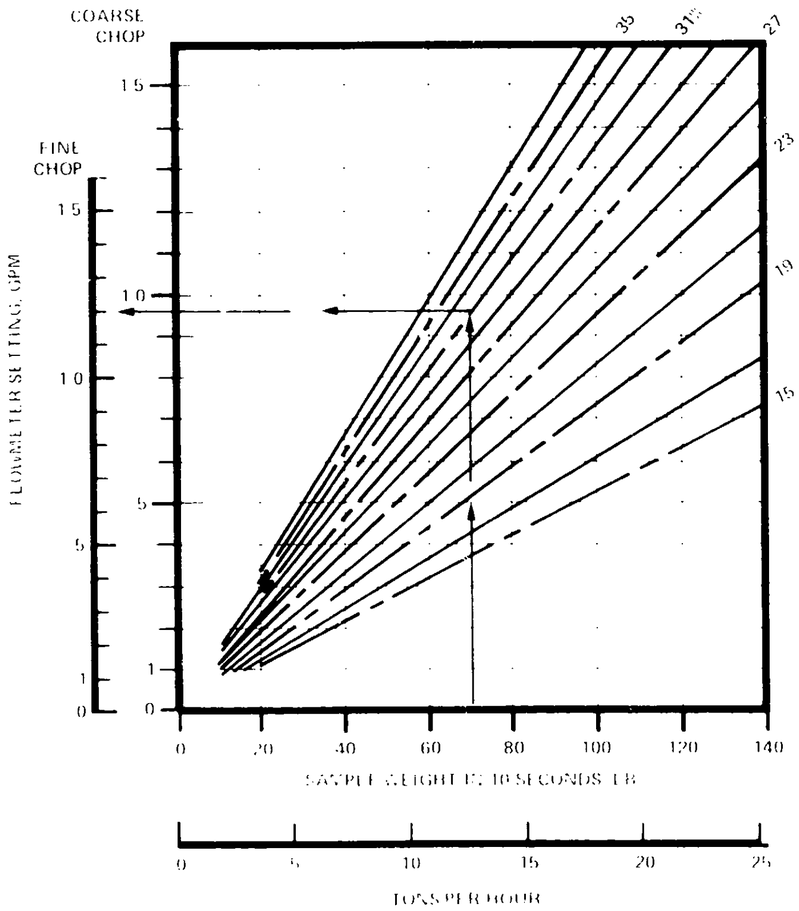
Example



Moisture Content of Kernels Only	Moisture of Cob Only	Moisture of Kernel and Cob Mixture

CORN COB CHOP
CHEMSTOR APPLICATION RATE

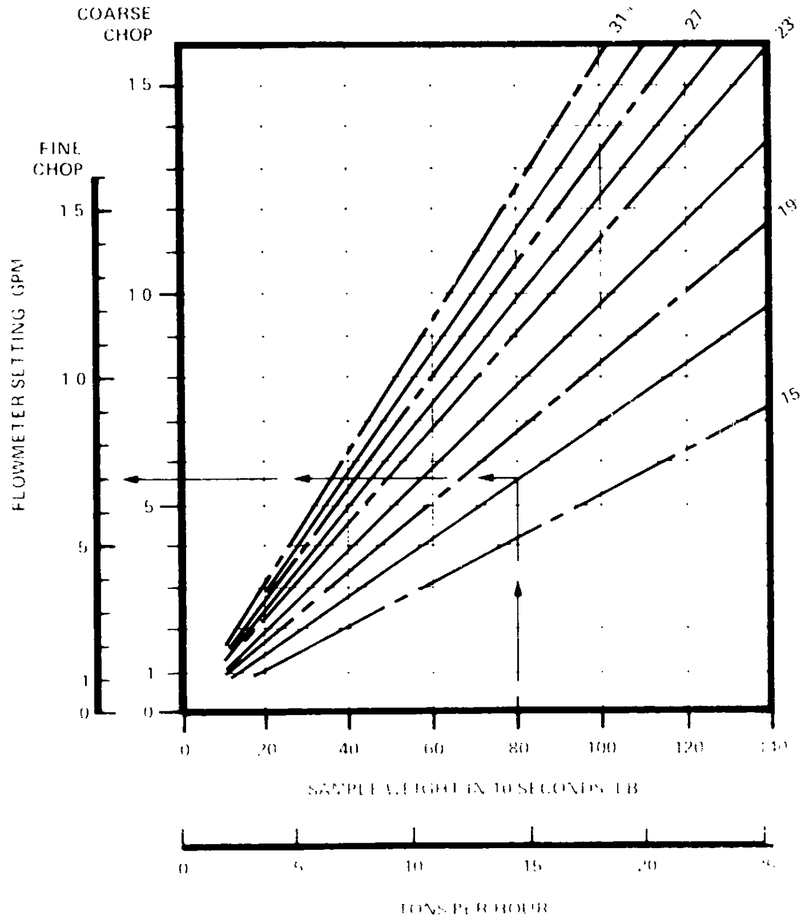
USE THIS CHART WHEN MOISTURE LEVEL OF CHOP MIXTURE IS MEASURED



EXAMPLE 70 LB SAMPLE WEIGHT IN 10 SECONDS
31% MOISTURE MEASURED ON THE CHOP
MIXTURE FOR FINE CHOP USE 1.2 GPM
FOR COARSE CHOP USE 0.96 GPM

CORN COB CHOP
CHEMSTOR APPLICATION RATE

USE THIS CHART WHEN MOISTURE LEVEL OF KERNEL GRAIN ONLY IS MEASURED



EXAMPLE 30 LB SAMPLE WEIGHT IN 10 SECONDS
17% MOISTURE MEASURED ON THE
KERNEL CORN ONLY FOR FINE CHOP
USE 7 GPM COARSE CHOP 6 GPM

Good harvesting and storage practices should always be followed in the handling, treatment, and storage of ChemStor® treated high moisture grain

1 Clean storage area of dirt and old grain

2 Protect metal and concrete surfaces ChemStor® preservative is a mixture of weak organic acids which will react with metal surfaces causing damage to the metal and sometimes causing the grain at the metal surface to mold. To a lesser extent it also reacts with a concrete surface

3 Know your harvesting machinery and set it properly Clean grain stores better

4 Treat grain as soon as possible after harvesting—preferably within six hours. Mold growth often starts within a few hours after harvest.

5 Do not store ChemStor® treated grain with untreated dry grain, as this can lead to spoilage of untreated grain

6 Level the surface of stored grain in bins to prevent moisture from condensing in the peaks. Leveled grain should not exceed eave height to allow sufficient ventilation space Leave top surface of stored grain uncovered to prevent sweating.

7 Ventilate air space over bin or silo stored grain to prevent sweating by permitting moisture laden air to escape If head space is large enough (for example, a small pile of grain inside a shed natural ventilation should be adequate Forced ventilation with fans is desirable in enclosed head spaces of bins, silos, covered piles of grain, or large volumes of grain in a shed Size the fan to provide at least one air change every three minutes Suction fans should have aluminum blades and a totally enclosed motor Louvered sections in the roofs of bins, silos, and sheds will also aid in ventilating the head space All ventilating systems should be designed to keep rain and snow from entering the storage container

8 Use extra care, because experience has shown that high moisture grain stored at grain temperatures above 60 F is more difficult to preserve than grain stored below 60 F

Early harvest in some areas will result in grain entering storage at higher temperatures

a Plan your feeding program to feed this grain first and inspect the grain's temperature with the temperature probe more frequently

b Avoid storing warm grains in volumes greater than 3000 bushels

c Cooling (if properly performed) can give improved keeping qualities Where warm grain (greater than 60 - 70 F) in quantities greater than 1500 bushels is stored, cooling should be done as follows

d Start fans only when overnight average temperature drops to 50 F

e Once fans are started run continuously until grain temperature reaches 55 F Then shut off fan Measure grain temperature near point where air leaves stored area

NOTE: TO AVOID MOISTURE DEPOSITION ON GRAIN AVOID OVER AERATING

DO NOT AERATE IN SPRING

9 Inspect grain weekly Observe conditions of the surface and measure internal temperature Notify your dealer immediately if you detect a problem

1. **Concrete Silos or Bins** To prevent pitting of concrete or cement surfaces, a coating of Devoe's No 48201 Coal Tar Epoxy paint to the floor and lower portions of the wall is recommended A drain in the bottom is also beneficial

2. **Galvanized or Steel Bins** Both the acid treated grain and the vapors from the grain will react with the metal and damage the bin Some protection is offered by covering the walls with 6-mil polyethylene Areas exposed to vapors should be coated with coal tar epoxy

3. **Wooden Bins**– A highly recommended form of storage Any exposed metal surfaces may be protected using coal tar epoxy paint

4. **Aluminum and Stainless Steel Bins**– Need no protection

5. **Buildings or Quonsets** - Protect metal walls in contact with grain as outlined above

6. **Pits and Trenches** Ventilation of head space in pits and trenches is difficult if they are covered with polyethylene A roof above the pit or trench is desirable as it keeps moisture out and allows proper ventilation Polyethylene covers restrict air movement and cause moisture condensation When grain is stored under polyethylene it may be necessary to remove the cover from time to time to ventilate or to force ventilate by drawing air under the cover All pits should be well drained

7. **Sheds** Open sheds with dirt or concrete floors make good storage Grain can be stored in piles, wooden bins, paper multiwall bins manufactured by St Regis Paper Co or snow fence enclosures in the sheds Snow fence should be lined with aluminum screen cloth

8. **Temporary Storage** [illegible] grain may be temporarily stored in [illegible] uncovered piles on the ground Ground should be well drained

9. **Air-supported Structures** [illegible] number [illegible] manufacturers [illegible] made are resistant to Chemstor® preserved grain [illegible]

SAFETY

ChemStor preservative is corrosive and causes eye damage and skin burns if improperly handled. Care should be taken to avoid inhaling the vapors, and of course, it should never be swallowed.

Gloves, safety goggles or glasses and aprons should be worn at all times–whether handling the preservative, or grain that is still wet from treating. Protective gear should be made of rubber or equivalent impermeable material.

A water supply should be readily available in case of contact.

FIRST AID

ChemStor preservative will not cause discomfort immediately following contact–and thus does not give quick warning of possible burns. Therefore, speed is essential in removing any ChemStor that has made contact with any unprotected areas. In case of exposure, the following first aid procedures should be followed.

SKIN SPLASH: Immediately flush all exposed areas that were splashed with *large* quantities of water for at *least* 15 minutes. A physician should be consulted in case of severe or extensive exposure.

EYE CONTACT: Flush immediately with water for 15 minutes. Get medical attention.

SWALLOWING: If ChemStor is swallowed, *do not* attempt to induce vomiting. Wash out mouth with abundant quantities of water–then drink milk mixed with the whites of eggs. If milk and eggs are unavailable, drink as much water as possible. A physician should be called.

CLOTHING: All contaminated clothing should be removed immediately and washed and cleaned separately and thoroughly before being used again.

HANDLING

ELIMINATE ALL SOURCES OF HEAT AND OPEN OPEN FLAME FROM THE TREATING AREA AND STORAGE FACILITY.

Drums of ChemStor preservative should be handled carefully to avoid undue stress. They should always be stored with the body plug upward.

When opening a drum, loosen the drum plug slightly (checking for internal pressure) and then proceed to open plug *slowly* to allow any internal pressure to vent. Pressure should *never* be used to discharge the contents of a drum. After the contents have been removed, drums should be washed and completely drained.

DO NOT ENTER STORAGE FACILITIES WITHOUT ADEQUATE VENTILATION!

DO NOT TREAT CORN OR OTHER CEREAL GRAINS WHICH MIGHT BE USED FOR SEED, MALTING PURPOSES, OR HUMAN CONSUMPTION!

TREATED CORN AND OTHER CEREAL GRAINS ARE TO BE USED FOR ANIMAL FEED ONLY!

Fish and wildlife cautions—DO NOT CONTAMINATE WATER BY DISPOSAL OF WASTE OR WATER USED IN CLEANING EQUIPMENT.

DRUMS NOT TO BE REUSED FOR ANY PRODUCT OTHER THAN CHEMSTOR.

GENERAL SAFETY POINTERS

Wear rubber soled shoes when treating with ChemStor; as spilled ChemStor will be absorbed through leather soled shoes and then make contact with skin.

When the applicator is operating, keep hands away from the auger. Avoid wearing loose clothing.

Make sure the electrical system is properly grounded. When using 115 volt power, a 3-wire, grounded system is absolutely required.

When using 230 volt power, the usual 3-wire, grounded neutral system is adequate, but a separate ground wire, tied directly to the chassis is recommended.

WARRANTEES

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