EPA Establishment No. 11598-NJ-1

CHEMSTOR

ACTIVE INGREDIENTS: ORGANIC ACIDS 99% MIN. (19% ACETIC ACID AND 80% PROPIONIC)
INERT INGREDIENTS (WATER) 1% MAX.

DANGER | CAUSES SEVERE BURNS
KEEP OUT OF REACH OF CHILDREN

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™. 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. Do not use, pour, spill or store near heat or open flame.

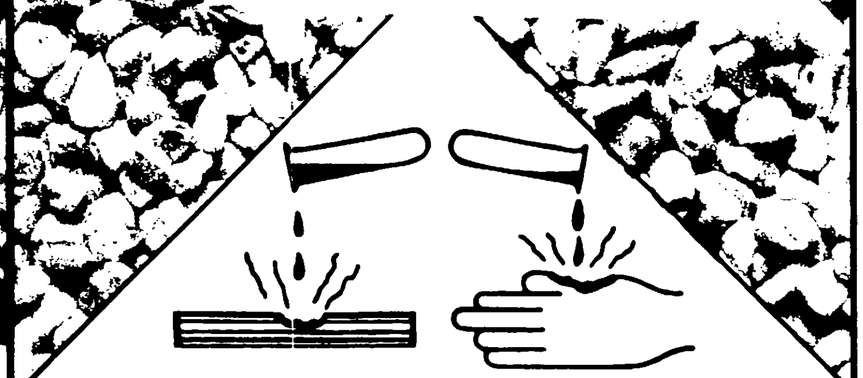
IMPORTANT | BEFORE USE SEE MANUFACTURERS TECHNICAL BULLETIN FOR DIRECTIONS AND OTHER CAUTIONS

WARRANTIES Apart from the representations in the ChemStor Product and Technical Bulletins there is 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. The company 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

E.P.A. REG. NO. 11800-13

CHEMSTOR™ is a Trademark of Celanese Corporation

DISTRIBUTED BY
MIDWEST AGRICULTURAL WAREHOUSE COMPANY
200 SOUTH MAIN STREET, FREMONT, NEBRASKA 68025



CORROSIVE

CORROSIVE CAUSES EYE DAMAGE AND SKIN BURNS

ACCEPTED
JUN 23 1975

UNDER THE FEDERAL INSECTICID
FUNG
FOR ECONOMIC POISON REGISTER
ED UNDER NO. 11800-13

EPA Establishment No. 11558-NJ-1

ACTIVE INGREDIENTS: ORGANIC ACIDS 99% MIN. (19% ACETIC ACID AND 80% PROPIONIC)
INERT INGREDIENTS (WATER) 1% MAX.

DANGER | CAUSES SEVERE BURNS
KEEP OUT OF REACH OF CHILDREN

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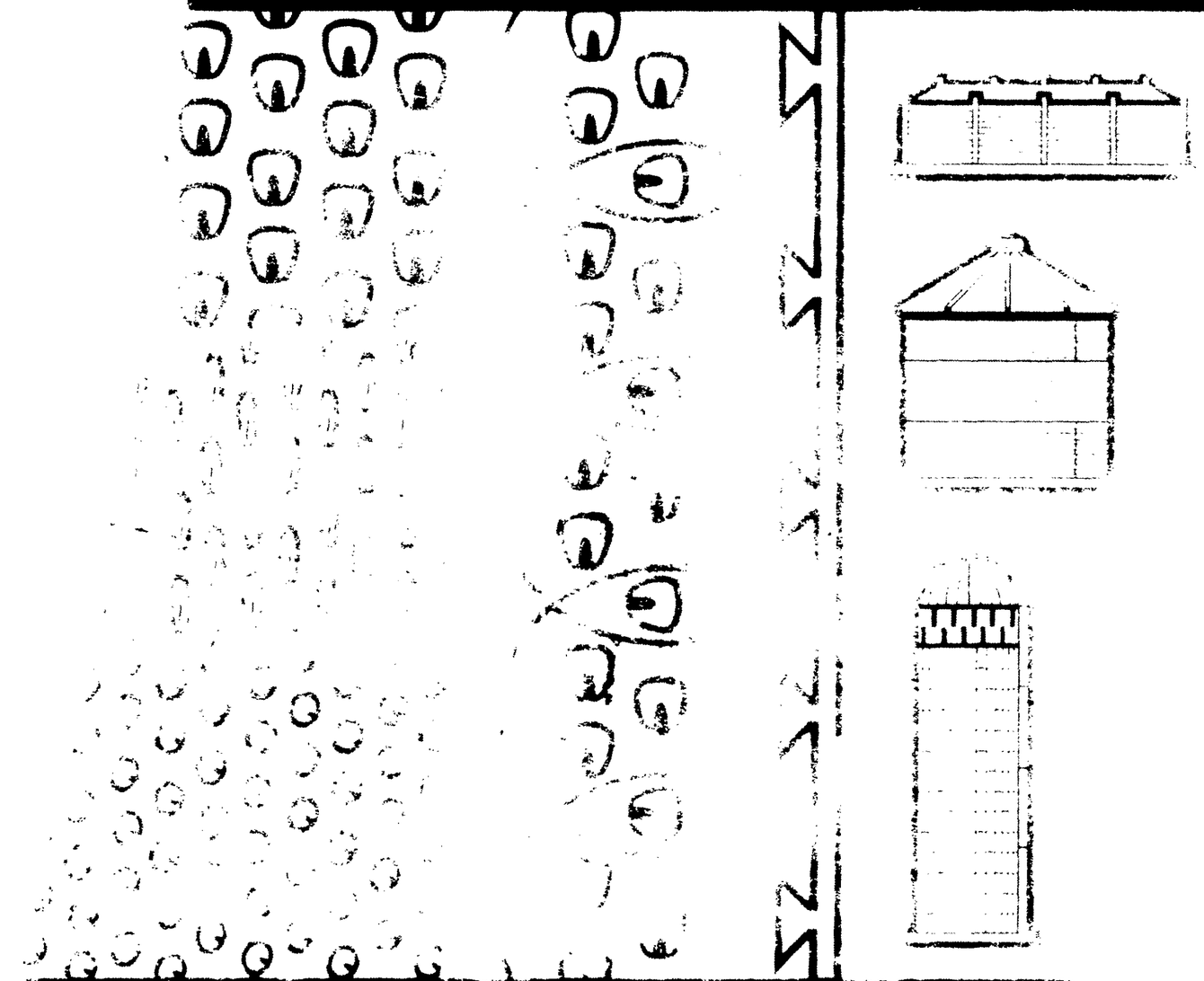
E.P.A. REG. NO. 11800-13 OCD-107 (3-75) **CHEMSTOR®** is a Trademark of Celanese Corporation

CHEMSTOR

Preservative



Technical Bulletin

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 compacted in 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 metering 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.

February, 1[illegible].

CHEMSTOR

PRESERVATIVE SYSTEM

[illegible]

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 local ChemStor dealer

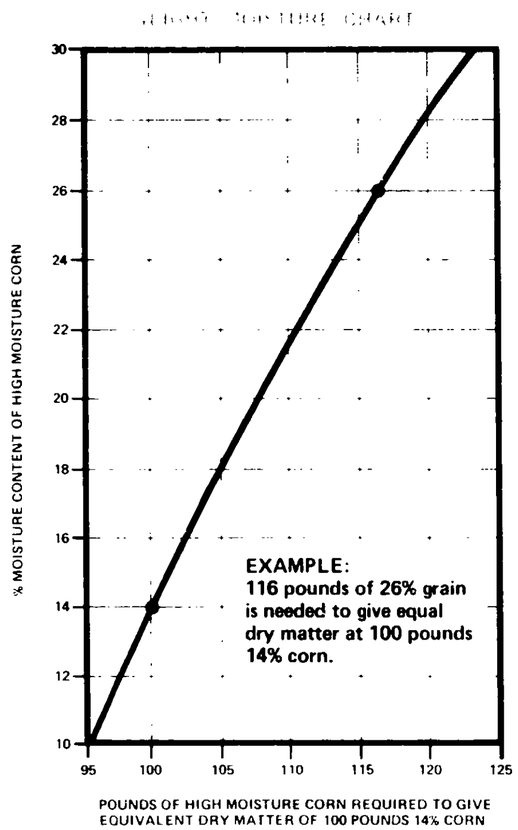
[illegible]

In feeding high moisture grain it is important to account for the actual dry matter content when formulating rations for livestock.

For example, 100 pounds of 14% moisture grain will weigh *116 pounds at a moisture content of 26%*. See chart below.

Thus a ration consisting of 800 pounds of corn at a theoretical 14% moisture level, 150 pounds of roughage, and 50 pounds of supplement (total 1 000 lbs) should be adjusted *upward* to 928 pounds corn (*actual 26%* moisture), with the roughage and supplement rations remaining at 150 and 50 pounds respectively. Adjusted new total weight 1128 pounds.

When dairy rations are fed on a production basis, a similar adjustment for moisture should also be made, to prevent underfeeding.



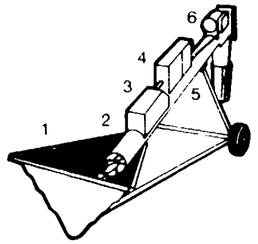
[illegible] PRESERVATIVE

Celanese has developed an exclusive application system for the treatment and handling of high moisture grain. It consists of the following components.

APPLICATOR

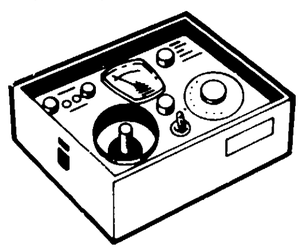
Applicators are available to treat approximately 400 to 1000 bushels per hour at 25% moisture and is made-up of the following: 1. Hopper 2. Auger 3. Spray Chamber 4. Pump 5. Control Panel 6. Motor.

The applicator weighs 450 pounds, has tires and can be maneuvered by one man.



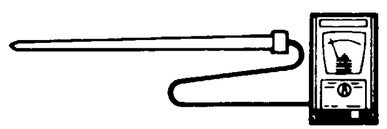
MOISTURE METER

The moisture meter is the key component in determining the moisture level of the grain to be treated.



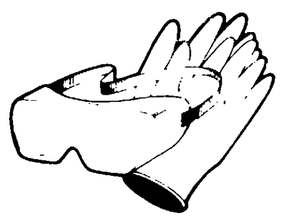
TEMPERATURE PROBE

The temperature probe is used to determine the temperature of grain during the storage period.



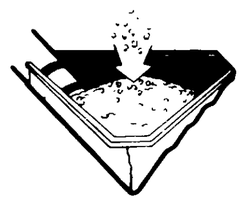
RELATED SAFETY EQUIPMENT

Goggles to protect the eyes and rubber gloves to protect the hands are essential for safe handling of ChemStor.

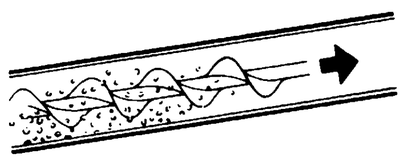


PROCEDURE

The treatment of the grain starts with the unloading of the grain into the polyethylene hopper of the ChemStor® Applicator

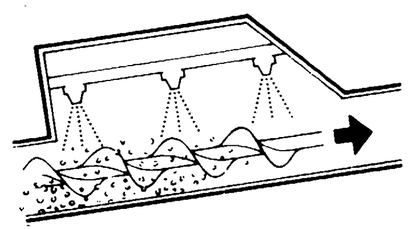


Next the grain travels up the auger at a pre-determined speed. See operating manual



As the grain moves up the auger, it passes through the spray chamber where the correct amount of ChemStor preservative is applied automatically

Note: The applicator control panel has a shutdown valve that automatically stops the unit should the supply of ChemStor run out



The combination of auger speed, the tumbling action of the auger, and the thoroughness of the three spray-heads assures complete coverage of the grain to be treated

Once the grain has traveled through the applicator it is delivered to the farm's conveyor and on into storage. The crop is only handled once. No further treatment is necessary

[illegible]

TREATING GRAIN ABOVE THE [illegible] RECOMMENDED AS THE COST ADVANTAGES OF [illegible] BEGIN TO DIMINISH BEYOND THAT POINT

The three critical factors involved in properly treating any grain with ChemStor are:

- Moisture of grain being treated
- The amount of grain being treated per unit of time

These two factors in turn determine the third which is:

- Amount of ChemStor to be applied

The following chart is an easy to use tool in determining the proper amount of ChemStor to be used in treating grain.

Directions:

First of all determine the moisture level of the harvested grain with the Moisture Meter supplied with the system. Locate this percentage on one of the upward angled lines on the chart.

Next run a quantity of the grain to be weighed through the auger for [illegible] seconds and collect in a suitable container. Weigh this sample. Repeat the procedure a second time. Average the two weights and find this weight on the bottom horizontal scale of the chart.

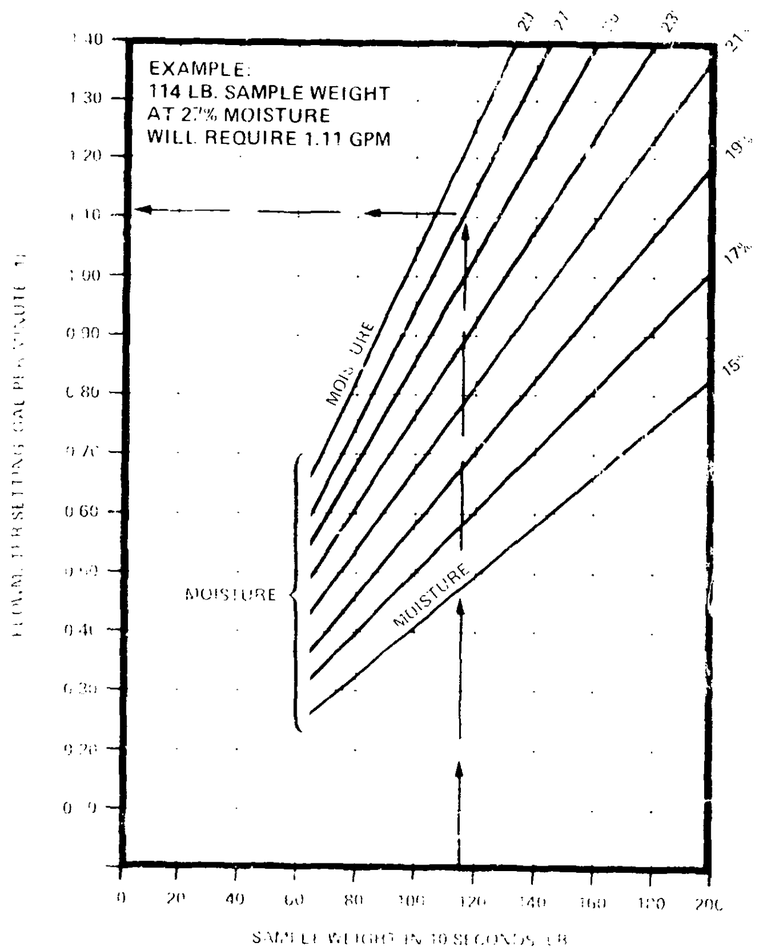
By moving from this weight number straight up to where this imaginary line meets the angled line representing the moisture of the harvested grain, and then left to the vertical scale, a Flowmeter Setting Gals/min/nozzle can be arrived at. The Flowmeter setting number will apply the proper amount [illegible] of ChemStor.

Example:

Assume grain has [illegible] with the auger.

By locating the 114 pounds on the horizontal scale [illegible] 2% moisture line, and then over to the left [illegible] that the proper flow rate is 1.1 gals/min which is the setting on the Flowmeter [illegible] to run your applicator and treat [illegible]

CHEMSTOR APPLICATION RATE
FROM 10 SECOND TIMED SAMPLE WEIGHT



[illegible]

[illegible]

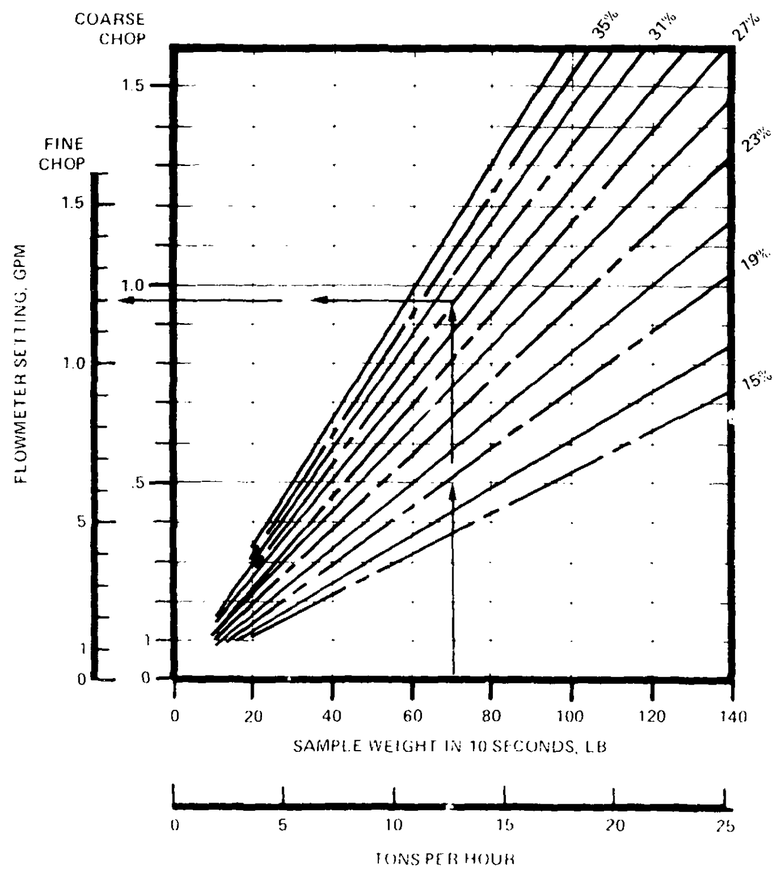
Moisture Content of Kernels Only	Moisture of Cob Only	Moisture of Kernel and Cob Mixture
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

CORN/COB CHOP
CHEMSTOR APPLICATION RATE

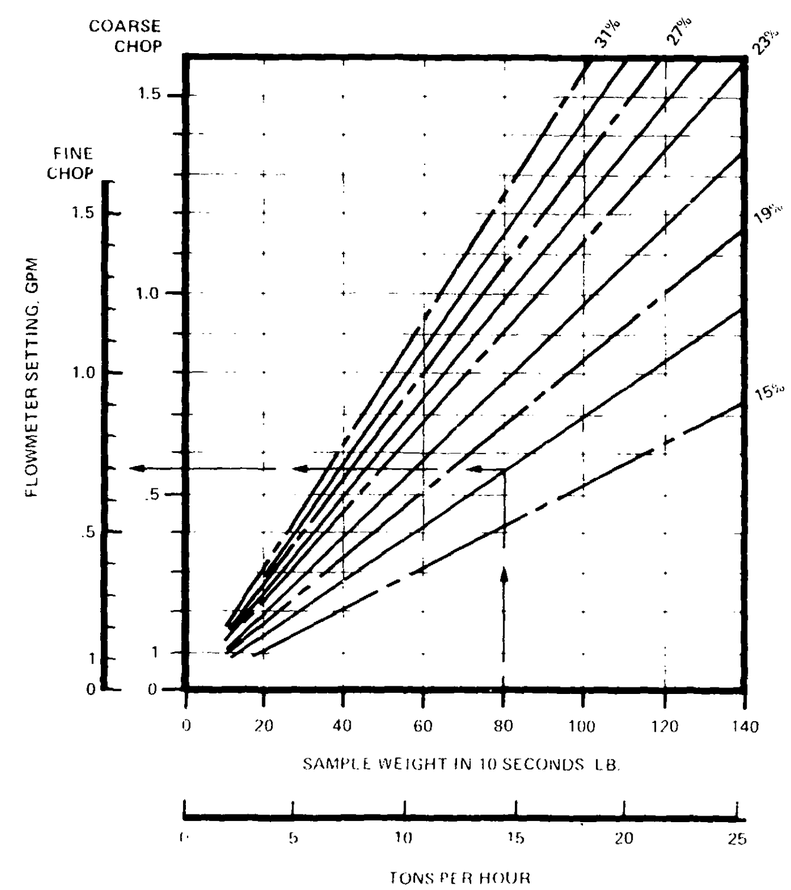
USE THIS CHART WHEN MOISTURE LEVEL OF CHOP MIXTURE IS MEASURED



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 80 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 areas of old 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. Keep 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 grain. This can lead to spoilage of untreated grain

6. Cover the surface of stored grain to protect it from moisture. Condensing on the roofs. Leveled grain should be covered with a sufficient depth. Loose top surface of stored grain [illegible] protect against [illegible]

7. Avoid air space [illegible] grain inside a shed [illegible] grain. Such sheds [illegible] images. Such sheds [illegible] sheds [illegible] should be designed [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

NOTE [illegible]

[illegible]

[illegible]

1. **Concrete Silos or Bins** [illegible]

2. **Galvanized or Steel Bins** [illegible]

3. **Wooden Bins** [illegible]

4. **Aluminum and Stainless Steel Bins** [illegible]

5. **Buildings or Quonsets** [illegible]

6. **Pits and Trenches** [illegible]

7. **Sheds** [illegible]

8. **Temporary Storage** [illegible]

9. **Air supported** [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 [illegible] all exposed areas that were splashed with [illegible] 15 minutes. A physician [illegible]

EYE CONTACT [illegible] 15 minutes. Get [illegible]

SWALLOWING [illegible] *do not* attempt to induce vomiting. [illegible] If milk and eggs are [illegible] A physician should be called.

CLOTHING [illegible] and thoroughly, before being [illegible]

HANDLING

ELIMINATE ALL SOURCES OF HEAT AND 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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