

FRONT PANEL
CENTER COLUMN

GRAIN SAVOR®
LIQUID

PRODUCT 04310

1736
NOT REVIEWED
In Accordance with PR Notice 82-2.
Based on Draft Labeling Dated

9/21/89

A fungicide for control of molds and fungi in stored corn, oats, barley, wheat or sorghum to be used for livestock or poultry feed.

Active Ingredient	
Propionic Acid	46% ⁽¹⁾
Inert Ingredients	54%
Total	100%

(1) 8.18 lb (3.71 kg) GRAIN SAVOR per gallon.

KEEP OUT OF REACH OF CHILDREN
DANGER

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

(b) Causes irreversible eye damage. Do not get in eyes. Wear goggles, face shield, or safety glasses. (c) Avoid contact with skin, eyes or clothing. May be harmful if swallowed or absorbed through the skin. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

Environmental Hazards

Do not apply directly to water or wetlands. Do not contaminate water when disposing of equipment wash waters.

STATEMENT OF PRACTICAL TREATMENT

(d) If in eyes: Immediately flush with plenty of water for at least 15 minutes. Call a physician.
If on skin: Wash with plenty of soap and water. Get medical attention. (e) Remove contaminated clothing and shoes at once; wash thoroughly before reuse. If swallowed, do not induce vomiting. Rinse mouth immediately with abundant quantities of water, then promptly drink a large quantity of milk mixed with egg whites. If these items are not available, drink as much water as possible. Obtain medical attention immediately.

(a) EPA Registration No. 8596-29

EPA Est. 8596-IA-01

NET WT. 55 gallons (450 lb - 204.12 kg)

BEST AVAILABLE COPY

FRONT PANEL
RIGHT COLUMN

Read the attached GRAIN SAVOR product insert before any use of this product.

GUIDES TO GOOD STORAGE

Good dry-grain management practices combined with GRAIN SAVOR application will help maintain the quality of stored grain.

Suggested dry-grain management:

- 1) Clean All Storage Buildings and harvest machinery of old grain and dirt.
- 2) Minimize Broken Grain, Foreign Materials and Fines during harvest. Broken kernels are more susceptible to spoilage and pockets of fines are prone to develop hot spots. Use a grain spreader during filling to distribute fines.
- 3) Install Temperature Sensors in large grain bins to trace grain heating and cooling cycles and to identify hot spots. Record temperatures weekly to identify gradual heating problems.
- 4) Apply an Approved Insecticide to interior storage areas and all grain.
- 5) Aeration for Temperature Control: Aerate to cool the grain for winter storage, 35-40° F in the Midwest and 30-35° F in the northern Midwest. Begin aeration when outside temperatures are 10-15° F below grain temperature. Aerate to warm the grain in the spring to avoid condensation if summer storage is required.
- 6) Level Peaked Grain to obtain uniform aeration.
- 7) Weekly Observation and Check of Stored Grain: Check grain weekly during spring and fall when rapid outside temperature changes occur. Observe for the following:
 - a) Surface crusting, wet, sticky or frozen grain.
 - b) Past or present roof condensation.
 - c) Under surface heating by thrusting arm into grain.
 - d) Smell for musty or moldy odors in the still bin and when aeration system has been turned on.
 - e) With a rod, feel for hard, compacted or moist masses under the surface.
 - f) Observe for insect infestations. Insect activity increases with moisture accumulation and grain heating.
- 8) Cover Fan Intakes when not in use to prevent rodent access and air draft draw.

TAKE TIME

OBSERVE LABEL
DIRECTIONS

BEST AVAILABLE COPY

FRONT PANEL
RIGHT COLUMN CONTINUED

3.9 36

STORAGE AND DISPOSAL

Do not contaminate water or food by storage and disposal.

PESTICIDE STORAGE: Store in a warm, dry place above 10° F to prevent freezing.

PESTICIDE DISPOSAL: Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions contact your State Pesticide or Environmental Control Agency, or the hazardous waste representative at the nearest EPA regional office for guidance.

CONTAINER DISPOSAL: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or dispose of in a sanitary landfill, or by incineration if allowed by state and local procedures.

WARRANTIES

The manufacturer makes no warranties, expressed or implied, concerning this product or its use, which extend beyond the description on the face hereof. All statements made concerning this product apply only when used as directed.

PRODUCT COLOR CHANGE WILL NOT AFFECT PERFORMANCE.

For Agricultural Use Only.

NOTE:

GRAIN SAVOR is not a substitute for good management.

KEMIN INDUSTRIES, INC., DES MOINES, IOWA U.S.A. 50317

4.36

FRONT PANEL
LEFT COLUMN

(e) DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Read the attached GRAIN SAVOR product insert before any use of this product.

GRAIN SAVOR is a fungicide for control of molds and fungi in stored corn, oats, barley, wheat or sorghum to be used for livestock or poultry feed.

Determine the moisture content of freshly harvested grain and treat within four (4) hours of harvest. Do not use less than stated application rates. Application rates are in pounds per ton of GRAIN SAVOR for grain to be stored in covered (weatherproof) storage.

Use the Kemiflo® HS Applicator or Kemin GS Applicator to apply GRAIN SAVOR. Calibrate the applicator using nozzle tips and flowmeter setting so as to apply the following:

Duration of Storage	Moistur Content of Grain Percent by Weight		
	Up to 14.9%	15 - 18%	18.1% - Higher
Up to 6 Months*	2 lbs/ton	4 lbs/ton	Do not use
Up to 12 Months	3 lbs/ton	6 lbs/ton	GRAIN SAVOR

* Not recommended if grain is to be kept in storage beyond May 1.

Do not treat cereal grains which might be used for seed, malting purposes or human consumption.

Apply an approved anti-corrosive and acid-resistant coating to all metal and concrete storage surfaces to prevent corrosion.

Storage areas are to be empty and thoroughly cleaned prior to use. Do not store treated grain with untreated grain or forage in the same storage area.

If grain is stored adjacent to untreated grain, or if livestock or poultry is housed within the same facility, line the bin partitions and cover the floor with a moisture barrier (4-6 mil plastic sheet).

Do not place grain on a dirt or fresh concrete floor - use a moisture barrier (4-6 mil plastic sheet).

Do not allow grain fines to localize in any one area in the storage facility in order that moisture absorption will be minimized.

Apply GRAIN SAVOR in such manner as to achieve thorough mixing and coverage of the grain.

Leave the surface of treated, stored grain uncovered to prevent sweating.

BEST AVAILABLE COPY

5 2 36

FRONT PANEL
LEFT COLUMN CONTINUED

Level the surface of stored grain to prevent moisture build-up in the peaks.

Do not treat in the rain - allow rain to soak into the pile and test for moisture content before continuing treatment.

Mechanically aerate the grain in storage in accordance with recommended practices to prevent condensation and moisture migration. See GRAIN SAVOR product insert for specific recommendations.

Monitor the temperature of stored grain. Sharp increases in temperature signal potential spoilage. The use of thermocouples or hand temperature probes is recommended.

Refer to the GRAIN SAVOR product insert when applying GRAIN SAVOR at temperatures lower than 50° F. Product viscosity increases as temperature falls below 50° F.

05482 ® Trademark Kemin Industries, Inc. U.S.A. Code 04308
Printed in U.S.A. © Kemin Industries, Inc. U.S.A., 1989 890919jm

6436

GRAIN SAVOR® PRODUCT INSERT

NOT REVIEWED
In Accordance with PR Notice 82-2.
Based on Draft Labeling Petition
9/21/87

GRAIN SAVOR® FOR GRAIN PRESERVATION

GRAIN SAVOR IS A FUNGICIDE FOR CONTROL OF MOLDS AND FUNGI IN STORED CORN, OATS, BARLEY, WHEAT OR SORGHUM TO BE USED FOR LIVESTOCK OR POULTRY FEED.

FOLLOW RECOMMENDATIONS AND OBSERVE PRECAUTIONS

(a) EPA Reg. No.: 8596-29

EPA Est. No.: 8596-IA-01

KEMIN INDUSTRIES, INC.
DES MOINES, IOWA U.S.A. 50317

TABLE OF CONTENTS

	<u>Page</u>
Product Specifications	1
Precautions - General Use	2
Grain Savor - General	3
Directions for Use	6
Additional Guidelines	8
Moisture Determination	9
Application - Equip., Rates, etc.	10
Treated Grain Storage	17
Corrosion Protection	18
Storage of High-Moisture Grains	19
Heating Grain	21
Moisture Migration	22
Aeration	25
Checklist	26

WARRANTY

1. The manufacturer guarantees and warrants (a) that the active ingredient content and the total net weight are as stated within lawful limits, and (b) that the directions are based upon responsible experts' evaluation of reasonable tests of effectiveness and upon reports of field experience, and (c) the warnings are based upon responsible experts' evaluation of the individual ingredients of the material herein.
2. The manufacturer neither makes nor authorizes any agent or representative to make any other warranties, including warranties of **FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY**, guarantee or representation, express or implied, concerning this material. Timing and method of application, weather and crop condition, and other influencing factors are beyond control of the manufacturer; therefore this product is sold only on the basis that the buyer assumes all risks of use or handling which result in loss or damage and which are beyond manufacturer's control. No claim of any kind, whether or not based on negligence, shall be in greater amount than the purchase price of the material in respect of which such claim is made. In no event shall manufacturer or seller be liable for special, indirect or consequential damages resulting from the use or handling of this material.
3. No modification of this warranty and disclaimer is authorized, except by specific reference to them in writing by an authorized employee of the manufacturer.

((

**GRAIN SAVOR®
FOR
GRAIN PRESERVATION**

GRAIN SAVOR IS A FUNGICIDE FOR CONTROL OF MOLDS AND FUNGI IN STORED CORN, OATS, BARLEY, WHEAT OR SORGHUM TO BE USED FOR LIVESTOCK OR POULTRY FEED.

ACTIVE INGREDIENT: PROPIONIC ACID*	46%	(1)
INERT INGREDIENTS:	54%	
TOTAL	100%	

(1)

* THIS PRODUCT MEETS SPECIFICATIONS AS SET FORTH IN THE FOOD CHEMICALS CODEX COMPENDIUM.

(f) 8.18 lb (3.71 kg) GRAIN SAVOR per gallon.

KEEP OUT OF REACH OF CHILDREN
DANGER

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

- (b) Causes irreversible eye damage. DO NOT get in eyes. Wear goggles, face shield or safety glasses. (c) Avoid contact with skin, eyes or clothing. May be harmful if swallowed or absorbed through the skin. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

Environmental Hazards

Do not apply directly to water or wetlands. Do not contaminate water when disposing of equipment wash waters.

STATEMENT OF PRACTICAL TREATMENT

- (d) If in eyes: Immediately flush with plenty of water for at least 15 minutes. Call a physician.
If on skin: Wash with plenty of soap and water. Get medical attention. (d) Remove contaminated clothing and shoes at once; wash thoroughly before reuse. If swallowed, do not induce vomiting. Rinse mouth immediately with abundant quantities of water, then promptly drink a large quantity of milk mixed with egg whites. If these items are not available, drink as much water as possible. Obtain medical attention immediately.

11 g 36

SAFETY:

General Precautions and Safety:

Keep container closed during storage.

Do not use in unventilated or closed areas.

Do not enter storage facilities without adequate ventilation.

Stay out of confined areas until the product has soaked into the grain.

Do not contaminate water or food by storage or disposal. Open dumping is prohibited.

As with all agricultural chemicals, use caution when handling and/or using.

STORAGE AND DISPOSAL

Do not contaminate water or food by storage and disposal.

PESTICIDE STORAGE: Store in a warm, dry place above 10° F to prevent freezing.

PESTICIDE DISPOSAL: Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER DISPOSAL: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or dispose of in a sanitary landfill, or by incineration if allowed by state and local procedures.

GRAIN SAVOR CONTAINS AS ITS ACTIVE INGREDIENT PROPIONIC ACID

Propionic Acid - Is an organic acid (volatile fatty acid) and an animal metabolite. It is a liquid fungicide for the growth prevention of molds and fungi in high-moisture grains. Research has shown it to be an effective preservative which makes possible the storage of grains - corn, milo (sorghum), wheat, oats, barley.

GRAIN SAVOR because of its mold prevention properties - is outstanding in its ability to prevent mold growth and thus protect high-moisture grain from spoilage.

NOTE: Grain treated with GRAIN SAVOR inhibits germination. Do not use on grain intended for seed or malting.

DIRECTIONS FOR USE:

Read this entire booklet. Use strictly in accordance with precautionary statements and directions for use.

Determine the moisture content of freshly harvested grain and treat within four (4) hours of harvest. Apply treatment at recommended rates dependent upon the moisture content, type and length of storage. Do not use less than stated label application rates.

Apply an approved protective coating (anti-corrosive and acid-resistant) to all metal and concrete storage surfaces to prevent corrosion.

Storage areas are to be empty and thoroughly cleaned prior to use. Do not store treated grain with untreated grain or forage in the same storage area.

Do not place grain on a dirt or fresh concrete floor - use a moisture barrier (4-6 mil plastic sheet).

If grain is stored adjacent to untreated grain, or if livestock or poultry is housed within the same facility, line the bin partitions and cover the floor with a moisture barrier (4-6 mil plastic sheet).

It is strongly recommended that grain fines not be allowed to localize in any one area in the storage facility in order that moisture absorption will be minimized.

Apply GRAIN SAVOR in such manner as to achieve thorough mixing and coverage of the grain.

Leave the surface of treated, stored grain uncovered to prevent sweating.

Level the surface of stored grain to prevent moisture build-up in the peaks.

Do not treat in the rain - allow rain to soak into the pile and test for moisture content before continuing treatment.

Mechanically aerate the grain in storage in accordance with recommended practices to prevent condensation and moisture migration. See section on aeration for specific recommendations.

Monitor the temperature of stored grain. Sharp increases in temperature signal potential spoilage. The use of thermocouples or hand temperature probes is suggested.

ADDITIONAL GUIDELINES FOR CORRECT APPLICATION OF GRAIN SAVOR:

Organisms that cause spoilage begin to grow on grain immediately after harvest when and if conditions are conducive to growth.

Sufficient growth of some molds may occur within a few hours. 3)

Essential factors for the proper treatment of high-moisture feed grains include:

- 1) Accurate determination of the moisture content of the grain.
- 2) Knowledge of applicator through-put.
- 3) Use of the proper application rate.
- 4) Monitoring of the application process to insure proper operation.

DETERMINATION OF MOISTURE CONTENT:

The amount of GRAIN SAVOR to be used is dependent upon the moisture content of the grain.

Apply 4 pounds per ton for grains of 15-18% moisture and 2 pounds per ton of grain less than 15% moisture.

Use an approved moisture tester capable of accurately determining moisture in feed grains.

It is highly recommended that the moisture level be determined for each load of grain to be treated. It is also recommended that a record of the moisture level of each load be maintained.

If the moisture level increases to the extent of requiring a higher application rate, increase the application rate and treat remaining grain going into the same bin at the higher application rate.

NOTE: It is difficult to accurately determine the moisture content of grain which has been treated with GRAIN SAVOR. Electronic-type moisture meter readings will likely be elevated because GRAIN SAVOR changes the conductivity and calibration of the tester.

APPLICATION AND EQUIPMENT:

Use approved metering application equipment to apply preservative. Read and closely follow instructions for use of applicator. (See Applicator Instruction Manual.)

Maintain proper application rate throughout the treatment process. Monitor the through-put of the applicator auger and coordinate this with the amount of GRAIN SAVOR being used.

The through-put of an auger will vary according to the type of grain, moisture content of the grain, angle and speed of the auger, as well as the grain supply available to the auger.

The manufacturer strongly recommends that the preservative and grain through-put be checked. This may be done by passing a weighed quantity of grain through the applicator and noting the length of time required for passage. Then collect the nozzle flow from the applicator, using either water or GRAIN SAVOR, in a suitable container for a given time at a given rate setting and weighing the amount collected.

19 9 36

NOTE:

Monitor equipment, preservative flow and grain through-put to insure proper application. Treat all grain - a pocket of untreated grain may become contaminated with molds and/or fungi, causing a hot spot. There is also the possibility of contamination spreading to other areas, causing extensive spoilage. Do not under-treat - use the recommended rate.

If blowers are used to transfer treated grain, allow a minimum of 30 minutes after treatment to permit absorption of the preservative by the grain before transferring the grain by blower.

Clean applicator and handling equipment by flushing with water after use.

APPLICATION RATES:

Pounds per ton of GRAIN SAVOR for grain to be stored in covered (weatherproof) storage facilities.

Duration of Storage	Moisture Content of Grain Percent by Weight		
	Up to 14.9%	15 - 18%	18.1% - Higher
Up to 6 Months*	2 lbs/ton	4 lbs/ton	Do not use
Up to 12 Months	3 lbs/ton	6 lbs/ton	GRAIN SAVOR

* Not recommended if grain is to be kept in storage beyond May 1.

2133

Treated grain^h should be stored in long rounded piles. Avoid peaks and valleys. Smooth out footprints and other depressions.

Sharp increases in grain temperature signal potential spoilage. Monitor the temperature. Thermocouples or hand temperature probes are suggested. They may be placed at various spots around the pile and should be read daily until the grain temperature is cooled to 45° F or less. Then read weekly. Initiate corrective action if the temperature rises more than twenty (20) percent above ambient temperature. Localized melting of frost, steam and seepage are other indicators of spoilage.

Bunkers, pits or slabs (concrete or asphalt) are acceptable storage facilities provided:

Floors are concrete or asphalt: DO NOT STORE GRAIN ON DIRT SURFACES. Any dirt or wood walls should be lined with plastic. Do NOT cover grain surface with plastic. Seal and construct storage areas to prevent water entry; slope floor for drainage.

Plan storage for maximum access. Feed out grain^h along one side of bunkers or pits or by rotation around slab piles.

APPLICATION - SPECIAL CASES

COLD WEATHER TREATMENT:

The viscosity of GRAIN SAVOR increases when subjected to temperatures lower than 50° F. Increased viscosity results in under-treatment when flow is measured with the applicator flowmeter.

Application rate charts are based on the most likely temperatures under which feed grains are treated - early harvest - typical temperatures during the early fall season. However, grain can be treated with GRAIN SAVOR at below freezing temperatures.

It is recommended that the treatment rate be verified by comparing the amount of GRAIN SAVOR used against a known quantity of grain anytime grain is treated at temperatures lower than 50° F. Keep in mind that the application rate must also be monitored when temperatures are above 50° F. The treatment rate should, of course, be verified very shortly after treatment has been started.

NOTE: A RULE OF THUMB TO FOLLOW IS - ADD 10% TO THE CHART FLOWMETER SETTING IF THE TEMPERATURE DURING TREATMENT IS BETWEEN 50° AND 30° F. IF THE TEMPERATURE IS LESS THAN 30° F, ADD 20% TO THE CHART FLOWMETER SETTING.

NOTE: CHANGING THE FLOWMETER SETTING COMPENSATES FOR THE CHANGE IN THE VISCOSITY OF THE PRESERVATIVE. THE ADJUSTMENT DOES NOT INCREASE THE POUNDS OF GRAIN SAVOR APPLIED.

WET WEATHER TREATMENT:

Moisture (rain, snow, etc.) falling or running on a grain pile during treatment is undesirable. This "free" water can wash off or dilute the grain preservative to such an extent that it can no longer do the job of protecting the grain.

The following recommendations are for wet weather treatment:

- 1) If it has rained recently and the moisture has soaked into the grain, determine the moisture content and treat at the recommended level of GRAIN SAVOR.
- 2) Do not treat grain in the rain. If rain does fall on untreated grain, postpone the treatment and allow the free water to soak into the pile. Test for moisture content and continue treatment with the recommended rate of GRAIN SAVOR.

NOTE: WE MENTION AGAIN - DO NOT TREAT GRAIN WITH GRAIN SAVOR IN THE RAIN!

TREATED GRAIN STORAGE

STORAGE PREPARATION:

Proper preparation of the storage facility is essential for successful storage of grain. The following practices are recommended:

- 1) Be sure the storage area is clean and free of any dirt, old grain or other debris. Old grain could spoil and serve as a site to induce spoilage in fresh grain. It is recommended that the facility be fumigated.
- 2) Be sure to protect metal and concrete surfaces against corrosion. For specific recommendations refer to the section on Corrosion Protection.
- 3) Be sure to repair all holes which could allow water to enter the storage area.
- 4) Be sure all concrete or dirt floors are covered with plastic (4-6 mil thickness).
- 5) Be sure to seal and construct pit or trench storage areas to prevent water entry. Be sure that the floor area has been sloped for maximum drainage.
- 6) Be sure that the storage facility has been planned for maximum access.

CORROSION PROTECTION:

GRAIN SAVOR is mildly corrosive to metal structures except those made from aluminum and stainless steel. It is recommended that all metal surfaces be protected with an approved acid-resistant and anti-corrosive coating.

Be cautious of corrosion resistant materials which have not been proven to be effective in grain preserver service and avoid paints containing lead pigments or other potentially toxic substances.

Wood structures are ideal storage facilities for GRAIN SAVOR-treated grain; they are not corroded by the liquid.

Concrete also offers excellent resistance to GRAIN SAVOR-treated grain.

WEATHERPROOF STORAGE OF HIGH-MOISTURE GRAINS:

Grains treated with GRAIN SAVOR may be stored in most types of structures provided the grain is protected from wind and precipitation. Existing structures such as metal and wooden bins, converted cribs, Quonset huts, and other idle farm storage buildings may be used, provided they are roofed, have a waterproofed floor, and provide protection from outside moisture.

Ventilation of storage headspace is strongly recommended for GRAIN SAVOR treated grains. Adequate ventilation of headspace eliminates the storage roof as a high heat transfer surface for condensation of moisture. This condensation can cause spoilage and corrosion problems. Field experience has shown excellent success for treated corn in well-ventilated storage areas.

UNVENTILATED STORAGE, ESPECIALLY SITES COVERED WITH POLYETHYLENE FILM, IS NOT RECOMMENDED.

METAL STORAGE FACILITIES:

It is recommended that all metal surfaces be protected with an anti-corrosive coating. Avoid paints containing lead pigments or other potentially toxic substances.

WOOD STORAGE FACILITIES:

Covered wooden bins, converted cribs, and other wood structures are highly recommended forms of storage.

FLAT STORAGE FACILITIES:

Flat storage facilities (building and/or Quonsets) are excellent areas of storage provided the grain is always protected from outside moisture. Dirt and/or concrete floors must be covered with an appropriate moisture barrier.

HEATING GRAIN:

Heating is the first sign of microbiological activity in grain. When grain is observed to be heating, immediate steps must be taken in order to prevent further mold, spoilage and subsequent grain loss.

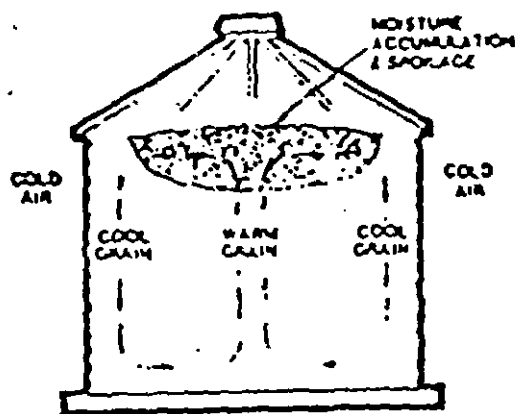
Thermocouples or hand temperature probes are suggested as temperature monitoring devices for an early warning against potential spoilage.

The options available for the handling of heating grain are: either feed it immediately, or cool it to a safer storage temperature. Aeration or moving (practices designated to cool grain) will not stop the heating problem. The use of these practices will only temporarily and partially delay continuation of the problem.

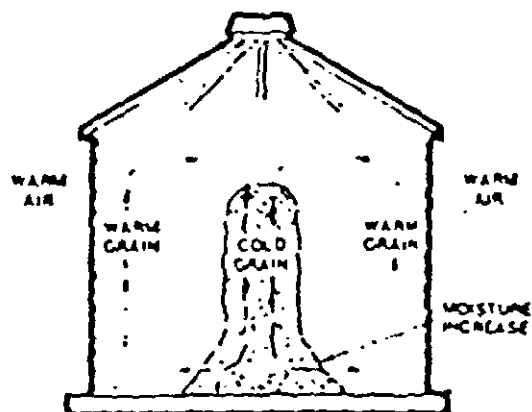
NOTE: Any molds ⁽³⁾formed before GRAIN SAVOR treatment will not be destroyed or neutralized, but will remain in the grain. Therefore, feeding of moldy grain is not recommended.

MOISTURE MIGRATION

Moisture often accumulates in the top layers of stored grain (dry as well as high-moisture) even though the grain is stored in a weather-tight structure. The accumulation is a result of moisture migration caused by temperature differences in the grain mass. Grain harvested and placed in storage during the warm months of late summer or early fall loses its heat slowly as the outside temperature declines. Grain near the surface and next to the walls cools first, while that in the center remains warm. This temperature difference creates slowly moving air currents, as illustrated in the following diagram:



Moisture Migration - Spring and Summer



Cool air near the walls moves downward, forcing warm air upward. When the warm air reaches the cold grain near the top surface, condensation may occur. It continues as long as temperature differences exist in the grain storage. If allowed to continue unchecked, the accumulated moisture may promote microbial growth, resulting in spoilage of the stored grain.

Moisture migration can occur in any size or type facility as long as sufficient temperature differences exist.

For specific information concerning moisture migration, contact your county agent or an expert in the agricultural engineering department of your state university.

AERATION:

It is recommended that storage facilities be equipped with mechanical aeration equipment - ready for use in case of need.

Rule of Thumb: It is not necessary to aerate when the difference between the grain and air temperature is less than 10 to 15° F, when relative humidity is 50-70% or when grain has cooled to approximately 45° F. A basic recommended aeration rate is 1/5 cubic foot per minute per bushel.

DO NOT OVER-AERATE. Aerate only long enough to cool the grain. Over-aeration can lead to spoilage.

However, DO NOT WAIT TOO LONG TO AERATE. Begin to aerate treated grain as soon as nighttime lows average 50° F. In most U.S. areas, this nighttime temperature is normally obtained during the harvest season. Thus aeration can usually be initiated immediately upon placing grain in storage.

It is desirable to cool the grain to 50-60° F.

Mechanical aeration requirements differ with respect to areas and storage facilities.

For specific information relating to aeration, contact the county agent or a specialist in the agricultural engineering department of your state university.

CHECKLIST
GENERAL DIRECTIONS FOR HANDLING AND STORAGE OF GRAIN TREATED WITH
GRAIN SAVOR

The following points serve as a useful checklist for the proper handling and storage of grains to be treated with GRAIN SAVOR.

- 1) Read this entire label. Use strictly in accordance with precautionary statements and directions for use.
- 2) Thoroughly clean and disinfect all storage areas prior to use.
- 3) Determine moisture content of freshly harvested grain and treat within four (4) hours of harvest.
- 4) Apply GRAIN SAVOR at recommended rates based on moisture content of the grain and length of storage.

- 5) Be sure all of the grain is coated and that the rate of application is correct - based on the moisture level of the grain being treated.
- 6) Do not treat in the rain. If rain does fall on untreated grain, allow the rain to soak into the pile and test for moisture content before continuing treatment. Adjust application rate based on moisture content.
- 7) Stop applicator auger immediately if spray failure or nozzle plugging occurs.
- 8) Do not mix treated grain and untreated grain or forages in the same storage area.
- 9) Do not store treated grain on bare dirt floors.
- 10) Do not allow grain fines to localize in any one area in the storage facility.
- 11) Clean equipment thoroughly after each use.
- 12) Level the surface of stored grain to prevent moisture build-up in the peaks. Leveled grain in bins should not exceed eaves height. Ventilation of the storage head space is recommended.

- 13) Leave the top surface of stored grain uncovered to prevent sweating.
- 14) Check grain in storage frequently for signs of heating internally or moisture build-up on the surface. In case of heating or moisture build-up, call 800/247-7496.
- 15) Mechanically aerate the grain in storage in accordance with recommended practices to prevent condensation and moisture migration.
- 16) Follow established management practices in the handling and storing of grain.
- 17) Start to remove grain on a regular basis as soon as possible after storage has been initiated. The removal of grain helps reduce potential moisture migration problems. In the case of multiple storage facilities, rotate from one to the other, rather than feeding from one area until it is empty. Feed warmer grain first.
- 18) If you have any application or storage questions, call 800/247-7496.

02542

® Trademark Kemin Industries, Inc. U.S.A.

Printed in U.S.A.

© Kemin Industries, Inc. U.S.A., 1989

890919jm