



Green Plains

GHS SAFETY DATA SHEET

MODIFIED DISTILLER GRAIN

SDS DATE: 09/28/2017

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME (GHS Product Identifier): Modified Distillers Dried Grains with Solubles
(Other means of Identification): MDDGS, Modified feed

PRODUCT INTENDED USE AND RESTRICTION: Animal feed additive

MANUFACTURER: Green Plains, Inc.
DIVISION:

Green Plains Atkinson LLC. 87590 Hill Crest Rd. Atkinson, NE 68713 P.O. Box 391, Atkinson, NE 68713 Phone: 402-925-5570 Fax: 402-925-2988 <input checked="" type="checkbox"/>	Green Plains Bluffton LLC. 1441 S. Adams St., Bluffton, IN 46714 Phone: 260-353-1212 Fax: 260-353-1100 <input checked="" type="checkbox"/>	Green Plains Central City LLC. 214 20 th St., Central City, NE 68826 Phone: 308-946-9700 Fax: 308-946-2623 <input checked="" type="checkbox"/>	Green Plains Fairmont LLC. 1125 N Bixby Road, Fairmont, MN 56031 Phone: 507-238-3600 Fax: 507-238-3624 <input checked="" type="checkbox"/>	Green Plains Hereford LLC 4300 County Road 8 Hereford, TX 79045 Phone: 806-258-7800 Fax: 806-258-7801 <input checked="" type="checkbox"/>
Green Plains Holdings II LLC.-Lakota 1660 428 th St., Lakota, IA 50451 Phone: 515-886-2222 Fax: 515-886-2127 <input checked="" type="checkbox"/>	Green Plains Holdings II LLC.-Riga 7025 Siberhorn Hwy, Blissfield, MI 49228 P.O. Box 12, Riga, MI 49276 Phone: 517-486-6190 Fax: 517-486-6192 <input checked="" type="checkbox"/>	Green Plains Hopewell LLC 701 South 6th Avenue Hopewell, VA 23860 Phone: 804-668-0010 Fax: 804-668-0020 <input checked="" type="checkbox"/>	Green Plains Madison LLC 395 Bissell St Madison, IL 63060 Phone: 618-451-4420 Fax: 618-452-8946 <input checked="" type="checkbox"/>	Green Plains Mt Vernon LLC 8999 W Franklin Rd Mt Vernon, IN 47620 Phone: 812-985-4023 Fax: 812-985-9983 <input checked="" type="checkbox"/>
Green Plains Obion LLC. 2098 McDonald Rd., Rives, TN 38253/P.O. Box 95, Obion, TN 38240 Phone: 731-536-1286 Fax: 731-536-1434 <input checked="" type="checkbox"/>	Green Plains Ord LLC. 48267 Val-E Road, Ord, NE 68862 Phone: 308-496-4823 Fax: 308-496-4890 <input checked="" type="checkbox"/>	Green Plains Otter Tail LLC. 24096 170th Ave., Fergus Falls, MN 56537 Phone: 218-998-4301 Fax: 218-998-4302 <input checked="" type="checkbox"/>	Green Plains Shenandoah LLC. 4124 Airport Rd., Shenandoah, IA 51601 Phone: 712-246-2932 Fax: 712-246-3988 <input checked="" type="checkbox"/>	Green Plains Superior LLC. 1495 320th Ave, Superior, IA 51363 Phone: 712-858-4666 Fax: 712-858-4684 <input checked="" type="checkbox"/>
Green Plains Wood River LLC. 7874 South 140th Road, Wood River, NE 68883 Phone: 308-385-1200 Fax: 308-385-9990 <input checked="" type="checkbox"/>	Green Plains York LLC 1414 County Rd O York, NE 68467 Phone: 402-362-2285 Fax: 402-362-7041 <input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Green Plains Grain Company LLC. Archer 2132 Archer Road Archer, NE 68816 Phone: 308-795-2211 <input type="checkbox"/>	Green Plains Grain Company LLC. Cimarron 19016 Road I Kismet, KS 67859 Phone: 620-624-6296 Fax: 620-624-4411 <input type="checkbox"/>	Green Plains Grain Company LLC. Essex 411 North Street, Essex, IA 51638 Phone: 712-379-3155 Fax: 712-379-3175 <input type="checkbox"/>	Green Plains Grain Company LLC. Hopkins 200 N. Railroad Hopkins, MO 64461 Phone: 660-778-3331 Fax: 660-778-3676 <input type="checkbox"/>	<input type="checkbox"/>

CHEMTREC PHONE (24HR Emergency Telephone): 1-800-424-9300 (Within U.S.A)
INTERNATIONAL CHEMTREC CALL: 1-703-527-3887
OTHER CALLS: 1-402-884-8700 (M-F, 8 AM-5 PM, Central time (U.S.A & Canada); within U.S.A)

FAX PHONE: 1-402-884-8776 (M-F, 8 AM-5 PM, Central time (U.S.A & Canada); within U.S.A)

SECTION 1 NOTES: None Available

SECTION 2: HAZARDS IDENTIFICATION

GHS LABELING AND CLASSIFICATION: This product meets the definition of the following hazard classes as defined by the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).



GHS SAFETY DATA SHEET

MODIFIED DISTILLER GRAIN

SDS DATE: 09/28/2017

GHS CLASSIFICATION ACCORDING TO ANNEX II:

HEALTH	ENVIRONMENTAL	PHYSICAL
Not classified	Not classified	Not classified
SIGNAL WORD:		NONE
SYMBOL:		N/A
HAZARD STATEMENT:		None
PRECAUTIONARY STATEMENTS:	PREVENTIVE:	N/A
	RESPONSE:	N/A
	STORAGE:	N/A
	DISPOSAL:	N/A

Any Regional Considerations: N/A

SECTION 2 NOTES: None Available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

	Corn syrup CAS#: 8029-43-4	Distillers grains CAS#: N/A	Water CAS#: 7732-18-5
CHEMICAL NAME	Corn syrup	Distillers grains	Water
COMMON NAME	Corn syrup	Distillers grains	Water
CHEMICAL FAMILY	Corn syrup	Distillers grains	Hydrocarbon
CHEMICAL FORMULA	C ₆ H ₁₂ O ₆	N/A	H ₂ O
SYNONYMS	Glucose syrup, syrup	Distillers grains	water

INGREDIENT: Distillers grains, syrup, water

NAME	CAS#	EC#	ICSC#	% WT	% VOL
Syrup	8029-43-4	232-436-4	N/A	About 60.0%	N/A
Distillers grains	N/A	N/A	N/A	About 45.0%	N/A
Water	7732-18-5	231-791-2	N/A	About 24.0%	N/A

CARCINOGENICITY

OSHA: NO
OTHER: N/A

ACGIH: NO

NTP: NO

IARC: NO

IMPURITIES/STABILIZING ADDITIVES IDENTIFICATION: N/A

IMPURITIES/STABILIZING ADDITIVES CLASSIFICATION (if applicable): N/A

SECTION 3 NOTES: None Available

SECTION 4: FIRST AID MEASURES

Contaminated individuals of chemical exposure must be taken for medical attention if any adverse effect occurs. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to health professional with contaminated individual.

EMERGENCY OVERVIEW: Slightly acidic. Minimal health effects upon exposure or ingestion; modified distillers grains are an animal feed product.

ROUTES OF ENTRY/FIRST AID: Ingestion, eye contact

EYES CONTACT: Flush eyes with plenty of clean water for 15 minutes while holding eyelids open, occasionally lifting the upper and lower eyelids. Check for, and remove, any contact lens. Do not use an eye ointment. Consult a physician if irritation persists after flushing eyes

SKIN CONTACT: Flush contaminated area with plenty of water. If irritation persists, seek medical attention

INHALATION: Dust from this product is categorized as a nuisance particulate. May cause irritation upon respiration; Remove victim to fresh air.

INGESTION: No hazard unless ingested in such quantities as to interfere with normal digestion. Do not induce vomiting. Seek medical attention if discomfort persists.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Asthmatic reactions via allergic mechanism, particularly in individuals who are predisposed to developing allergies



Green Plains

GHS SAFETY DATA SHEET

MODIFIED DISTILLER GRAIN

SDS DATE: 09/28/2017

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS: N/A

SECTION 4 NOTES: Wash contaminated clothing before reusing.

SECTION 5: FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA: Use appropriate extinguishing media for surrounding fire

PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIRE FIGHTERS: N/A

UNUSUAL FIRE AND EXPLOSION HAZARDS:
(Define specific hazards arising from the chemical e.g., nature of any hazardous combustion products)
 Fugitive grain dust is combustible and can present an explosion hazard

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon oxides including carbon monoxide and carbon dioxide

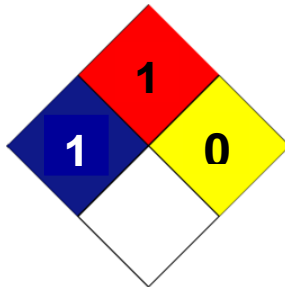
FLAMMABLE LIMITS IN AIR (% by volume): N/A
UPPER LIMIT:
LOWER LIMIT:

FLASH POINT: N/A
F:
C:

METHOD USED: N/A

AUTOIGNITION TEMPERATURE: N/A
F:
C:

NFPA HAZARD CLASSIFICATION:



HEALTH=1
 FLAMMABILITY=1
 REACTIVITY=0
 OTHER=N/A

HMS HAZARD CLASSIFICATION (0-4 scale):

Modified Distiller Grain	
HEALTH	1
FLAMMABILITY	1
PHYSICAL HAZARD	0
PERSONAL PROTECTION	B
Safety glasses, gloves	

SECTION 5 NOTES: Respiratory and eye protection required for firefighting personnel

SECTION 6: ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: Wear appropriate PPEs.

ENVIRONMENTAL PRECAUTIONS: Keep the product away from sewer, and natural water bodies

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP: For land spill, eliminate ignition sources; isolate hazard area; remove spilled material so as to avoid creating airborne dust. For water spill, small spills will dilute naturally with the water and biodegrade.

SECTION 6 NOTES: None Available

SECTION 7: HANDLING AND STORAGE

PRECAUTION FOR SAFE HANDLING: Use appropriate personal protective equipment. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands after handling.



GHS SAFETY DATA SHEET

MODIFIED DISTILLER GRAIN

SDS DATE: 09/28/2017

CONDITIONS FOR SAFE STORAGE (any incompatibilities): Store in accordance with local and state regulations. Keep away from heat, flame or sparks. Use appropriate containments to avoid environmental contamination.

SECTION 7 NOTES: None Available

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS/GUIDELINES:

INGREDIENTS	ACGIH	NIOSH	OSHA-FINAL PELs
Modified Distillers Grain	4 mg/m ³ TLV	4 mg/m ³	10 mg/m ³

ENGINEERING CONTROLS: Provide exhaust ventilation or other engineering controls if necessary while handling to keep the airborne concentrations of dust below their respective threshold limit value

VENTILATION: Work with the product in a well ventilate area

PERSONAL PROTECTIVE EQUIPMENT (PPE):

EYE PROTECTION: Use eye protection when working with the product. The wearing of contact lens while working with the material is discouraged

SKIN PROTECTION: Use gloves when working with the product. Long sleeved shirts and long pants recommended

RESPIRATORY PROTECTION: Use appropriate personal protective equipment if exposure is irritating to the eyes, lungs or skin

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: N/A

SECTION 8 NOTES: Eating, drinking and smoking while working with the product, or in the area the product is handled, stored or processed. Wash hands thoroughly after handling

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Tan colored, moist granular solid

PHYSICAL STATE: Solid

COLOR: Tan colored

ODOR: Slight characteristic toasted/cooked corn odor/slightly sweet

pH AS SUPPLIED: 3 to 4

pH (Other):

FREEZING POINT: N/A

F:

C:

BOILING POINT: N/A

F:

C:

MELTING POINT: N/A

F:

C:

FLASH POINT: N/A

F:

C:

EVAPORATION RATE (BASIS=1):

FLAMMABILITY (by %volume): N/A

UPPER FLAMMABILITY LIMIT:

LOWER FLAMMABILITY LIMIT:



GHS SAFETY DATA SHEET

MODIFIED DISTILLER GRAIN

SDS DATE: 09/28/2017

VAPOR PRESSURE (mmHg): N/A

@

F:

C:

VAPOR DENSITY (AIR = 1): N/A

@

F:

C:

SOLUBILITY IN WATER: Insoluble

PARTITION COEFFICIENT n-octanol/water: N/A

AUTO-IGNITION TEMPERATURE: N/A

F:

C:

DECOMPOSITION TEMPERATURE: N/A

F:

C:

SPECIFIC GRAVITY (H₂O = 1): N/A

@

F:

C:

PERCENT SOLIDS BY WEIGHT: approximately 45%

PERCENT VOLATILE: N/A

BY WT/BY VOL @

F:

C:

VOLATILE ORGANIC COMPOUNDS (VOC): N/A

WITH WATER:

LBS/GAL

WITHOUT WATER:

LBS/GAL

MOLECULAR WEIGHT: N/A

VISCOSITY: N/A

@

F:

C:

SECTION 9 NOTES: None Available

SECTION 10: STABILITY AND REACTIVITY

REACTIVITY: Stable under normal conditions

STABILITY: This product is stable. The product will lose moisture if not stored in a sealed container. It is susceptible to microbial growth with prolonged storage

CONDITIONS TO AVOID (STABILITY): N/A

POSSIBILITY OF HAZARDOUS REACTIONS: N/A

INCOMPATIBILITY MATERIAL: N/A

HAZARDOUS DECOMPOSITION PRODUCTS: Burning can produce carbon monoxide and/or carbon dioxide

SECTION 10 NOTES: None Available

SECTION 11: TOXICOLOGICAL INFORMATION



GHS SAFETY DATA SHEET

MODIFIED DISTILLER GRAIN

SDS DATE: 09/28/2017

TOXICOLOGICAL INFORMATION: The toxicity data of this product has not been determined by testing or research, but to our best knowledge, this product is non-toxic.

ROUTES OF EXPOSURE: Ingestion, contact with eyes

SYMPTOMS RELATED TO THE PHYSICAL, CHEMICAL AND TOXICOLOGICAL CHARACTERISTICS:

CONTACT WITH EYES: May be irritating to the eyes

CONTACT WITH SKIN: Distillation byproducts in the feed may produce allergic skin reactions, including redness and/or itching in sensitive individuals

INHALATION: Prolonged exposure to the grain in dry form may cause wheezing, chest tightness, productive cough, and symptoms of chronic respiratory disease.

INGESTION: Material is non-toxic by ingestion, unless ingested in such quantities as to interfere with normal digestion

DELAYED AND IMMEDIATE EFFECTS AND ALSO CHRONIC EFFECTS FROM SHORT- AND LONG-TERM EXPOSURE:

ACUTE HEALTH HAZARDS: Grain in dry form may also induce asthmatic reactions via allergic mechanism, particularly in individuals who are predisposed to developing allergies

CHRONIC HEALTH HAZARDS: Asthma, bronchitis, chronic obstructive pulmonary disease, conjunctivitis, dermatitis, rhinitis, or grain fever from exposure to dust from wet cake if allowed to dry out and become airborne

NUMERICAL MEASURES OF TOXICITY:

LD50/LC50: No data available

IRRITATION DATA: No data available

CARCINOGENICITY: No data available

EPIDEMIOLOGY: No data available

TERATOGENICITY: No data available

REPRODUCTIVE EFFECTS: No data available

NEUROTOXICITY: No data available

MUTAGENICITY: No data available

OTHER: No data available

SECTION 11 NOTES: None Available

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICITY (AQUATIC AND TERRESTRIAL, WHERE AVAILABLE): When spilled on land, Modified Dried Distillers Grains is expected to biodegrade. Products of biodegrading are expected to be short chained alcohols, aldehydes, fatty acids and carbon dioxide.

PERSISTENCE AND DEGRADABILITY: Biodegradable

BIOACCUMULATIVE POTENTIAL: Not expect to bio-accumulate

MOBILITY IN SOIL: N/A

OTHER ADVERSE EFFECTS: N/A

SECTION 12 NOTES: None Available

SECTION 13: DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Waste disposal should be in accordance with local, state and federal regulations

RCRA HAZARD CLASS: N/A

DESCRIPTION OF WASTE RESIDUES AND INFORMATION ON THEIR SAFE HANDLING AND METHODS OF DISPOSAL, INCLUDING ANY CONTAMINATED PACKAGING: N/A



Green Plains GHS SAFETY DATA SHEET

MODIFIED DISTILLER GRAIN

SDS DATE: 09/28/2017

SECTION 13 NOTES: None Available

SECTION 14: TRANSPORT INFORMATION

U.N. GHS TRANSPORT REQUIREMENT

UN NUMBER: N/A
PROPER SHIPPING NAME: Modified Distiller Grain
TRANSPORT HAZARD CLASS: N/A
PACKING GROUP: N/A
LABEL STATEMENT: N/A
MARINE POLLUTANT: N/A

SPECIAL PRECAUTIONS FOR USER: N/A

SECTION 14 NOTES: Due to the oil and moisture content, the International Maritime Dangerous Goods (IMDG) Code have traditionally considered DDGS as hazardous and classified as Class 4.2 under Seedcake UN 1386 (a) and (b). In 2010, the US submitted to the IMO Sub-Committee on Dangerous Goods, Solid Cargo and Containers (DSC) a recommendation that DDG be carried as a grain and DDGS as non-hazardous cargo (Group C) in accordance with the provisions of the IMSBC Code. The proposal was accepted and DDGS was classified as non-hazardous material for the IMBSC providing it has an oil content of not more than 11% and a moisture content of not more than 12%.

SECTION 15: REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

TOXIC SUBSTANCE CONTROL ACT (TSCA): All components of this product are exempt from listing in the TSCA Inventory

OCCUPATIONAL, SAFETY AND HEALTH ADMINISTRATION (OSHA): N/A

COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT (CERCLA): Not listed

CLEAN WATER ACT (CWA): N/A

CLEAN AIR ACT (CAA): N/A

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) TITLE III INFORMATION:

SARA SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES: N/A

SARA SECTION 311/312 (40 CFR 370) HAZARD CATEGORIES: N/A

SARA 313 REPORTABLE INGREDIENTS: N/A

STATE REGULATIONS: N/A

INTERNATIONAL REGULATIONS: N/A

SECTION 15 NOTES: None Available

SECTION 16: OTHER INFORMATION

DISCLAIMER: The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Green Plains Inc. be liable for any claims, losses or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Green Plains Inc. has been advised of the possibility of such damages.

REFERENCES:

GHS Annex II
GHS SDS Instruction

ACRONYMS/ABBREVIATIONS:

ACGIH-American Conference of Governmental Industrial Hygienists
CAA-Clean Air Act
CAS-Chemical Abstracts Service
CERCLA-Comprehensive Response Compensation and Liability Act
CHEMTREC-It serves as a round-the-clock resource for obtaining immediate response information for incidents involving hazardous



GHS SAFETY DATA SHEET

MODIFIED DISTILLER GRAIN

SDS DATE: 09/28/2017

material and dangerous goods.

CWA-Clean Water Act

EC-European Commission

GHS-Globally Harmonized System of Classification and Labeling of Chemicals

IARC-International Agency for the Research on Cancer

ICSC-International Chemical Safety Cards

LC50-The concentration of a chemical in air or of a chemical in water which causes the death of 50% of a group of test animals.

LD50-The amount of a chemical, given all at once, which causes the death of 50% of a group of test animals.

NIOSH-The National Institute for Occupational Safety and Health

NTP-National Toxicology Program

OSHA-Occupational Safety and Health Administration

RCRA-Resource Conservation and Recovery Act

RQ-Reportable Quantity

SARA-Superfund Amendments and Reauthorization Act

STOST-SE-Specific Target Organ Toxicity Single Exposure

TPQ-Threshold Planning Quantity

TSCA-Toxic Substance Control Act

U.N.-United Nation

UNCED-United Nations Conference on Environment and Development

VOL-Volume

WT-Weight