



Green Plains

GHS SAFETY DATA SHEET

DRY DISTILLERS GRAIN

SDS DATE: 09/23/2016

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME (GHS Product Identifier): Dry Distillers Grains
(Other means of identification): DDGS

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"/>			
Green Plains Grain Company LLC. Archer 2132 Archer Road Archer, NE 68816 Phone: 308-795-2211 <input checked="" type="checkbox"/>	Green Plains Grain Company LLC. Cimarron 19016 Road I Kismet, KS 67859 Phone: 620-624-6296 Fax: 620-624-4411 <input checked="" type="checkbox"/>	Green Plains Grain Company LLC. Essex 411 North Street, Essex, IA 51638 Phone: 712-379-3155 Fax: 712-379-3175 <input checked="" type="checkbox"/>	Green Plains Grain Company LLC. Hopkins 200 N. Railroad Hopkins, MO 64461 Phone: 660-778-3331 Fax: 660-778-3676 <input checked="" type="checkbox"/>	Green Plains Grain Company LLC. St Ed 401 Railroad Avenue St. Edward, NE 68660 Phone: 402-678-2442 Fax: 402-678-3495 <input checked="" type="checkbox"/>

CHEMTRAC PHONE (24HR Emergency Telephone): 1-800-424-9300 (Within U.S.A)

INTERNATIONAL CHEMTRAC 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).



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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: DDGS is considered non-hazardous. N/A

SECTION 2 NOTES: Concentrated DDGS dust in air suspension may become explosive under confined conditions.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAME: N/A

COMMON NAME: Distillers grains

CHEMICAL FAMILY: N/A

CHEMICAL FORMULA: N/A

SYNOMYS: N/A

INGREDIENT: Distillers grains, water

NAME	CAS#	EC#	ICSC#	% WT	% VOL
Distillers grains	N/A	N/A	N/A	90.0%	N/A
Water	7732-18-5	231-791-2	N/A	10.5%	N/A

CARCINOGENICITY

OSHA: NO

ACGIH: NO

NTP: NO

IARC: NO

OTHER: N/A

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: Material is dried grain derivative of the alcohol distillation process. Inhalation of fines in the dust may cause an allergic reaction in sensitive individuals (pneumoconiosis)

ROUTES OF ENTRY/FIRST AID: Inhalation and ingestion

EYES CONTACT: Flush with water for at least 15 minutes while holding eye lids apart. Check for and remove any contact lens. Do not use an eye ointment. Consult a physician if irritation persists after flushing water

SKIN CONTACT: If irritation persists, seek medical attention. Wash contaminated clothing before reusing

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

INGESTION: No acute hazard would be posed from ingestion of product. Do not induce vomiting.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Allergies, pre-existing lung conditions or asthma

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS: Dry distillers grains are an animal feed product. Health effects upon exposure or ingestion are expected to be minimal.

SECTION 4 NOTES: None Available

SECTION 5: FIRE-FIGHTING MEASURES



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EXTINGUISHING MEDIA: Use appropriate extinguishing media for surrounding fire

PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIRE FIGHTERS: Respiratory and eye protection required for fire-fighting personnel.

Full protective equipment and a full face-piece self-contained breathing apparatus in pressure demand mode should be used for all indoor fires and any significant outdoor fires. For small outdoor fires, which may easily be extinguished with a portable fire extinguisher, use of an SCBA may not be required.

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. Avoid the use of compressed air to blow dust from led ges, walls, and other areas when there are ignition sources in the area.

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:

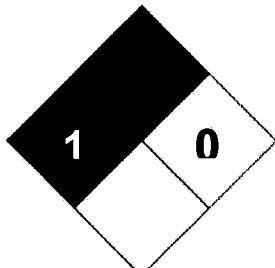
METHOD USED: N/A

AUTOIGNITION TEMPERATURE: N/A

F:

C:

NFPA HAZARD CLASSIFICATION:



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

HMIS HAZARD CLASSIFICATION (0-4 scale):

Dry Distillers Grain	1
	1
	0
PERSONAL PROTECTION	<input type="checkbox"/>
Safety glasses, gloves	<input type="checkbox"/>

SECTION 5 NOTES: None Available

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 and deny entry to unauthorized or unprotected personnel; remove spilled material so as to avoid creating airborne dust. Spilled waste material is combustible but is not classified as a hazardous material. For water spill, small spills will dilute naturally with the water and will 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.



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

SECTION 7 NOTES: Storage temperature: ambient air temperature; Storage pressure: ambient atmosphere pressure

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS/GUIDELINES:

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

ENGINEERING CONTROLS: Provide exhaust ventilation or other engineering controls to keep the airborne concentration of dust below their respective threshold limit value. Ensure that eyewash station and/or safety shower is available.

VENTILATION: Provide exhaust ventilation or other engineering controls to keep the airborne concentration of dust below their respective threshold limit value. Ensure that eyewash station and/or safety shower is available.

PERSONAL PROTECTIVE EQUIPMENT (PPE):

EYE PROTECTION: Safety glasses or goggles; Do not wear contacts when working with this material.

SKIN PROTECTION: Clean body covering as needed.

RESPIRATORY PROTECTION: Provide a NIOSH/MSHA approved respirator or dust mask if exposure limits are exceeded.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: N/A

SECTION 8 NOTES: None Available

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Straw yellow granular

PHYSICAL STATE: solid

COLOR: Straw yellow

ODOR: Characteristic fermentation odor

pH AS SUPPLIED: N/A

pH (Other): N/A

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): Negligible

FLAMMABILITY (by %volume): N/A

UPPER FLAMMABILITY LIMIT:

LOWER FLAMMABILITY LIMIT:

VAPOR PRESSURE (mmHg): N/A

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@

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: 100.0%

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: The product is stable in normal conditions.

STABILITY: This product is susceptible to degradation by micro-organisms overtime

CONDITIONS TO AVOID (STABILITY): N/A

POSSIBILITY OF HAZARDOUS REACTIONS: N/A

INCOMPATIBILITY MATERIAL: Incompatible with strong acids, strong bases, and oxidizing agents

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

SECTION 10 NOTES: None Available

SECTION 11: TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION: No data available

ROUTES OF EXPOSURE: Inhalation, ingestion



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SYMPTOMS RELATED TO THE PHYSICAL, CHEMICAL AND TOXICOLOGICAL CHARACTERISTICS:

CONTACT WITH EYES: Dust may cause eye irritation to the eyes. Avoid wearing contact lenses if dust conditions are encountered

CONTACT WITH SKIN: Dust has a slightly acid pH when mixed with water. Distillation byproducts in the dust may produce allergic skin reactions including redness, itching, etc. in sensitive individuals

INHALATION: Prolonged exposure to the dust may cause wheezing, chest tightness, productive cough, eye and nasal irritation, and symptoms of chronic respiratory disease. Dust may also induce asthmatic reactions via allergic mechanism, particularly in individuals who are predisposed to developing allergies

INGESTION: Material is non-toxic by ingestion

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

ACUTE HEALTH HAZARDS: N/A

CHRONIC HEALTH HAZARDS: Prolonged or repeated exposure to dust can result in asthma, bronchitis, chronic obstructive pulmonary disease, conjunctivitis, dermatitis, rhinitis, grain fever

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): No data available

PERSISTENCE AND DEGRADABILITY: Expect to be biodegradable

BIOACCUMULATIVE POTENTIAL: N/A

MOBILITY IN SOIL: N/A

OTHER ADVERSE EFFECTS: N/A

SECTION 12 NOTES: Due to the high content of organics in the product, it is expected to consume massive amount of oxygen once it gets into natural water body. It would result in death of aquatic life.

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:

SECTION 13 NOTES: None Available



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SECTION 14: TRANSPORT INFORMATION

U.N. GHS TRANSPORT REQUIREMENT

UN NUMBER: N/A

PROPER SHIPPING NAME: Dried Distillers 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): N/A

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

COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT (CERCLA): N/A

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 Renewable Energy, 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 Renewable Energy, 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 material and dangerous goods.



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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