

Safety Data Sheet

Whole Grain

Section 1. Identification

Product Identifier	Whole Grain		
Synonyms	Grain		
Manufacturer Stock Numbers	N/A		
Recommended use	Food		
Uses advised against	N/A		
Manufacturer Contact			
Address	Zeeland Farm Services, Inc PO BOX 290 Zeeland, MI, 49464 USA		
	Phone	Emergency Phone	Fax
	(616) 772-9042	(800) 748-0595	N/A
	Email		
	maryc@zfsinc.com		

Section 2. Hazards Identification

Classification	EYE DAMAGE/IRRITATION - Category 2B OSHA defined hazards - Combustible Dust
Signal Word	Warning
Pictogram	
Hazard Statements	Causes eye irritation May Cause breathing difficulties if inhaled. May form combustible dust concentrations in air
Precautionary Statements	
Response	If eye irritation persists: Get medical advice/attention. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Prevention	Wash ...thoroughly after handling.
Storage	N/A
Disposal	N/A

Ingredients of unknown toxicity 0%

Hazards not Otherwise Classified

Precautionary Statement May be mechanical eye irritant. Rinse eyes with water for several minutes. Avoid breathing grain dust. Excessive inhalation may affect nose, throat and lungs. Grain dust may burn if suspended in air and may create a flash fire/explosion hazard. Avoid ignition sources.

Emergency Overview May be mechanical irritant to eyes. Excessive inhalation of grain dusts may affect nose throat, and lungs. May form combustible dust concentration in air; See "Explosion Hazard" below

Explosion Hazard Grain is generally considered not hazardous, but dust generated through downstream activities that may reduce its size (e.g., processing, shipping, handling, etc.) may create a hazardous condition.

If exposed to an ignition source, grain dust may burn. Airborne dust in sufficient concentrations when exposed to an ignition source may flash or in a confined situation, may fuel and explosion

Section 3. Ingredients

CAS	Ingredient Name	Weight %
	Foreign Material (such as organic plant material)	5% - Max
	Grain dust	5% - Max
	Whole Grains	95% - 100%

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-Aid Measures

Inhalation Remove person from exposure. Seek Medical attention for any breathing difficulty.

Ingestion If swallowed, give several glasses of water to dilute. Never give anything by mouth to an unconscious person.

Eye Contact Flush eyes with water. Seek medical attention as needed.

Skin Contact Wash affected skin with soap and water

Section 5. Fire Fighting Measures

Suitable Extinguishing Media Extinguish with water fog, dry chemical powders or foam. Do not use strong streams of water or dry chemical if dust can be dispersed into the air. Dust placed in suspension with an ignition sources present may flash or explode

Unsuitable Extinguishing Media N/A

Unusual Fire and Explosion Hazards
Special Fire Fighting Procedures:

WHOLE GRAIN IS NOT EXPLOSIVE. Fine dust dispersed in air at a sufficient concentration may ignite if exposed to an ignition source

Extinguish with water fog, dry chemical powders or foam. Do not use strong streams of water or dry chemical if dust can be dispersed into the air. Dust placed in suspension with an ignition sources present may flash or explode

Hazardous Combustion Products:

Oxides of carbon

Section 6. Accidental Release Measures

Clean up with soft bristle broom(s) or a vacuum approved for a Class II Hazardous location. Dust deposits should be maintained to a minimum on surfaces, as these could form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air (i.e., cleaning dust surfaces with compressed air in the presence of ignition source should not be allowed). Non-sparking tools should be used.

Section 7. Handling and Storage

Fine dust dispersed in air at a sufficient concentration may ignite if exposed to an ignition source. remove grain dust from area/processing equipment prior to using any heat producing equipment such as arc welders, cutting torches and spark/heat producing tools such as portable surface grinders. According to 29 CFR 1910.272(F) a hot work permit is required.

Section 8. Exposure Controls/Personal Protection

Occupational Exposure Limits

Ingredient Name	ACGIH TLV	OSHA PEL	STEL
Foreign Material (such as organic plant material)	N/A	N/A	N/A
Grain dust	N/A	N/A	N/A
Whole Grains	N/A	N/A	N/A

Personal Protective Equipment

Respirator

Respiratory Protection:

May cause irritation of the nasal membranes or the upper respiratory tract. If dust exceeds the nuisance level. wear an approved NIOSH dust respirator whenever dust concentrations in the work area are above ACGIH TLV/OSHA PELS.

Gloves

NA

Eye Protection:

Safety Glasses/goggles suggested in dusty conditions

Ventilation:

Local exhaust: if needed

Mechanical (general):

If needed ensure that dust handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work areas. Use only appropriately classified electrical equipment and powered industrial trucks.

Work/Hygienic Practices: Good personal hygiene practices should be followed. Wash hands and face before eating, drinking, etc.

Additional Information Avoid dust accumulation and control ignition sources. Where appropriate, employ grounding, venting, and explosion relief provisions in accordance with accepted engineering practices in processes capable of generating dust and/or static electricity.

Grain Dust (Wheat, Oak and Barley)
OSHA PEL 10mg/m3

Other Grains
OSHA 15mg/m3 (Total) 5mg/m3 (Respirable) ACGIH TLV 10mg/m3

This TLV applies to nuisance particulates. The grain industry believes there is currently in adequate data to support this TLV

Section 9. Physical and Chemical Properties

Physical State	solid
Color	natural grain color
Odor	No distinct odor
Odor Threshold	N/A
Solubility	N/A
Partition coefficient Water/n-octanol	N-Octanol/Water: N/A
VOC%	N/A
Viscosity	N/A
Specific Gravity	1
Density lbs/Gal	N/A
Pounds per Cubic Foot	N/A
Flash Point	N/A
FP Method	N/A
Ph	N/A
Melting Point	N/A
Boiling Point	N/A
Boiling Range	N/A
LEL	N/A
UEL	N/A
Evaporation Rate	N/A
Flammability	N/A
Decomposition Temperature	N/A
Auto-ignition Temperature	Unknown
Vapor Pressure	N/A
Vapor Density	N/A

Upper/Lower Flammability or Explosive Limits: When dispersed into the air in sufficient concentrations grain dust can explode in the presence of an ignition source. Do not allow dust to become dispersed

int the air, even by the extinguishing agent. Minimum explosive concentrations is 55 g/m³. However, moisture content, particle size, caloric properties, and specific ingredients also affect the explosiveness of grain dust.

The flash point and flammable limits are accurate because grain dust has no flash point, LEL, or UEL due to its properties. The firefighting measures listed are in accord with other similar SDS.

For an explosion to occur, four conditions must exist: First, oxygen must be present. Second, there must be an ignition source (e.g. electrical short, sparks, etc.). Third, there must be fuel(e.g. grain dust in suspension). Although an explosion will not occur if there is not containment, the dust can still ignite, resulting in a fire.

As noted explosions are dependent upon the concentration of the fuel (e.g. grain dust suspended in the air. The Minimum Explosive Concentration (MEC) for grain dust is around 55 g/m³. The MEC varies according to the particle size and caloric properties of the product. In addition, the specific ingredients of the grain dust will affect the MEC. Therefore, the listed ME range would be appropriate.

The following insert taken from "Preventing Grain Dust Explosions" explains explosive limits for grain dust:

"A Texas A&M University dust control scientist suggests that the MEC range is about 50-150 grams per cubic meter, depending on the type of dust and the size of particles (Parnell, 1998). This equates to the same MEC level used by the National Grain and Feed Association (NGFA). NGFA states that the broad, generally accepted MEC for grain dust explosions is about 0.05 ounces per cubic foot of volume. It says that the Optimum Explosive Concentration (OEC) is about 0.5 to 1.0 ounces per cubic foot - about 10 times the MEC (Gillis, 1985, P. 43)."

Additional Information

LEL and UEL is unknown.

Section 10. Stability and Reactivity

Stability: Stable
Conditions to Avoid: Dispersing dust in air, above MEC, and exposure to potential ignition sources
Incompatibility (materials to None Known
avoid):
Hazardous Decomposition or by Products: CO₂, H₂S and Oxygen deficient atmosphere under improper storage conditions.
Hazardous Polymerization: Will Not Occur

Section 11. Toxicological Information

Routes of Entry: Inhalation: Yes
Skin: Yes
Eyes: Yes
Ingestion: Unlikely

Acute: May be mechanical irritant to skin and eyes. Excessive inhalation of feed dusts may affect the nose, throat, and lungs.

Chronic: Repeated and prolonged inhalation of feed dusts may affect the respiratory system. Smokers have an increased risk of respiratory effects.

Medical Conditions Generally Aggravated by Exposure: Allergies and respiratory ailments.

Signs and Symptoms of Exposure: Irritation to the skin, eyes, nose or throat may occur. Some people may occasionally experience coughing.

Section 12. Ecological Information

(Non-Mandatory)

Section 13. Disposal

(Non-Mandatory)

Section 14. Transport Information

UN Number N/A
UN Proper Shipping Name N/A
DOT Classification N/A
Packing Group N/A
(Non-Mandatory)

Section 15. Regulatory Information

(Non-Mandatory)

Additional Information All electrical equipment must be suitable for use in hazardous atmospheres involving combustible dust in accordance with 29 CFR 1910.307. The National Electrical Code, NFPA 70, contains guidelines for determining the type and design of equipment and installation, which will meet this requirement.

Combustible dust is a "hazard, other than chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Section 16. Other Information

Revision Date 5/1/2015

Additional Information This safety data sheet covers grain in its natural state and does not include chemicals that may be applied by subsequent handlers and/or distributors of this product. The information in this SDS was obtained from sources that we believe are reliable; however, the information is provided without any

representation or warranty, expressed or implied, regarding the accuracy or correctness. The conditions or methods of handling, storage, use and disposal of the product are we do not assume responsibility and expressly disclaim liability for loss, damage, or expense arising out of or in any way connected with the handling, storage, use or disposal of this product.