Safety Data Sheet for Grain

SECTION 1: IDENTIFICATION

Product Name	**Whole Grain**
SDS Number:	Grain
Synonyms/Other means of Identification:	
Intended Use:	Raw Commodity (typically food and feed use)
Supplier/Distributor	Wheaton Dumont Coop Elevator 6587 US Hwy 75 Wheaton, MN 56296
Emergency Health and Safety Number:	320-563-8152 or 800-258-4744
SDS Information:	wdcoop.com

SECTION 2: HAZARD(S) IDENTIFICATION

Classification: Combustible dust/respiratory hazard if small particles are generated during further processing, handling or by other means.
Label Elements:
Signal Word: Warning
Hazard Statements(s): Class 2B eye irritant. May cause breathing difficulties if inhaled.

If small particles are generated during further processing, handling or by other means, may form combustible dust concentrations in the air.

Precautionary Statements: Dust from particles may be a mechanical eye irritant. Rinse eyes with water for several minutes.

Avoid breathing dust. Excessive inhalation may affect nose, throat and lungs. Avoid ignition sources: Grain dust may burn if suspended in air and may create a flash fire/explosion hazard.

Emergency Overview: Dust from particulates 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."

Explosion Hazard: Grain is generally considered not hazardous but dust generated through downstream activities may reduce it particle size (e.g., shipping, handling, transfer to bins, etc.) may create a hazardous condition.

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

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CASRN	Concentration
Whole Grains	Up to 100%	
Foreign Material (such as organic plant material)		0-5%
Grain Dust	0-5%	

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.
Skin Contact: Wash affected skin with soap and water.
Eye Contact: Flush eyes with water. Seek medical attention as needed.

SECTION 5: FIRE FIGHTING MEASURES

Special Firefighting Procedures: 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 source present may flash or explode.
Unusual fire and explosion hazards: **Whole Grain is NOT explosive.** Fine dust dispersed in air at a sufficient concentration may ignite if exposed to an ignition source.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Clean up with soft bristle broom(s) or 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).

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 CONTROL/PERSONAL PROTECTION

Respiratory Protection: Wear an approved NIOSH dust respirator whenever dust concentrations in the work area are above ACGIH TLV/OSHA PELS

Grain Dust (Wheat, Oat and Barley)

OSHA PEL	ACGIH TLV
10 MG/M3	4MG/M3*

Other Grains

OSHA PEL	ACGIH TLV
15 MG/M3 (Total)	10 MG/M3*

**This TLV applies to nuisance particulates.*
The grain industry believes there is currently inadequate Data to support this TLV.

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.

Protective Gloves: N/A
Eye Protection: Safety glasses/goggles suggested in dusty conditions.
Work/Hygienic Practices: Good personal hygiene practices should be followed. Avoid excessive dust accumulation and control ignition sources. Where appropriate, employ grounding, venting and explosion relief provisions in dust and/or static electricity. Avoid accumulation of dust on surfaces to prevent secondary dust explosions.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Flammable Limits: **LEL:** 55G/M3 **UEL:** Unknown
Appearance:
Natural Grain Color – Whole Grain
Grain Dust – Light, grayish or brown powder

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 into the air, even by the extinguishing agent. Minimum explosive concentrations is 55 G/M3. However, moisture content, particle size, caloric properties, and specific ingredient also affect the explosiveness of grain dust.
The flashpoint 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). Fourth, there must be containment of suspended grain dust (i.e. silo, vessel, etc.). Although an explosion will not occur if there is no 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 MEC 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 to 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 (DEC) is about 0.5 to 1.0 ounces per cubic foot – About 10 times the MEC (Gillis, 1985, P 43)."

Odor: No distinct odor (Out-Of-Condition products may be sour or musty)
Vapor Pressure: N/A **Odor Threshold:** N/A **Vapor Density:** N/A
PH: N/A **Meeting Point/Freezing Point:** N/A
Solubility(ies): N/A **Initial Boiling Point and Boiling Range:** N/A
Partition Coefficient N-Octanol/Water: N/A
Flash Point: N/A **Auto-Ignition Temperature:** N/A
Evaporation Rate: N/A **Decomposition Temperature:** N/A

SECTION 10: STABILITY AND REACTIVITY

Stability: **Condition to Avoid:** Dispersing dust in air, above MEC, and exposure to potential ignition sources **Stable: X**
Incompatibility (Materials To Avoid): None Known
Hazardous Decomposition or Byproducts: CO2, H2S and Oxygen deficient atmosphere under improper storage conditions.
Hazardous Polymerization: Condition to avoid: N/A
Reactivity: **Will not occur:** X

SECTION 11: TOXICOLOGY INFORMATION

Routes of Exposure:
Inhalation: X **Skin:** X **Eyes:** X **Ingestion:** Unlikely
Carcinogenicity: NTP: No **ARC Monographs:** No **OSHA Regulated:** No

Acute: May be mechanical irritant to skin and eyes. Excessive inhalation of grain dusts may affect the nose, throat and lungs.
Chronic: Repeated and prolonged exposure to grain dusts may affect the respiratory system or cause sensitization. Smokers have an increased risk of respiratory effects.
Signs and Symptoms: Irritation to the skin, eyes, nose or throat may occur. Some people may occasionally experience coughing.
Medical Conditions Generally Aggravated by Exposure: Allergies and Respiratory ailments.

SECTION 12: ECOLOGICAL INFORMATION: (NON-MANDATORY)

SECTION 13: DISPOSAL CONSIDERATIONS: (NON-MANDATORY)

SECTION 14: TRANSPORT INFORMATION: (NON-MANDATORY)

SECTION 15: REGULATORY INFORMATION: (NON-MANDATORY)

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 requirement.

Combustible dust is a "Hazard. Other than Chemical" as defined by OSHA Hazard Communication Standard, 29 CFR 1910.1200

Section (B)(5)(III) of the HCS (CFR 1910.1200) exempts food, including feed and therefore any associated feed dust, from the labeling requirements of the HCS since the food/feed is subject to the labeling requirements of the Food and Drug Administration.

SECTION 16: OTHER 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 this product are beyond our control and