Safety Data Sheet for Grain

SECTION 1: IDENTIFICATION	
PRODUCT NAME:	**WHOLE GRAIN**
SDS NUMBER:	GRAIN
SYNONYMS/OTHER MEANS OF IDENTIFICATION:	
INTENDED USE:	FOOD
MANUFACTURER:	VARIOUS
EMERGENCY HEALTH AND SAFETY NUMBER:	
SDS INFORMATION:24 Hour Emergency Contact INFOTRAC	**PHONE: 1-800-535-5053**

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 STATEMENT(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 AIR.

PRECAUTIONARY STATEMENT(S):_DUST FROM PARTICULATES 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" BELOW.

EXPLOSION HAZARD: GRAIN IS GENERALLY CONSIDERED NOT HAZARDOUS BUT DUST GENERATED THROUGH DOWNSTREAM ACTIVITIES THAT MAY REDUCE ITS 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: FIREFIGHTING MEASURES

FLASH POINT (METHOD): *NIA*
FLAMMABLE LIMITS: **LEL:** UNKNOWN **UEL:** UNKNOWN
AUTOIGNITION TEMPERATURE: UNKNOWN
HAZARDOUS COMBUSTION PRODUCTS: OXIDES OF CARBON

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 SOURCES 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 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 (LE. 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 ANY 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

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*
5 MG/M3 (RESPIRABLE)	

'THIS TLV APPLIES TO NUISANCE PARTICULATES.
THE GRAIN INDUSTRY BELIEVES THERE IS CURRENTLY INADEQUATE DATA TO SUPPORT HIS 1LV.

VENTILATION: LOCAL EXHAUST: IF 'IEEDED
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: *NIA*

EYE PROTECTION: SAFETY GLASSES iGOGGLES 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 ACCORDANCE WITH ACCEPTED ENGINEERJNG PRACTICES IN PROCESSES CAPABLE OF GENERATING DUST AND/OR STATIC ELECTRICITY

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

FLASH POINT (METHOD): *NIA*
FLAMMABLE LIMITS: **LEL:** UNKNOWN **UEL:** UNKNOWN
AUTOIGNITION TEMPERATURE: 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 CONCENTRATION IS *55 GIM3.* 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). 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 I 50 GRAMS PER CUBIC METER, DEPENDING ON THE TYPE OF DUST AND THE SIZE OF PAR11CLES {PARNELL, I 998). THIS EQUATES TO THE SAME MEC LEVEL USED BY THE NATIONAL GRAIN AND FEED ASSOCIA110N (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 I.O OUNCES PER CUBIC FOOT - ABOUT IO TIMES THE MEC (GILLIS, I 985, P. 43)."

ODOR: NO DISTINCT ODOR (OUT-OF-CONDITION PRODUCTS MAY BE SOUR OR MUSTY)

VAPOR PRESSURE: NIA **ODOR THRESHOLD:** *NI*A **VAPOR DENSITY:** *NI*A

PH: *NIA* **MELTING POINT/FREEZING POINT:** *NIA*

SOLUBILITY(IES): *NIA* **INITIAL BOILING POINT AND BOILING RANGE:** *NIA*

PARTITION COEFFICIENT N-OCTANOL/WATER: *NI*A

FLASH POINT: *NIA* **AUTO-IGNITION TEMPERATURE:** *NIA*

EVAPORATION RATE: *NIA* **DECOMPOSITION TEMPERATURE:** *NI*A

SECTION IO: STABILITY AND REACTIVITY

STABILITY: **CONDITION TO AVOID:** DISPERSING DUST IN AIR, ABOVE MEC, AND EXPOSURE TO POTENTIAL IGNITION SOURCES **STABLE:** X

INCOMPATIBI LITY (MATERIALS TO AVOID): NONE KNOWN

HAZARDOUS DECOMPOSITION O R BYPRODUCTS: C02 H2S AND OXYGEN DEFICIENT ATMOSPHERE UNDER IMPROPER STORAGE CONDITIONS.

HAZARDOUS POLYMERIZATION: CONDITION TO AVOID: *NIA*
WI LL NOT OCCUR: X

REACTIVITY:

SECTION 11: TOXICOLOGICAL 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 OF EXPOSURE: 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 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

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 BEYOND OUR CONTROL AND MAY BE BEYOND OUR KNOWLEDGE. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE, OR EXPENSE ARJSING OUT OF OR IN ANY WAY CONNECTED WITH THE HANDLING, STORAGE, USE, OR DISPOSAL OF THIS PRODUCT.