CERTIFICATE OF ANALYSIS

Xanthan Gum 80 Mesh

Batch: 4547513 Best Before End: July 2027

TEST

Appearance Viscosity V1:V2 Loss on drying pH (1% solution) Pyruvic Acid Ash Nitrogen Ethanol Lead Total plate count Total plate count Total yeasts and moulds Salmonella Particle size (mesh)

Coliforms Solubility Shearing Ratio

SPECIFICATION

White-like or light-yellow powder 1200 - 1700 cp, 1% KCL 1.02 - 1.45 Max 15 % 6 - 8 6.7 Min 1.5 % Max 16 % Max 1.5 % Max 500 ppm, mg/kg Max 2 ppm, mg/kg Max 2000 cfu/g Max 100 cfu/g Negative in 10g Not less than 99% through 60 mesh Not less than 95% through 80 mesh Max 3 MPN/g Soluble in water, insoluble in ethanol Min 6.5 8.1

RESULT

Conforms 1438 cp, 1% KCL 1.06 9.9% Conforms 9.4% Conforms 190 ppm, mg/kg Conforms <100 cfu/g <100 cfu/g Conforms 100.0% 97.3% Conforms Conforms

Allergen Statement

PRODUCT: XANTHAN GUM

FREE FROM	Y/N	FREE FROM	Y/N
All Additives	Y	Maize and derivatives(ALBA14)	Y
Asoartame(E951)	Y	Malt Extract	Y
Beef and derivatives(ALBA09)	Y	Milk and derivatives	Y
Benzoates(E210-E219)(ALBA26)	Y	Milk Protein(Bovine) (ALBA01)	Y
Benzoates(Hydroxy-)(E210-E219)	Y	Non-VeganComponents	Y
Bezoic Acid(E210-E213)	Y	Non-Vegetarian Components	Y
BHA/BHT(E320-E321)	Y	Nut oil(ALBA19)	Y
Celery(ALBA32)	Y	Nuts and derivates(ALBA18)	Y
Chicken and derivates(ALBA11)	Y	Peanuts oil(ALBA21)	Y
Cinnmon(ALBA29)	Y	Peanuts(ALBA20)	Y
Cocoa(ALBA15)	Y	Polyols	Y
Colours	Y	Pork and derivatives(ALBA10)	Y
Coconut and derivatives	Y	Potato and derivatives	Y
Colours(Azo-)(E102,110,122-124,128,129,151) (ALBA15)	Y	Rapeseed and derivatives	Y
Coriander(ALBA31)	Y	Rye(ALBA08)	Y
Cottonseed	Y	Saccharose	Y
Egg and derivatives(ALBA03)	Y	Salt(Added)	Y
Fish and derivatives(ALBA12)	Y	Seafood	Y
Fructose	Y	Seeds and derivatives	Y
Galic	Y	Sesame(ALBA22)	Y
Glelatin(Added)	Y	Sesame oil(ALBA23)	Y
Genetically Modified Protin/DNA	Y	Shellfish-Crustacean and derivatives (ALBA13)	Y
Derivatives of Gene Technology	Y	Sorbic acid(E200-E203)	Y
Glutamate	Y	Soy bean oil(ALBA05)	Y
Glutamate(Added)(E620-E625)(ALBA24)	Y	Soy bean protein(ALBA04)	Y
Gluten<20ppm	Y	Soy and derivatives	Y
Gluten 20-200ppm	Y	Sugar(Added)	Y
Gluten >200ppm(ALBA06)	Y	Sulphites<10ppm	Y
Honey	Y	Sulphites>10ppm(E220-E227)(ALBA25)	Y
Hydrolysed Vegetable Protein	Y	Tartrazine (E102)(ALBA28)	Y
Lactose(ALBA02)	Y	Umbelliferae(ALBA33)	Y
Lamb and derivatives	Y	Vanillin(ALBA30)	Y
Legumes-Pulse(ALBA17)	Y	Wheat and derivatives(ALBA07)	Y
Lupin Flour/Lupin derivatives	Y	Yeast and derivatives(ALBA16)	Y
Mustard	Y	Molluscs	Y

STATEMENT

Date: JULY 4, 2018

Our supplier declares that our xanthan gum neither has raw materials that are from animal sources, nor comes into contact with animal or human derived material during manufacturing. The products are not derived from specified risk materials as defined in European Commission Decision EMEA / 410 / 01 Rev.3. Therefore, the products are free from BSE and TSE.

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Radiation Statement

Product Name: XANTHAN GUM

We hereby confirm that no radiation was used for our xanthan gum, following information received from our supplier.

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MATERIAL SAFETY DATA SHEET

1.0 Chemical Product and Company Identification

Product name: XANTHAN GUM Supplier: MADAR Corporation Limited Address: 19-20 Sandleheath Industrial Estate, Fordingbridge, Hampshire, SP6 1PA Tel no. 01425 655555 Synonyms: XANTHAN GUM Chemical Family: Polysaccharide gum Date issued: AUG. , 2016

2.0 Composition/Information on Ingredients

COMPONENT CAS NO: Xanthan Gum 11138-66-2

3.0 Hazards Identification

Emergency Overview: Appearance and Odor: white to cream colored powder With slight odor

WARNING! COMBUSTIBLE DUST Potential Health Effects

LIKELY ROUTES OF EXPOSURE: Skin contact and inhalation

EYE CONTACT: No more than slightly irritating based on toxicity studies. The dry powder may cause foreign body irritation in some individuals.

SKIN CONTACT: No more than slightly toxic or slightly irritating based on toxicity studies. Prolonged contact with the dry powder may cause drying or chapping of the skin.

INHALATION: Inhalation of the dust may cause coughing and sneezing

INGESTION: Is not toxic if swallowed based on toxicity studies. No significant adverse health effects are expected to develop if only small amounts(less than a mouthful) are swallowed

Refer to Section 11 for toxicological information:

4.0 First aid Measures:

IF IN EYES OR SKIN, immediate first aid is not likely to be required. However, this material can be removed with water. Wash heavily contaminated clothing before reuse

IF INHALED, immediate first aid is not likely to be required. However, if symptoms occur, remove to fresh air. Remove material from eyes, skin and clothing.

IF SWALLOWED, immediate first aid is not likely to be required. A physician or Poison Control Center can be contacted for advice. Wash heavily contaminated clothing before reuse.

5.0 Fire Fighting Measures:

FLASH POINT: Not applicable

HAZARDOUS PRODUCTS OF COMBUSTION: carbon dioxide, carbon monoxide

EXTINGUISHING MEDIA: In case of fire, use water, dry chemical,CO2,or alcohol foam

UNUSUAL FIRE AND EXPLOSION HAZARDS: This material as normally packaged and handled can contain sufficient fines to form an explosive mixture if dispersed in a sufficient quantity of air. Surfaces that may be covered with this product will become extremely slippery upon application of water.

FIRE FIGHTING EQUIPMENT: Fire fighters and others exposed to products of combustion should wear self-contained breathing apparatus. Equipment should be thoroughly de-contaminated after use.

6.0 Accidental Release Measure:

In case of spill, do not blow material. Use vacuum equipment designed specifically for handling combustible dusts.

NOTE- The use of water wash down is not recommended unless the spilled material is already wet. Wet material on a walking surface will be extremely slippery. We spills should be thoroughly flushed with water until non-slippery.

Refer to Section 13 for disposal information and Section 15 for reportable quantity information.

7.0 Handing and Storage:

HANDLE IN ACCORDANCE WITH GOOD INDUSTRIAL HYGIENE AND SAFETY PRACTICES.THESE PRACTICES INCLUDE AVOIDING UNNECESSARY EXPOSURE AND REMOVAL OF MATERIAL FROM EYES,SKIN AND CLOTHING. Keep away from heat, sparks and flame. Avoid creating dust cloud in handling transfer and clean up.

8.0 Exposure controls/personal protection:

EYE PROTECTION: This product does not cause significant eye irritation or eye toxicity requiring special protection. Use good industrial practice to avoid eye contact.

SKIN PROTECTION: Although this product does not present a significant skin concern, minimize skin contamination by following good industrial practice. Wearing protective gloves is recommended. Wash hands and contaminated skin thoroughly after handling.

RESPIRATORY PROTECTION: Avoid breathing dust. Use NIOSH/MSHA approved respiratory protection equipment when airborne exposure limits are exceeded(see below).Consult the respirator manufacturer to determine appropriate type equipment for a given application. Observe respirator use limitations specified by NIOSH/MSHA or the manufacturer. Respiratory protection programs must comply with 29 C.F.R.1910,134

VENTILATION: Provide natural or mechanical ventilation to control exposure levels below airborne exposure limits(see below). The use of local mechanical exhaust ventilation is preferred at sources of air contamination such as open process equipment. Consult NFPA Standard 91 for design of exhaust systems.

AIRBORNE EXPOSURE LIMITS: OSHA and ACGIHM have not established specific exposure limits for particulates not otherwise regulated(PNOR) and particulates not otherwise classified(PNOC) respectively, which are the least stringent exposure limits applicable to dusts:

OSHA PER ACGIH TLV 15 mg/m3(total dust)8-hr TWA 10mg/m3(inhalable)8-hr TWA 5mg/m3(respirable)8-hr TWA 3mg/m3(respirable)8-hr TWA

9.0 Physical and Chemical Properties

Molecular Weight: approximately 1,000,000 Appearance: Creamy white powder

Odor: Slight

PH: approximately neutral (as a 1% solution)

Bulk Density: approximately 50lb/cu.ft.

Solubility in Water: soluble, forming viscous solutions, becoming a paste at concentrations greater than about 5%

NOTE: These physical data are typical values based on material tested but many vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

10.0 Stability and Reactivity

STABILITY: Product is stable under normal conditions of storage and handling. Store in a cool, dry place to maintain product performance.

MATERIALS TO AVOID: strong oxidizers HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition products may include carbon dioxide and carbon monoxide.

HAZARDOUS POLYMERIZATION: will not occur

11.0 Toxicological Information

The dry powder may cause foreign body irritation in some individuals. Prolonged contact with the dry powder may cause drying or chapping of the skin. Excessive inhalation of dust may be annoying and can mechanically impede respiration.

12.0 Ecological information

The following data have been classified using the criteria adopted by the European Economic Community (EEC) for aquatic organism toxicity. A legend summarizing the classification scheme appearance below.

48hr.LC50;Daphnia magna: 980mg/L;practically nontoxic 96hr LC50;mysid shrimp, using 2lb./bbl.xanthan gum in a standard drilling mud: >500,000ppm suspended particulate phase.

Legend for Aquatic Organism Toxicity(Journal of the European Communities, Annex VII A, Section 5.2.1)

Values Classifications LC50 or EC50 >1.0mg/L Toxic LC50 or EC50 >10mg/L Harmful

LC50 or EC50 >100mg/L Practically Nontoxic BOD5 is approximately 200mg O2/gram.COD is approximately 1600mg O2/g.

13.0 Disposal Considerations

Dispose of in accordance with local, state and federal regulations. Dry or wet solid material can be landfilled in accordance with local, state and federal regulations. Liquids may be sewered in accordance with local, state and federal regulations if care is taken to avoid pluggage or blockage of sewer systems recognizing that these materials are intended to increase viscosity and form gels.As a carbohydrate,this material should be readily biodegradable.

14.0 Transport Information

This product is not hazardous under the applicable DOT, ICAO/IATA, or IMDG regulations

Pls apply the appropriate regulations to properly classify your shipment for transportation.

15.0 Regulatory Information

The ingredients of this product are on the TSCA Chemical Substances Inventory, the Canadian Domestic Substances List, and are included in the European Inventory of Existing Commercial Chemical Substances(EINECS)

SARA HAZARD NOTIFICATION Hazard Categories Under Title III Rules (40 CFR 370):not applicable Section 302 Extremely Hazardous Substances: not applicable Section 313 Toxic Chemical(s): not applicable

CERCLA REPORTABLE QUANTITY: not applicable

16.0 Other Information

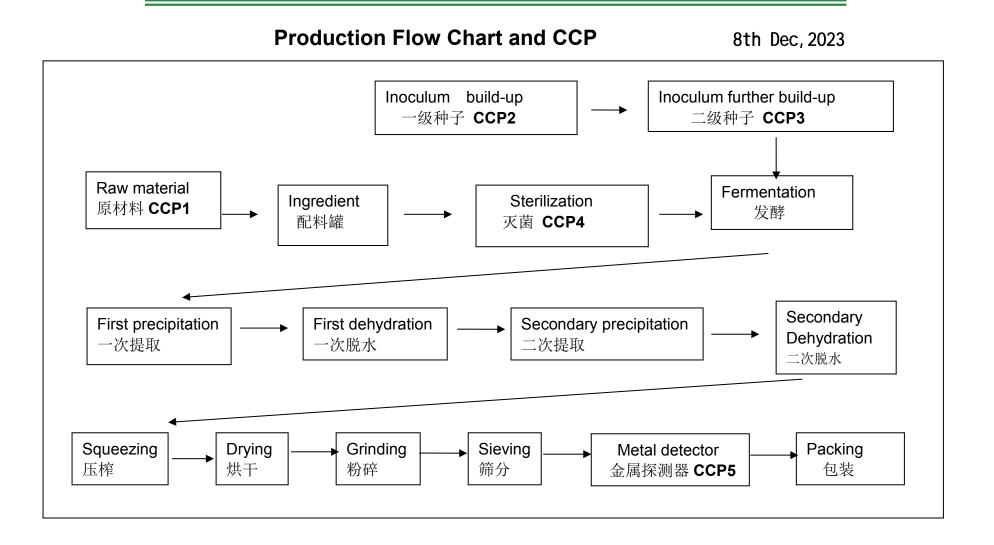
Health Fire Reactivity NFPA Rating: 0 1 0 HMIS Rating: 0 1 0

Statement

We hereby state the country of origin as China.

2018-07-04

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Material Safety Data Sheet

SECTION I - PRODUCT IDENTIFICATION

Product Name:	Xanthan!Gum
End Use:	Food Additive
Description:	White-like Powder
Chemical Name:	Xanthan Gum
Chemical Family or Formula:	Polysaccharide Gum

HMIS Rating: Health 0 Flammability 1 Re

Reactivity 0

SECTION II – INGREDIENTS Components: Xanthan Gum CAS # 11138-66-2

SECTION III - CHEMICAL AND PHYSICAL PROPERTIES

Appearance: White-like powder	Odor: Slight
Boiling Point: Not Applicable	Specific Gravity (H ₂ O=1): Not Applicable
Melting Point: Not Applicable	Vapor Pressure (mm Hg): Not Applicable
Evap. Rate (Butyl Acetate=1): Not	Vapor Density (Air=1): Not Applicable
Applicable	Vapor Density (All-1). Not Applicable
pH: @ 1.0 %: 6.0-8.0	Solubility in Water: Complete

Stable: Yes

Flash Point:	Not Applicable
Extinguishing Agents:	Dry chemical, CO ₂ , Foam
Fire and Explosion Hazards:	Carbon oxides formed when burned.
Special Fire Fighting Procedure	Wear self-contained breathing apparatus and
s:	protective equipment when entering area of fire
	involving this material.

SECTION V - HEALTH HAZARD DATA

Route(s) of Entry:

Eye	Yes
Inhalation	Yes
Skin	No
Ingestion	Yes

Nature of Principle Hazard: Not a health hazard as defined by OSHA. Effects of Overexposure: Prolonged contact with the dry powder may cause drying of the skin. Non-toxic through ingestion and dermal absorption.

Emergency First Aid Procedures:

Ingestion: May result in the material swelling in the throat. Drink large amounts of water. Never give anything by mouth to an unconscious person.

Eyes: Flush with plenty of water. If irritation develops, call a physician.

Skin Contact: No harmful effects expected. Wash with water. Get medical attention if irritation develops.

Inhalation: If large quantities have been inhaled, keep airway open as necessary.

If swallowed: Symptomatic treatment. No harmful effects are expected

SECTION VI - PERSONAL PROTECTION INFORMATION

Respiratory Protection: In heavy product dust exposure a protecting mask is recommended.

Ventilation Type Required: Local exhaust

Other: Treat as a nuisance dust.

Protective Gloves: Not normally required

Eye Protection: Not normally required

Other Protective Clothing or Equipment: None 19-20 Sandleheath Industrial Estate, Fordingbridge, Hampshire, SP6 1PA, UK Tel: 01425 655555 Email: technical@madarcorporation.co.uk Page 13 of 19

SECTION VII - PRECAUTIONS FOR SAFE HANDLING OF SPILLS OR LEAKS

Steps to Be Taken in Case Material is Released or Spilled:

Sweep up spilled material and repackage. Avoid creating dust clouds; hose spill area thoroughly with water. Use caution, as the product is extremely slippery when wet.

Waste Disposal Method (Insure Conformity with all Applicable Disposal Regulations):

Incinerate or place in permitted waste management facility.

Precautions to Be Taken in Handling and Storing:

Store in cool, dry place. Keep dry. May contribute to slickness of surface when wet.

Other Procedures: None

SECTION VIII - REACTIVITY DATA

Stability:	Stable
Incompatibility:	Strong oxidants
Hazardous polymerization:	Will not occur
Hazardous decomposition Prod	Carbon dioxide and carbon monoxide formed when
ucts:	burned.
Conditions to avoid:	Not Applicable

SECTION IX - TRANSPORTATION INFORMATION

Shipping Name:	FUFENG Xanthan Gum
Hazard Class:	Not Regulated
ID Number:	None
Label(s) Required:	None
Shipping Description:	Not Regulated
Packaging References:	Not Regulated
Special Transportation Notes:	None

DISCLAIMER:

The! information! (including! data! and! statements)! in! this! Material! Safety! Data! Sheet! (MSDS)! is! based! on! experimental! data and!believed!to!be!true! and!accurate!as!of!the!date!issued.!But!all!recommendations!or!suggestions! are!made!without!guarantee,!since!the!conditions!and!methods!of!using!the! product!and!information!referred!to!herein!beyond!the!control!of!us.!It!is!our! policy,!to!assist!our!customers!and!to!help!solve!particular!problems,!which! 19-20 Sandleheath Industrial Estate, Fordingbridge, Hampshire, SP6 1PA, UK may!arise!in!applyIng!Out2pf695095Email: technical@madarcorporation.co.uk Page 14 of 19

SPECIFICATION

Xanthan Gum 80 Mesh (T)

DESCRIPTION	
Appearance	White-like or light-yellow powder
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	Store in ventilated, clean, dry and cool places, and cannot be stored!
Storage	with poisonous, harmful and corrosive substances
Shalf life	24 Months China
Shelf life	China Xanthan gum is a kind of hydrophilic biological polysaccharide which is!
Country of origin! Description	made from corn starch after the process of fermentation with! Xanthomonas Campestais, extraction, drying and grinding. Benefited by! its superior thickening and stabilising effect, shear resistance and! unique pseudo-plasticity rheological property Xanthan gum is widely used in food, pharmaceutical, fine chemical, oil!
Applications!	drilling and other fields
Particla siza (mash)	Not less than 99% through 60 mesh
Particle size (mesh)	Not less than 95% through 80 mesh China
Country of origin	China
SPECIFICATIONS	1000 1700 cm 10/ KOI
Viscosity V1:V2	1200 - 1700 cp, 1% KCL 1.02 - 1.45
Loss on drying	Max 15 %
pH (1% solution)	6 - 8
Pyruvic Acid	Min 1.5 %
Ash	Max 16 %
Assay	91 - 108 %
Nitrogen	Max 1.5 %
Ethanol	Max 500 ppm, mg/kg
Lead	Max 2 ppm, mg/kg
Whiteness	Min 50
Solubility	Soluble in water, insoluble in ethanol
Shearing Ratio	Min 6.5
MICROBIOLOGICAL	
Total plate count	Max 2000 cfu/g
Total yeasts and moulds	Max 100 cfu/g
Salmonella	Negative in 10g
Escherichia Coli Coliforms	Negative in 5g Max 3 MPN/g
Xanthomonas Campestris	Viable cells absent in 1g

STATEMENT

NON IRRADIATION / NON IONIZED/RADIOLOGICAL

According to the supplier, this product is non-irradiated, non-ionized and doesn't contain any radiological contamination.

GMO STATEMENT

According to the supplier, this product does not contain any genetically modified ingredients or processing aids.

BSE/TSE Statement

According to the supplier, this product does not contain BSE or TSE.

DIETARY	Suitable
Vegetarian	YES
Vegans	YES
Orthodox Jewish Diet (Kosher Certified)	YES
Muslim Diet (Halal Certified)	YES

Vegan Statement

We hereby confirm that our Xanthan gum 200mesh is suitable for vegan and vegetarian completely.

19-20 Sandleheath Industrial Estate, Fordingbridge, Hampshire, SP6 1PA, UK Tel: 01425 655555 Email: technical@madarcorporation.co.uk Page 17 of 19 BiOrigins, 19-20 Sandleheath Industrial Estate, Fordingbridge, Hampshire, SP6 1PA, UK Tel: 01425 655555 Email: technical@madarcorporation.co.uk Page 21 of 23



Sterilization statement

Product Name: XANTHAN GUM

Our supplier confirms that they use high pressure and high temp. for sterilization during xanthan gum production process.

Manufacturer's Certificate

We herewith confirm that the Xanthan Gum which we supply to you, and that the raw materials and all other ingredients used for the production of Xanthan Gum are not produced by means of genetic engineering and no genetically modified materials are used in process. Following procedure are on site to guarantee our products GMO-Free and conform with EU 1829/2003 and 1830/2003.

1. Raw material control:

Xanthan Gum raw materials that are set forth below are only used to produce Xanthan Gum in our company. Raw material suppliers are pre-qualified to be capable of supplying GMO-Free, safe and qualified raw materials. We solely use their GMO-Free raw materials from named suppliers as following:

Raw material: Maize Starch, Soybean, Alcohol, Sodium Chloride, Calcium Carbonate, Sodium Hydroxide

2. PCR tests & batch traceability system:

PCR tests is applied for release of raw material to guarantee GMO-Free. Furthermore, we established completed batch trace final product to raw material batch as support to identify every batch of our products are GMO-Free.

3. Good manufacturing Practice monitor our processing to assure no Genetic Modified contamination.

In brief, no raw material/adjuvant (e.g. maize, soybean products) that are genetic modified are existed/included in the manufacturing of our Xanthan Gum.

Furthermore, no contamination of genetic materials or methods in the processing, storage and transportation of our Xanthan Gum.