NOSB NATIONAL LIST
FILE CHECKLIST

PROCESSING

MATERIAL NAME: Magnesium sulfate

CATEGORY: Non-agricultural

Complete?: 3/17

☑️ NOSB Database Form
☑️ References
☑️ MSDS (or equivalent)
☐ FASP (FDA)

☑️ Date file mailed out: 2/14/95

☑️ TAP Reviews from: Bob Durst
               Steve Taylor
               Richard Theuer

☐ Supplemental Information:

MISSING INFORMATION: ____________________________
NOSB/NATIONAL LIST
COMMENT FORM/BALLOT

Use this page to write down comments and questions regarding the data presented in the file of this National List material. Also record your planned opinion/vote to save time at the meeting on the National List.

Name of Material: Magnesium Sulfate

Type of Use: ___ Crops; ___ Livestock; ✓ Processing

TAP Review by:
1. Steve Taylor
2. Richard Theuer
3. Bob Dust

Comments/Questions:

My Opinion/Vote is:

Signature __________________________ Date _____________
USDA/TAP REVIEWER
COMMENT FORM

Use this page or an equivalent to write down comments and summarize your evaluation regarding the data presented in the file of this potential National List material. Attach additional sheets if you wish.

This file is due back to us within 30 days of: Feb '8

Name of Material: Magnesium sulfate

Reviewer Name: Steve Taylor

Is this substance Natural or Synthetic? Explain (if appropriate)

Natural

Please comment on the accuracy of the information in the file:

This material should be added to the National List as:

___ Synthetic Allowed ___ Prohibited Natural

or, ___ This material does not belong on the National List because:

Are there any restrictions or limitations that should be placed on this material by use or application on the National List?

Any additional comments or references?

Signature Steve Taylor Date 3-10-95
Original mailing date: 14 Feb 1995.

Name of Material: Magnesium Sulfate (epsom salt) 21CFR184.1443
Reviewer Name: Richard C. Theuer

NATURAL
Magnesium sulfate occurs naturally as the mineral epsomite. Some magnesium sulfate is recovered from waste brines from the potash industry, seawater bitterns, and natural brines. Magnesium sulfate recovered from seawater bitterns may be called "nigari."

SYNTHETIC
Magnesium sulfate is produced synthetically by dissolving magnesium oxide, hydroxide or carbonate in sulfuric acid (synthetic) solution and evaporating it to crystallization.

COMMENTS RE SECTION 2119(m) CRITERIA:
1. Magnesium sulfate apparently is essential for tofu production.
2. Nigari has been used in Japan historically for tofu production. It is made from the brine left after salt is crystallized from seawater, so it is compatible with a sustainable system.
3. Magnesium sulfate is Generally Recognized As Safe.
4. Natural magnesium sulfate is available so the synthetic material should not be on the National List of Allowed Synthetics.

The following natural substance should be allowed as an ingredient in organic foods. It should not be added to the National List of natural substances prohibited for use as ingredients or processing aids in Organic Food:

magnesium sulfate
(produced by mining epsomite or from brine).

February 22, 1995
Material: Magnesium sulfate

Reviewer: Bob Durst

Is this substance Natural or Synthetic? Explain (if appropriate)

This is a synthetic material. It is necessary as a dietary supplement (nutrient).

Please comment on the accuracy of the information in the file:

The file is accurate.

This material should be added to the National List as:

___ X Synthetic Allowed,

___ Prohibited Natural, or

___ This material does not belong on the National List because:

Are there any restriction or limitations that should be placed on this material by use or application on the National List?

Should only be used as a nutrient (not as a processing aid), and must be listed on the ingredient label.

Any additional comments or references?

As with all synthetic inorganic salts, source must be food grade. In addition each lot should be analyzed for toxic element concentrations (mercury, lead, cadmium, arsenic, thallium and antimony) and a near zero tolerance adopted.

Signature ______________________ Date 3/11/95
NOSB Materials Database

Identification

Common Name  Magnesium sulfate
Other Names  Epsom salt
Code #: CAS
N. L. Category  Non-agricultural

Chemical Name

Code #: Other
MSDS  yes  no

Chemistry

Composition  MgSO₄ • 7H₂O
Properties  Small colorless crystals, usually needle-like, with a cooling, saline, bitter taste. Freely soluble in water, slowly soluble in glycerin, and sparingly soluble in alcohol. Solutions are neutral.

How Made  Exists naturally as mineral: epsomite (MgSO₄ • 7H₂O) or kieserite (MgSO₄ • H₂O). Some magnesium sulfate is recovered from waste brines from the potash industry, seawater bitterns, and natural brines. [Magnesium sulfate recovered from seawater bitterns may be called “migal”]

Magnesium sulfate is also produced synthetically by dissolving magnesium oxide, hydroxide or carbonate in sulfuric acid (synthetic) solution and evaporating it to crystallization.

Use/Action

Type of Use
Specific Use(s)  Nutrient; dietary supplement. Essential for tofu production.
Action
Combinations

Status

OFPA
N. L. Restriction
EPA, FDA, etc  FDA-GRAS
Directions
Safety Guidelines
State Differences
Historical status
International status
OFPA Criteria

2119(m)1: chemical interactions  Not Applicable
2119(m)2: toxicity & persistence  Not Applicable
2119(m)3: manufacture & disposal consequences
   Low environmental impact from the brine produced material.

2119(m)4: effect on human health
   No harmful effects at levels used in foods.

2119(m)5: agroecosystem biology  Not Applicable
2119(m)6: alternatives to substance
   None for tofu production.

2119(m)7: Is it compatible?

References

   Dominguez,-G.M.
TI: Simultaneous curdling of soy/cow’s milk blends with rennet and calcium or magnesium sulfate, utilizing soymilk
   prepared from soybeans or full-fat soy flour.
CN: DNAL 389.8-F7322

AU: Holgate,-A.M.; Read,-N.W.
TI: Relationship between small bowel transit time and absorption of a solid meal: Influence of metoclopramide,
   magnesium sulfate, and lactulose.
CN: 448.8-AM324
AB: Extract: The times taken for a radiolabeled solid meal to empty from the stomach and terminal ileum and the
   absorption of the components of that meal were measured in 14 patients with terminal ileostomies under control
   conditions and after administration of either lactulose (40 g) or metoclopramide (20 mg tds), or magnesium sulfate (0.1
   g/kg body weight). All 3 agents significantly reduced the time taken for the meal to empty from the ileum. This was
   associated with significant reductions in the absorption of fat, carbohydrate, protein, water, and electrolytes in the case
   of lactulose and magnesium sulfate. It was therefore concluded that, although agents that accelerate postprandial
   transit of a meal may diminish absorption of the components of that meal in the small bowel, the extent to which this
   occurs cannot be predicted by a knowledge of transit kinetics alone and depends on the means by which transit is
   altered.
MATERIAL SAFETY DATA SHEET
MAGNESIUM SULFATE

SECTION I - Product Identification

PRODUCT NAME: MAGNESIUM SULFATE
FORMULA: MGSO4.7H2O
FORMULA WT: 246.5
CAS NO.: COMMON SYNONYMS: EPSOM SALT

Precautionary Labeling

N/A

SECTION II - Hazardous Components

N/A

SECTION III - Physical Data

BOILING POINT: N/A VAPOR PRESSURE @ 20C (MM HG): N/A
MELTING POINT: 75C VAPOR DENSITY (AIR=1): N/A
SPECIFIC GRAVITY: 1.67 EVAPORATION RATE: N/A
(H2O=1) (BUTYL ACETATE=1)
SOLUBILITY(H2O): SOLUBLE PERCENT VOLATILES BY VOLUME: N/A
APPEARANCE & ODOR: EFFORESENT CRYSTALS

SECTION IV - Fire and Explosion Hazard Data

FLASH POINT: NONFLAMMABLE
FLAMMABLE LIMITS: UPPER - N/A % LOWER - N/A %
FIRE EXTINGUISHING MEDIA
ANY SUITABLE FOR SURROUNDING MATERIALS
SPECIAL FIRE-FIGHTING PROCEDURES
WEAR SELF-CONTAINED BREATHING APPARATUS
UNUSUAL FIRE AND EXPLOSION HAZARDS
MAY EMIT TOXIC FUMES ON THERMAL DECOMPOSITION

SECTION V - Health Hazard Data

THRESHOLD LIMIT VALUE (TLV/TWA): NONE ESTABLISHED
TOXICITY: ORL-RBT LDLo: 3 G/KG
EFFECTS OF OVEREXPOSURE
CAN CAUSE EYE AND SKIN IRRITATION. DUST INHALATION MAY IRRITATE
UPPER RESPIRATORY PASSAGES. MAGNESIUM INTOXICATION.
EMERGENCY AND FIRST AID PROCEDURES
SKIN: WASH WITH SOAP/WATER, GET MEDICAL ASSISTANCE.
EYES: WASH WITH WATER, GET MEDICAL ASSISTANCE.
INHALATION: REMOVE TO FRESH AIR, GET MEDICAL ASSISTANCE.
INGESTION: GET MEDICAL ATTENTION.
GET MEDICAL ASSISTANCE FOR ALL CASES OF OVEREXPOSURE

SECTION VI - Reactivity Data
STABILITY: STABLE
CONDITIONS TO AVOID: N/A
INCOMPATIBILITIES: N/A
DECOMPOSITION PRODUCTS: SOX

SECTION VII - Spill and Disposal Procedures

STEPS TO BE TAKEN IN THE EVENT OF A SPILL OR DISCHARGE
SWEEP UP AND CONTAINERIZE

SECTION VIII - Protective Equipment

PROVIDE ADEQUATE GENERAL VENTILATION.
PROTECT EYES AND SKIN WITH SAFETY GOGGLES AND GLOVES.

SECTION IX - Storage and Handling Precautions

STORE IN COOL, DRY, AREA.

SECTION X - Transportation Data and Additional Information

MELTING POINT: BEGINS TO LOSE WATER AT 75C

(TM) and (R): Registered Trademarks
N/A = Not Applicable OR Not Available
The information published in this Material Safety Data Sheet has been compiled from our experience and data presented in various technical publications. It is the user's responsibility to determine the suitability of this information for adoption of necessary safety precautions. We reserve the right to revise Material Safety Data Sheets periodically as new information becomes available.
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MAGNESIUM SULFATE

S# : 010034998  HUMAN CONSUMPTION : 0.7372  MG/KG BW/DAY/PERSON
ASP: 2340  MARKET DISAPPEARANCE : 870000.000  LBS/yr
PE : ASP  MARKET SURVEY : 87
S#: 0117  JECFA:
NAME:  JECFA ADI:  MG/KG BW/DAY/PERSON
LAST UPDATE:  930915

V: 120.37  DENSITY:  LOGP:

STRUCTURE CATEGORIES: A7

COMPONENTS:

NONYMS:
EPSOM SALT
MAGNESIUM SULFATE HEPTAHYDRATE
SULFURIC ACID MAGNESIUM SALT (1:1), HEPTAHYDRATE
MAGNESIUM SULFATE (1:1), HEPTAHYDRATE
MAGNESIUM SULFATE HEPTAHYDRATE (MGSO4.7H2O)
SULFATE, MAGNESIUM

CHEMICAL FUNCTION: G

TECHNICAL EFFECT:
MALTING OR FERMENTING AID
NUTRIENT SUPPLEMENT
FORMULATION AID
PROCESSING AID
PH CONTROL AGENT
ANTICAKING AGENT OR FREE-FLOW AGENT
EMULSIFIER OR EMULSIFIER SALT
LUBRICANT OR RELEASE AGENT
STABILIZER OR THICKENER

REG NUMBERS: 182.5443  184.1443

INIMUM TESTING LEVEL: 3

COMMENTS: STUDY 1 FROM SCOGS-60

3X 9: ORAL TOXICITY STUDIES (OTHER THAN ACUTE)
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3: GENETIC TOXICITY STUDIES

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