NOSB NATIONAL LIST
FILE CHECKLIST

CROPS

MATERIAL NAME: **#11 Magnesium Sulfate**

✓ **NOSB Database Form**

✓ **References**

✓ **MSDS (or equivalent)**

✓ **TAP Reviews from: John Clark, Bart Hall**

NOSB/NATIONAL LIST
COMMENT FORM
CROPS

Material Name: #11 Magnesium Sulfate

Please use this page to write down comments, questions, and your anticipated vote(s).

COMMENTS/QUESTIONS:

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1. In my opinion, this material is:
_____ Synthetic _____ Non-synthetic.

2. This material should be placed on the proposed National List as:
_____Prohibited Natural _____Allowed Synthetic.

TAP REVIEWER COMMENT FORM for USDA/NOSB

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. Complete both sides of page. Attach additional sheets if you wish.

This file is due back to us by: Sept 15, 1995

Name of Material: Magnesium Sulfate

Reviewer Name: ~~Synthetic~~ John Bell Clark, Ph.D.

Is this substance Synthetic or non-synthetic? Explain (if appropriate)

Synthetic

If synthetic, how is the material made? (please answer here if our database form is blank)

This material should be added to the National List as:

____ Synthetic Allowed ____ Prohibited Natural

or, _____ Non-synthetic (This material does not belong on National List)

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

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

Any additional comments? (attachments welcomed)

Do you have a commercial interest in this material? ____ Yes; X No

Signature John Bell Clark **Date** 9-13-95

Please address the 7 criteria in the Organic Foods Production Act:
(comment in those areas you feel are applicable)

(1) the potential of such substances for detrimental chemical interactions with other materials used in organic farming systems;

likely to cause denitrification of soils.

(2) the toxicity and mode of action of the substance and of its breakdown products or any contaminants, and their persistence and areas of concentration in the environment;

(3) the probability of environmental contamination during manufacture, use, misuse or disposal of such substance;

(4) the effect of the substance on human health;

? ?

(5) the effects of the substance on biological and chemical interactions in the agroecosystem, including the physiological effects of the substance on soil organisms (including the salt index and solubility of the soil), crops and livestock;

? ?

(6) the alternatives to using the substance in terms of practices or other available materials; and

mined mag. sulfates, or Sulpo mag, kieserite or epsomite.

(7) its compatibility with a system of sustainable agriculture.

magnesium deficiency rarely occurs in biologically active soils.

NOSB Materials Database

Identification

Common Name **Magnesium sulfate** **Chemical Name**

Other Names Epsom salt

Code #: CAS 7487-88-9 **Code #: Other**

N. L. Category Synthetic Allowed

Chemistry

Composition $MgSO_4 \cdot 7H_2O$ **Family**

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 ($MgSO_4 \cdot 7H_2O$) or kieserite ($MgSO_4 \cdot H_2O$). Some magnesium sulfate is recovered from waste brines from the potash industry, seawater bitters, and natural brines. These natural sources are not currently commercially available for agriculture. — Don't agree with this statement

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 Crops

Use(s) Magnesium fertilizer in areas with soil deficiency. Foliar feed.

Action

Combinations

I challenge the source of this misinformation probably provided by a vendor of the material

Status

OFPA

N. L. Restriction

EPA, FDA, etc

Registration

Directions

Safety Guidelines

State Differences

Historical status allowed as its natural form by most certification groups since it was unknown that it is not available.

International status Allowed by IFOAM and EU as Epsom Salts.

It's also contrary to OFPA - the "Consumer" availability of an alternative is irrelevant to the N.L. process,

TAP REVIEWER COMMENT FORM for USDA/NOSB

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This file is due back to us by: August 29, 1995

Name of Material: Magnesium Sulfate

Reviewer Name: BART HALL

Is this substance Synthetic or non-synthetic? Explain (if appropriate)

SEE DATA BASE

If synthetic, how is the material made? (please answer here if our database form is blank)

This material should be added to the National List as:

✓ **Synthetic Allowed** ____ **Prohibited Natural**

or, ____ **Non-synthetic (This material does not belong on National List)**

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

FOLIAR FEED ONLY

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

FILE APPEARS ACCURATE

Any additional comments? (attachments welcomed)

DOLOMITE PROVIDES Mg + Ca

SULPOMAG PROVIDES Mg + K

IF THERE ARE HIGH-Ca, HIGH-K SOILS OUT THERE, I'VE NEVER HEARD OF THEM.

Do you have a commercial interest in this material? ____ **Yes;** BMH **No**

Signature Burton M. Hall **Date** 95.08.16

Please address the *7* criteria in the Organic Foods Production Act:
(comment in those areas you feel are applicable)

(1) the potential of such substances for detrimental chemical interactions with other materials used in organic farming systems;

MINIMAL

(2) the toxicity and mode of action of the substance and of its breakdown products or any contaminants, and their persistence and areas of concentration in the environment; MINIMAL AT NORMAL DOSES, PARTICULARY IF FOLIAR-APPLIED

(3) the probability of environmental contamination during manufacture, use, misuse or disposal of such substance;

SLIGHT H_2SO_4 RISK

(4) the effect of the substance on human health;

CAN BE CONSUMED FOR MEDICAL PURPOSES

(5) the effects of the substance on biological and chemical interactions in the agroecosystem, including the physiological effects of the substance on soil organisms (including the salt index and solubility of the soil), crops and livestock;

LARGELY BENEFICIAL IN SMALL DOSES, RELATIVELY LOW SALINITY INDEX

(6) the alternatives to using the substance in terms of practices or other available materials; and NO ALTERNATIVE FOR FOLIAR APPLICATION.
DOLOMITE (11% Mg) OR SULPOMAG (11% Mg) FOR SOIL APPLICATION

(7) its compatibility with a system of sustainable agriculture.

AS A FOLIAR, YES. FOR SOIL APPLICATION, IT DOES NO HARM, BUT IS QUITE UNNECESSARY.

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Other Names Epsom salt

Code #: CAS 7487-88-9 **Code #: Other**

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Internationl status Allowed by IFOAM and EU as Epsom Salts.

OFPA Criteria

2119(m)1:chem. inter. magnesium and sulfur both interact a lot in the soil environment. They readily dissociate and combine with other ions based on the overall soil chemistry.

2119(m)2: toxicity

2119(m)3:manufacture

2119(m)4:humans No harmful effects noted.

2119(m)5: biology Magnesium is a necessary component of the chlorophyll molecule and can be limiting in some soils. Sulfur is also an essential element with multiple roles in plants and microorganisms.

2119(m)6:alternatives dolomitic lime in areas which benefit from lime, compost.

2119(m)7:compatible

References

Kirk-Othmer Encyclopedia of Chemical Technology, 3rd. edition, John Wiley & Sons 1982. Volume 14, pp. 636-637.

MATERIAL SAFETY DATA SHEET
MAGNESIUM SULFATE, ANHYDROUS

SECTION I - Product Identification

PRODUCT NAME: MAGNESIUM SULFATE, ANHYDROUS
FORMULA: MGSO4
FORMULA WT: 120.39
CAS NO.:
COMMON SYNONYMS: N/A

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: 1124C VAPOR DENSITY (AIR=1): N/A
SPECIFIC GRAVITY: 2.65 EVAPORATION RATE: N/A
(H2O=1) (BUTYL ACETATE=1)
SOLUBILITY(H2O): SOLUBLE PERCENT VOLATILES BY VOLUME: N/A
APPEARANCE & ODOR: WHITE ODORLESS POWDER

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: 3000 MG/KG
IPR-DOG LDLO: 1200 MG/KG
EFFECTS OF OVEREXPOSURE
CONTACT WITH EYES CAUSES IRRITATION. PROLONGED SKIN CONTACT MAY CAUSE SLIGHT IRRITATION. DUST INHALATION MAY IRRITATE UPPER RESPIRATORY PASSAGES.
EMERGENCY AND FIRST AID PROCEDURES
SKIN: FLUSH THOROUGHLY WITH WATER; WASH WITH SOAP/WATER
EYES: FLUSH WITH WATER 15 MINUTES; GET MEDICAL ASSISTANCE
INHALATION: REMOVE TO FRESH AIR; GET MEDICAL ASSISTANCE
INGESTION: GET MEDICAL ASSISTANCE
GET MEDICAL ASSISTANCE FOR ALL CASES OF OVEREXPOSURE

SECTION VI - Reactivity Data

STABILITY: STABLE
CONDITIONS TO AVOID:
INCOMPATIBILES: N/A
DECOMPOSITION PRODUCTS: SULFUR OXIDES FROM THERMAL DECOMPOSITION

SECTION VII - Spill and Disposal Procedures

STEPS TO BE TAKEN IN THE EVENT OF A SPILL OR DISCHARGE
SWEEP UP & CONTAINERIZE FOR PROPER DISPOSAL

SECTION VIII - Protective Equipment

PROVIDE ADEQUATE GENERAL MECHANICAL & LOCAL EXHAUST VENTILATION
PROTECT EYES AND SKIN WITH SAFETY GOGGLES AND GLOVES
WEAR DUST RESPIRATOR IF CONCENTRATION IS HEAVY
DO NOT BREATHE DUST
DO NOT GET INTO EYES

SECTION IX - Storage and Handling Precautions

STORE IN A COOL, DRY AREA
KEEP CONTAINER TIGHTLY CLOSED
WASH THOROUGHLY AFTER HANDLING

SECTION X - Transportation Data and Additional Information

MELTING POINT: 1124C (DECOMPOSES)

(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.