

now

allowed

NOSB NATIONAL LIST FILE CHECKLIST

PROCESSING

MATERIAL NAME: Agar-agar

CATEGORY: Non-agricultural

Complete?: 3/16

NOSB Database Form

References

MSDS (or equivalent)

FASP (FDA)

Date file mailed out: 1/8/95

TAP Reviews from: Steve Taylor

Rich 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 Aggr Aggr

Type of Use: Crops; Livestock; Processing

TAP Review by:

1. S. Taylor
2. R. Thever
3. _____

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: JAN 7

Name of Material: Agar-Agar

Reviewer Name: Steve Taylor

Is this substance Natural or Synthetic? Explain (if appropriate)
Natural - Derived from seaweed

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?

Agar is extracted from seaweed. The method of extraction and materials used may be of concern, but
Any additional comments or references? likely variable.

Signature Steve Taylor

Date 3-5-95

USDA/TAP REVIEWER
COMMENT FORM

Original mailing date: 7 Jan 1995.

Material: Agar (Agar-agar)
Reviewer: Richard C. Theuer

NATURAL Agar, also called agar-agar, is a natural gum extracted from certain marine algae belonging to the class Rhodophyceae (red seaweed). The seaweed is collected (high labor input), then dried and bleached in the sun. The agar is extracted with hot water, followed by freezing for purification.

COMMENTS RE SECTION 2119(m) CRITERIA:

1. Agar comes from seaweed, a renewable resource, and is processed simply, so it is compatible with sustainable agriculture. Except for certain applications (icings, culture media) which justify the high cost of agar, it has been replaced by other more economical gums.
 2. The amount of agar used in foods is "self-limiting" and restricted by regulation [21CFR184.1115(c)]. It is an expensive thickener, so the textural requirements of the food and economics limit use to the practical minimum.
 3. Agar has been used in foods for about 300 years. It is GRAS.
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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:

agar ("agar-agar").

12 Mar 1995

Identification

Common Name	Agar-agar	Chemical Name	
Other Names	Agar	Code #: Other	
Code #: CAS		MSDS	<input checked="" type="radio"/> yes <input type="radio"/> no
N. L. Category	Non-agricultural		

Chemistry

Family	
Composition	A dried hydrophilic, colloidal polygalactoside.
Properties	Commercially available in bundles consisting of thin, membranous agglutinated strips, or in cut, flaked, granulated, or powdered forms. White to pale yellow in color, slight characteristic odor, and mucilaginous taste. Insoluble in cold water but soluble in boiling water.
How Made	Extracted from <i>Gelidium cartilagineum</i> (L.) Gaillon (Fam. Gelidiaceae), <i>Gracilaria confervoides</i> (L.) Greville (Fam. Sphaerococcaceae), and related red algae (Class Rhodophyceae). Seaweed is collected, dried and bleached in the sun. Extraction is done with hot water, followed by freezing for purification.

Use/Action

Type of Use	Processing
Specific Use(s)	Stabilizer, thickener, emulsifier. Used as a media for culturing micro-organisms.
Action	
Combinations	

Status

OFPA	
N. L. Restriction	
EPA, FDA, etc	FDA-GRAS
Directions	
Safety Guidelines	
State Differences	
Historical status	Used in foods for about 300 years.
International status	Allowed by IFOAM, European Union and Codex.

NOSB Materials Database

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OFPA Criteria

2119(m)1: chemical interactions Not Applicable

2119(m)2: toxicity & persistence Not Applicable

2119(m)3: manufacture & disposal consequences
none likely because of natural production method.

2119(m)4: effect on human health
none

2119(m)5: agroecosystem biology Not Applicable

2119(m)6: alternatives to substance

Other seaweed derivatives including alginates, carrageenan; gelatin; certain modified starches; modified celluloses.
More expensive than many other gums which tends to limit its use.

2119(m)7: Is it compatible?

References

AU: Chen,-G-C

TI: Agar-agar manufacturing [from Gelidium and Gracilaria seaweeds]

SO: JCRR-Fisheries-Ser-Comm-Rural-Reconstr, Sept 1977, 25B: 56-67.

CN: DNAL 414.9-J66

AU: Rao,-A-V; Bekheet,-I-A

TI: Preparation of agar-agar from the red seaweed Pterocladia capillacea off the coast of Alexandria, Egypt

SO: Applied-Environ-Microbiol, Oct 1976, 32 (4): 479-482.

CN: DNAL 448.3-AP5

AU: Toda,-J.; Wada,-T.; Konno,-A.

TI: Sensory evaluation of textural properties of gelatin, agar-agar and egg-white gels.

SO: J-Agric-Chem-Soc-Jap. Tokyo Nov 1978. v. 52 (11) p. 539-544. ill.

CN: DNAL 385-AG8

AU: Goto,-F.

TI: The comparison of block-agar gel and powder-agar gel. 2. Study on some characteristic tastes of Japanese cake prepared by mixture of bean-jam and agar-agar by sensory test and objective methods.

SO: Kaseigaku-Zasshi-J-Home-Econ-Jap. Tokyo, Japan Home Economics Association. Feb 1978. v. 29 (2) p. 67-72. ill.

CN: DNAL TX1.K3

MSDS for AGAR AGAR

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SECTION I - Product Identification

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PRODUCT NAME: AGAR AGAR
FORMULA: FORMULA WT: .00
CAS NO.: 09002-18-0 NIOSH/RTECS NO.: AW7950000
COMMON SYNONYMS: POLYSACCHARIDE COMPLEX
PRODUCT CODES: A434

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Precautionary Labeling

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BAKER SAF-T-DATA(TM) SYSTEM
HEALTH - 0
FLAMMABILITY - 1
REACTIVITY - 0
CONTACT - 0

LABORATORY PROTECTIVE EQUIPMENT: SAFETY GLASSES; LAB COAT
PRECAUTIONARY LABEL STATEMENTS
DURING USE AVOID CONTACT WITH EYES, SKIN, CLOTHING. WASH THOROUGHLY AFTER
HANDLING. WHEN NOT IN USE KEEP IN TIGHTLY CLOSED CONTAINER.

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SECTION II - Hazardous Components

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COMPONENT	%	CAS NO.
NOT APPLICABLE		

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SECTION III - Physical Data

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BOILING POINT: N/A VAPOR PRESSURE(MM HG): N/A
MELTING POINT: N/A VAPOR DENSITY(AIR=1): N/A
SPECIFIC GRAVITY: N/A EVAPORATION RATE: N/A
(H2O=1) (BUTYL ACETATE=1)
SOLUBILITY(H2O): NEGLIGIBLE (LESS THAN 0.1 %) % VOLATILES BY VOLUME: 0
APPEARANCE & ODOR: WHITE CRYSTALLINE POWDER WITH NO ODOR.

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SECTION IV - Fire and Explosion Hazard Data

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FLASH POINT: N/A
FIRE EXTINGUISHING MEDIA
USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING FIRE.
SPECIAL FIRE-FIGHTING PROCEDURES
FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED
BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN POSITIVE PRESSURE MODE
TOXIC GASES PRODUCED: CARBON MONOXIDE, CARBON DIOXIDE

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SECTION V - Health Hazard Data

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TOXICITY: LD50 (ORAL-RAT)(G/KG) - 11
LD50 (ORAL-MOUSE)(G/KG) - 16
EFFECTS OF OVEREXPOSURE
NO EFFECTS OF OVEREXPOSURE WERE DOCUMENTED.
EMERGENCY AND FIRST AID PROCEDURES
INGESTION: IF SWALLOWED AND THE PERSON IS CONSCIOUS, IMMEDIATELY GIVE

LARGE AMOUNTS OF WATER. GET MEDICAL ATTENTION.
 INHALATION: IF A PERSON BREATHEES IN LARGE AMOUNTS, MOVE THE EXPOSED
 PERSON TO FRESH AIR.
 EYE CONTACT: IMMEDIATELY FLUSH WITH PLENTY OF WATER FOR AT LEAST 15
 MINUTES. GET MEDICAL ATTENTION.
 SKIN CONTACT: IMMEDIATELY FLUSH WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES.

SECTION VI - Reactivity Data

STABILITY: STABLE HAZARDOUS POLYMERIZATION: WILL NOT OCCUR
 CONDITIONS TO AVOID: MOISTURE
 INCOMPATIBLES: STRONG OXIDIZING AGENTS
 DECOMPOSITION PRODUCTS: CARBON MONOXIDE, CARBON DIOXIDE

SECTION VII - Spill and Disposal Procedures

STEPS TO BE TAKEN IN THE EVENT OF A SPILL OR DISCHARGE
 WEAR SUITABLE PROTECTIVE CLOTHING. CAREFULLY SWEEP UP AND REMOVE.
 DISPOSAL PROCEDURE
 DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL
 ENVIRONMENTAL REGULATIONS.

SECTION VIII - Protective Equipment

VENTILATION: USE ADEQUATE GENERAL OR LOCAL EXHAUST VENTILATION
 TO KEEP FUME OR DUST LEVELS AS LOW AS POSSIBLE.
 RESPIRATORY PROTECTION: NONE REQUIRED WHERE ADEQUATE VENTILATION
 CONDITIONS EXIST. IF AIRBORNE CONCENTRATION IS
 HIGH, USE AN APPROPRIATE RESPIRATOR OR DUST MASK.
 EYE/SKIN PROTECTION: SAFETY GLASSES WITH SIDESHIELDS, PROPER GLOVES ARE
 RECOMMENDED.

SECTION IX - Storage and Handling Precautions

SAF-T-DATA(TM) STORAGE COLOR CODE: ORANGE
 SPECIAL PRECAUTIONS
 KEEP CONTAINER TIGHTLY CLOSED. SUITABLE FOR ANY GENERAL CHEMICAL STORAGE
 AREA.

SECTION X - Transportation Data and Additional Information

DOMESTIC (D.O.T.)
 PROPER SHIPPING NAME CHEMICALS, N.O.S.
 INTERNATIONAL (I.M.O.)
 PROPER SHIPPING NAME CHEMICALS, N.O.S.

 (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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by OREGON STATE UNIVERSITY

U.S. FOOD AND DRUG ADMINISTRATION
FOOD ADDITIVE SAFETY PROFILE

AGAR
AGAR (GELLIDIUM SPP.)

AS#: 009002180 HUMAN CONSUMPTION: 0.4477 MG/KG BW/DAY/PERSON
ASP#: 1630 MARKET DISAPPEARANCE: 528333.333 LBS/YR
ASPE: ASP MARKET SURVEY: 87
AS#: 2012 JECFA: NL
ASMA#: 2012 JECFA ADI: 1973 MG/KG BW/DAY/PERSON
ASAS#: 3 JECFA ESTABLISHED: 910615
POTENTIAL BEVERAGE USE LAST UPDATE:

DENSITY: LOGP:

STRUCTURE CATEGORIES: A9

COMPONENTS:

SYNONYMS: AGAR-AGAR
JAPAN ISINGLASS
ISINGLASS, JAPANESE
AGAR-AGAR (GRACILARIA LICHENOIDES)

CHEMICAL FUNCTION: F
TECHNICAL EFFECT: STABILIZER OR THICKENER
TEXTURIZER
PROCESSING AID
SURFACE-FINISHING AGENT
EMULSIFIER OR EMULSIFIER SALT
FLAVOR ENHANCER

CFR REG NUMBERS: 150.161 150.141 184.1115

MINIMUM TESTING LEVEL: 3

COMMENTS: STUDIES 1-12 FROM SCOGS-23

TOX 4A: LOWEST EFFECT LEVEL OBSERVED IN ALL AVAILABLE RAT OR MOUSE STUDIES

STUDY: 31 COMPLETENESS: B RANKING FACTOR: 5.969E-5
SPECIES: MOUSE LEL: >7500 MG/KG BW/DAY
EFFECTS: NO EFFECTS
NOTES:

COMMENTS: HIGHEST DOSE TESTED
NTP STUDY

BOX 4C: LOWEST EFFECT LEVEL OBSERVED IN ALL AVAILABLE STUDIES

STUDY: 31 COMPLETENESS: B RANKING FACTOR: 5.969E-5
SPECIES: MOUSE LEL: >7500 MG/KG BW/DAY
EFFECTS: NO EFFECTS
NOTES:

COMMENTS: HIGHEST DOSE TESTED
NTP STUDY

BOX 6: HIGHEST OBSERVED NO-EFFECT LEVEL IN SPECIES OF BOX 4C

STUDY: 31 COMPLETENESS: B LEL: > MG/KG BW/DAY
SPECIES: MOUSE HNEL: 7500 MG/KG BW/DAY
EFFECTS: NO EFFECTS
COMMENTS: NTP STUDY

BOX 7: ACUTE TOXICITY INFORMATION

STUDY: 22 SOURCE: GRM 000003 6:643
SPECIES: RAT YEAR: 1973
LD50: 11400 MG/KG BW

COMMENTS: STUDY 20 LD50 = > 5000 MG/KG
STUDY 25 LD50 = > 2500 MG/KG

STUDY: 21 SOURCE: GRM 000003 6:641
SPECIES: MOUSE YEAR: 1973
LD50: 15700 MG/KG BW

COMMENTS: STUDY 25 LD50 = > 2500 MG/KG

STUDY: 23 SOURCE: GRM 000003 6:645
SPECIES: HAMSTER YEAR: 1973
LD50: 6100 MG/KG BW

COMMENTS:

STUDY: 24 SOURCE: GRM 000003 6:647
SPECIES: RABBIT YEAR: 1973
LD50: 5800 MG/KG BW

COMMENTS: