NON

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 Agar Agar

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 likely variable.

Any additional comments or references?

Signature Steve Taylor **Date** 3-5-95

2.

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), than 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.

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 #: CAS		Code #: Other	
N. L. Category	Non-agricultural	MSDS	◉ yes ○ no

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 Gelidium cartilagineum (L.) Gaillon (Fam. Gelidiaceae), Gracilaria confervoides (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.
Internationl status	Allowed by IFOAM, European Union and Codex.

NOSB Materials Database

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

SECTION I - Product Identification

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

Precautionary Labeling

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.

SECTION II - Hazardous Components

COMPONENT	%	CAS NO.
NOT APPLICABLE		

SECTION III - Physical Data

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.

SECTION IV - Fire and Explosion Hazard Data

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

SECTION V - Health Hazard Data

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 BREATHES 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
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)CNUM=1630

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

AGAR

;AR (GELIDIUM SPP.)

\S#:	009002180	HUMAN CONSUMPTION:	0.4477	MG/KG BW/DAY/PERSON
\SP#:	1630	MARKET DISAPPEARANCE:	528333.333	LBS/YR
'PE:	ASP	MARKET SURVEY:	87	
\S#:	2012	JECFA:	NL	
:MA#:	2012	JECFA ADI:		MG/KG BW/DAY/PERSON
?AS#:	3	JECFA ESTABLISHED:	1973	
)TENTIAL BEVERAGE USE		LAST UPDATE:	910615	
V:		DENSITY:	LOGP:	

TRUCTURE CATEGORIES: A9

)MPONENTS:

'NONYMS:
AGAR-AGAR
JAPAN ISINGLASS
ISINGLASS, JAPANESE
AGAR-AGAR (GRACILARIA LICHENOIDES)

HEMICAL FUNCTION: F

ECHNICAL EFFECT:
STABILIZER OR THICKENER
TEXTURIZER
PROCESSING AID
SURFACE-FINISHING AGENT
EMULSIFIER OR EMULSIFIER SALT
FLAVOR ENHANCER

FR REG NUMBERS: 150.161 150.141 184.1115

INIMUM TESTING LEVEL: 3

)MMENTS: STUDIES 1-12 FROM SCOGS-23

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

TUDY: 31 COMPLETENESS: B RANKING FACTOR: 5.969E-5>
PECIES: MOUSE LEL: >7500 MG/KG BW/DAY
FFECTS: NO EFFECTS
ITES:

7.

)MMENTS: HIGHEST DOSE TESTED
NTP STUDY

)X 4C: LOWEST EFFECT LEVEL OBSERVED IN ALL AVAILABLE STUDIES

TUDY: 31 COMPLETENESS: B RANKING FACTOR: 5.969E-5>
PECIES: MOUSE LEL: >7500 MG/KG BW/DAY
FFECTS: NO EFFECTS
TES:
)MMENTS: HIGHEST DOSE TESTED
NTP STUDY

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

TUDY: 31 COMPLETENESS: B LEL: > MG/KG BW/DAY
PECIES: MOUSE HNEL: 7500 MG/KG BW/DAY
FFECTS: NO EFFECTS
)MMENTS: NTP STUDY

)X 7: ACUTE TOXICITY INFORMATION

TUDY: 22 SOURCE: GRM 000003 6:643
PECIES: RAT YEAR: 1973
LD50: 11400 MG/KG BW
)MMENTS: STUDY 20 LD50 = > 5000 MG/KG
STUDY 25 LD50 = > 2500 MG/KG

TUDY: 21 SOURCE: GRM 000003 6:641
PECIES: MOUSE YEAR: 1973
LD50: 15700 MG/KG BW
)MMENTS: STUDY 25 LD50 = > 2500 MG/KG

TUDY: 23 SOURCE: GRM 000003 6:645
PECIES: HAMSTER YEAR: 1973
LD50: 6100 MG/KG BW
)MMENTS:

TUDY: 24 SOURCE: GRM 000003 6:647
PECIES: RABBIT YEAR: 1973
LD50: 5800 MG/KG BW
)MMENTS: