

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 14

Name of Material: Kelp Granules

Reviewer Name: Stwe 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 Stwe Taylor Date 3-5-95

USDA/TAP REVIEWER
COMMENT FORM

Original mailing date: 14 Feb 1995.

Material: Kelp granules (Red Algae) 21CFR184.1121
Reviewer: Richard C. Theuer

NATURAL Kelp or red algae are seaweeds. The materia is dried and ground or chopped for use in food. The ingredient meets the specifications for "kelp" in Food Chemical Codex plus additional specifications cited in CFR Title 21, Part 184, to avoid excessive iodine intakes. Kelp also can be used as a source of iodine [21CFR172.365], within maximum daily iodine intake limits.

COMMENTS RE SECTION 2119(m) CRITERIA:

1. Kelp is seaweed, a renewable resource, and is simply dried and size-reduced.
2. Kelp can be used in foods only as a source of iodine or as a flavor enhancer or flavor adjuvant.
3. Excessive intakes of iodine can be toxic, so complying with the CFR requirements is important.

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

kelp (red algae).

12 Mar 1995

Identification

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

Chemistry

Family

Composition	dehydrated seaweed
Properties	Dark green to olive brown in color, and has a salty, characteristic taste.
How Made	obtained from the class Phaeophyceae (brown algae) of the genera <i>Macrocystis</i> (including <i>M. pyrifera</i> and related species). Seaweed is chopped or ground, and dehydrated.

Use/Action

Type of Use	Processing
Specific Use(s)	Dietary supplement (source of iodine).
Action	
Combinations	

Status

OFPA	
N. L. Restriction	
EPA, FDA, etc	
Directions	
Safety Guidelines	
State Differences	
Historical status	
International status	Allowed by EU.

NOSB Materials Database

4.

OFPA Criteria

2119(m)1: chemical interactions **Not Applicable**

2119(m)2: toxicity & persistence **Not Applicable**

2119(m)3: manufacture & disposal consequences

Kelp is a renewable resource, although concern may arise over the responsible harvest of kelp beds.

2119(m)4: effect on human health

None; good source of fiber.

Level of iodine may not be sufficient to meet needs and may be variable. Excessive intake of iodine can be toxic, so care should be taken to comply with CFR requirements.

2119(m)5: agroecosystem biology **Not Applicable**

2119(m)6: alternatives to substance

Carrageenan; alginates; agar.

2119(m)7: Is it compatible?

References

See attached.

KELP REFERENCES

AU: Beames,-R-M; Tait,-R-M; Whyte,-J-N-C; Englar,-J-R
 TI: Nutrient utilization experiments with growing pigs fed diets containing from 0 to 20% kelp (*Nereocystis luetkeans*) meal
 SO: Can-J-Anim-Sci, Mar 1977, 57 (1): 121-129. Ref.
 CN: DNAL 41.8-C163

AU: Powell,-Eric-Frederick-William, 1899
 TI: Kelp: the health giver [Completely rev. and reset]
 SO: Rustington, Eng., Health Science Press, [1970], 40 p.
 CN: DNAL RS165.F8P6-1970

AU: Kajiwara,-T.; Hatanaka,-A.; Kawai,-T.; Ishihara,-M.; Tsuneya,-T.
 TI: Study of flavor compounds of essential oil extracts from edible Japanese kelps.
 SO: J-Food-Sci-Off-Publ-Inst-Food-Technol. Chicago, Ill. : The Institute. May/June 1988. v.53 (3) p.960-962.
 CN: DNAL 389.8-F7322

AB: Volatile oils isolated by steam distillation of fresh edible kelps (*Laminaria angustata*, *L. japonica*, *Kjellmaniella crassifolia*, *Costaria costata*, *Ecklonia cava*, *Alaria crassifolia*, *Undaria pinnatifida*) were analyzed by GC and GC-MS. Flavor evaluation determined that this alcohol was an important contributor to the kelp flavor.

AN: FNI 88002875
 UD: 8811

AU: Norman,-J.A.; Pickford,-C.J.; Sanders,-T.W.; Waller,-M.
 TI: Human intake of arsenic and iodine from seaweed-based food supplements and health foods available in the UK.
 SO: Food-Addit-Contam-Anal-Surveillance-Eval-Control. London : Taylor & Francis. Jan/Mar 1988. v. 5 (1) p. 103-109. charts.
 CN: DNAL TX553.A3F65

AB: Abstract: Several instrumental analytical methods were used to assess levels of arsenic (As) and iodine (I) in kelp tablets and capsules used as iodine supplements for humans in England. Considerable variability was found in As and I levels between samples; however, the results indicated that a high intake of As from such supplements is unlikely. In contrast, the results indicated that very high levels of I intake are possible.(wz).

AU: Teas,-Jane.
 TI: The Dietary intake of *Laminaria*, a brown seaweed, and breast cancer prevention.
 SO: Nutr-Cancer. Philadelphia : Franklin Institute Press. 1983. v. 4 (3) p. 217-222.
 CN: RC262.C5N8

AB: Extract: Based on epidemiological and biological data, *Laminaria*, a brown kelp seaweed, is proposed as an important factor contributing to the relatively low breast cancer rates reported in Japan. It is suggested that *Laminaria* may play a role in preventing either the initiation of breast cancer or its promotion by endogenous physiological factors. (author).

AU: Ackman,-R.G.; Hooper,-S.N.
 TI: Polyunsaturated fatty acid content of kelp tablets and dulse.
 SO: J-Can-Diet-Assoc. Toronto, The Association. Apr 1982. v. 43 (2) p. 150-154. chart.
 CN: 389.9-C1632

AB: Abstract: The interest in consumption of seaweeds as sea vegetables has resulted in substantial sales in Canada of marine algae in the form of kelp tablets. Types of lipid, fatty acids and sterols in these tablets had not been identified. Two forms of kelp tablets (with and without lecithin) and fresh and dried dulse (edible seaweed) were analyzed for fatty acids and sterols. Lipid extractions were performed by the Bligh and Dyer method. Results showed that the dried seaweeds are poor sources of dietary polyunsaturated fatty acids. Recommended daily dosages of these tablets would have a negligible effect on daily intake of fatty acids. In Japan, where seaweed intake is high, lipids and fats from these sources contribute only 0.1%

of the total fat intake. Results showed polyunsaturated fats to be 10% or less of the total fatty acids. An increase of eicosapentaenoic acid in the diet would depend upon an increase in fish oils or dietary fish. Shellfish and crustacea, unlike fish, are not considered major sources of marine fatty acids. (rm).

TI: It's natural! It's organic! Or is it.

SO: Consum-Rep-Consu-Union-US. New York, The Union. July 1980. v. 45 (7) p. 410-415. ill.

AB: Abstract: The terminology of the health foods business is proliferating: "natural" products and "organic" foods are taking over the supermarkets. Unfortunately, the terms are ill-defined and inherently misleading; their use reflects the willingness of consumers to spend more for what they perceive as healthier food. Some additives and processing procedures are beneficial, for example, the pasteurization of milk or the use of sodium benzoate (for more than 70 years) to prevent the growth of microorganisms in acidic foods. Some natural foods are hazardous, such as sassafras tea or kelp which can have a high arsenic content. Marketing practices are contributing to the confusion. Concerns about pesticide residues are well-founded, but protection against them is almost impossible. Little difference has been found between "organic" foods and supermarket produce; one test revealed 30% of organic-labelled products contained pesticide residues, while 20% of the non-organic foods did. State and federal governments are in the process of providing consumer protection.

AU: Key,-T.J.A.; Thorogood,-M.; Keenan,-J.; Long,-A.

TI: Raised thyroid stimulating hormone associated with kelp intake in British vegan men.

SO: J-Hum-Nutr-Diet. Oxford : Blackwell Scientific Publications. Oct 1992. v. 5 (5) p. 323-326.

CN: DNAL QP141.A1J58

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

KELP

S#:	977001754	HUMAN CONSUMPTION:	0.008516	MG/KG BW/DAY/PERSON
SP#:	1637	MARKET DISAPPEARANCE:	10050	LBS/YR
PE:	EAF	MARKET SURVEY:	87	
S#:	2606	JECFA:		
MA#:	2606	JECFA ADI:		MG/KG BW/DAY/PERSON
AS#:	3	JECFA ESTABLISHED:		

POTENTIAL BEVERAGE USE LAST UPDATE:

DENSITY: LOGP:

STRUCTURE CATEGORIES: A09

COMPONENTS: 977146329 ALGAE, BROWN (MACROCYSTIS & LAMINARIA SPP.)

NONYMS: VARECH (LAMINARIA SPP.)

EMICAL FUNCTION: G

TECHNICAL EFFECT: NUTRIENT SUPPLEMENT
FLAVORING AGENT OR ADJUVANT

IR REG NUMBERS: 172.365 184.1120

MINIMUM TESTING LEVEL: 2

REMARKS:

