

Petition of Non-organically Produced Agricultural Products for Inclusion of Atractylodes Rhizome Powdered Extract on the § 205.606 National List

Date Submitted : 07/30/07

Submitted by:

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Item A, Category for inclusion on the National List:

Non-organic agricultural substances allowed in or on processed products labeled as “organic,” §205.606.

Item B:

1. The substance’s chemical or material common name:

Latin Name: *Atractylodes macrocephala*
Common Plant Name: Atractylodes, Chinese thistle daisy
Plant Part Used: Rhizome
Common Product Name: Atractylodes *Rhizome* powdered extract
Pinyin: Bai Zhu

CONFIDENTIAL BUSINESS INFORMATION

2. Manufacture’s Contact Information

Manufacturer:

Contact:
Address:
Office:
Fax:
e-mail:

3. The intended or current use of the substance:

Used as a nutraceutical supplement in dietary supplements and in Chinese medicines. The dried rhizome of *Atractylodes macrocephala* is used as a nutraceutical ingredient in dietary supplements and functional and conventional foods. The dried rhizome are also used in traditional Chinese herbal medicine. Note that The Synergy Company uses atractylodes rhizome extract powder in its products in relatively small amounts, intended to provide nutritional support, compared with the therapeutic or medicinal amounts commonly used in traditional Chinese herbal medicine. The rhizomes are eaten in tonic soups, rice dishes, and cakes, and are an ingredient of tonic teas.¹

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4. Used for handling (including processing); describe mode of action:

Atractylodes rhizome powdered is used as a nutritional supplement. The rhizome contains an essential oil, glucoside and inulin².

5. The source of the substance and a detailed description of it's manufacturing or processing procedures from the basic component to the final product:

Atractylodes, commonly called Chinese Thistle, has been one of the most popular herbs in China. It's use was first recorded in AD659 in the Tang Materia Medica.¹ Atractylodes is uncommon in the wild and demand is now supplied entirely by cultivation. Atractylodes is an erect perennial plant belonging to the Asteraceae family (formerly Compositae) and possessing warty rhizomes. The plant is branched, woody-based stems, and divided, pointed toothed leaved, with purple, thistle- like flowers.¹ Its current Range is E. Asia - China, Japan and Korea. It prefers a habitat of Grassland and forests at elevations of 600 - 2800 meters.³

The rhizome is it is harvested in the autumn and dried. The rhizome is bitter-sweet. The rhizome is shipped to a processor where they are cleaned milled and then placed into an extraction kettle. Water and ethanol are added to the extraction kettle and heat is applied. The extracted liquid is concentrated into essential oils and is standardized to the desired concentration. The essential oils are mixed with organic astragalus root carrier and is then spray dried and ground into a powder. Finally the powder is sieved and packaged. In process and finished package testing occurs.

6. A summary of any available previous review by state or private certification programs or other organizations of the petitioned substance:

No information available.

7. Information regarding EPA, FDA, and state regulatory authority registrations including registration numbers:

This information does not exist.

8. The Chemical Abstract Service (CAS):

No assigned CAS number

9. The substance's physical properties and chemical mode of action:

a) Chemical interaction with other substances, especially substances used in organic production:

Atractylodes is a naturally occurring plant with no known adverse interaction with other substances. The only components used in the processing of atractylodes rhizome extract powder are water, ethanol and organic astragalus root. The ethanol is evaporated from the powdered extract during the spray dry process.

b) Toxicity and environmental persistence:

Atractylodes is a naturally occurring biodegradable plant. The only components use in the processing of atractylodes extract powder is water, ethanol and organic astragalus root. The ethanol is evaporated from the powdered extract during the spray dry process. Toxicity and environmental persistence are not an issue.

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c) Environmental impacts from its use or manufacture:

As referenced above, atractylodes is a naturally occurring biodegradable plant. There are no toxic chemicals used to cultivate or process this plant therefore environmental impact is negligible. The atractylodes rhizome is cultivated and processed without GMOs, irradiation and sewage sludge. The only components use in the processing of atractylodes rhizome extract powder is water, ethanol and organic astragalus root. The ethanol is evaporated from the powdered extract during the spray dry process.

d) Effects on human health:

Atractylodes rhizome is commonly used in Traditional Chinese herbalism, it is also eaten in tonic soups, rice dishes, and cakes, and are an ingredient of tonic teas.¹ Atractylodes rhizome powdered extract was marketed in the U.S. prior to October 15, 1994. The Dietary Supplement Health and Education Act (DSHEA) provides that supplement ingredients that were marketed in the U.S. prior to the enactment of DSHEA on October 15, 1994 are considered safe and are “grandfathered in” as safe for use. This herb is also list in The American Herbal Products Association’s Herbs of Commerce, 2nd Edition.

e) Effects on Soil:

As referenced above, Atractylodes is a naturally occurring biodegradable plant. There are no toxic chemicals used to cultivate or process this plant therefore environmental impact is negligible. The only components used in the processing of atractylodes rhizome extract powder is water, ethanol and organic astragalus root. The ethanol is evaporated from the powdered extract during the spray dry process. No negative effects on the soil are known.

10. Safety information about the substance including a Material Safety Data Sheet (MSDS):

MSDS is attached as a separate document. No other data is available.

11. Research information about the substance which includes comprehensive substance research reviews and research bibliographies which present contrasting positions to those presented by the substance’s inclusions on or removal from the National List:

We are unaware of any positions held in opposition to consideration of adding Atractylodes rhizome powdered extract to the national list.

12. “Petition justification Statement”:

Organic availability:

The Synergy’s Company procurement department is continuously searching for organic forms of the non-organic ingredients used in the company’s formulations. Regular searches include monthly reviews of trade journals, ingredient source contacts, internet searches and websites of both the Organic Trade Association and the Quality Assurance International organic ingredients. We continue with R&D efforts to find substitute organic ingredients to replace non-organic ingredients in our formulations where possible. None of these recurring efforts has yielded a positive result for a functionally equivalent organic ingredient that is commercially available for atractylodes extract powdered extract.

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Compatibility with sustainable agriculture:

The atractylodes rhizome extract powder is cultivated and processed without GMOs, irradiation and sewage sludge. The only components used in the processing of atractylodes extract powder are water, ethanol and organic astragalus root. The ethanol is evaporated from the powdered extract during the spray dry process. The cultivation and harvest of the atractylodes plant and processing of the atractylodes rhizome extract powder are consistent with principals of sustainable agriculture.

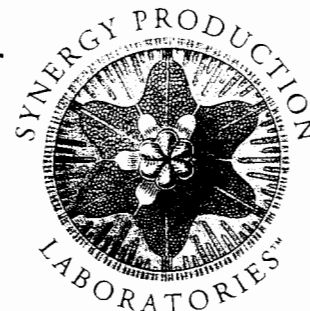
REFERENCES:

¹ Deni Bown, (2001). **The Herb Society of America New Encyclopedia of Herbs and Their Uses.** Pg 137.

² **Nguyen Van Dan & Doan Thi Nhu** *Medicinal Plants in Vietnam* World Health Organisation 1989 ISBN 92 9061 101 4.

³ Flora of China 1994, The On-line version of the Flora of China -The project has seven non-Chinese centers at Harvard University Herbaria, the California Academy of Sciences, the Smithsonian Institution, the Royal Botanic Garden Edinburgh, the Royal Botanic Gardens, Kew, the Muséum National d'Histoire Naturelle (Paris), and the Missouri Botanical Garden, the organizational and coordination center of the project. The four Chinese centers are the Institute of Botany (Beijing), the Kunming Institute of Botany, the Jiangsu Institute of Botany (Nanjing), and the South China Botanical Garden (Guangzhou). More than 600 scientists from throughout the world are cooperating in the preparation of individual treatments of the Flora. *Support was provided by various annual grants from the U.S. National Science Foundation, the Starr Foundation, and the Stanley Smith Horticultural Trust.*

MATERIAL SAFETY DATA SHEET



Identity (as on label): Synergized® Raw Materials Chinese Herbs Powder Extracts:
Jujube fruit, Ligusticum root, Atractylodes root, Peony (white) root,
Polygonum (Fo-Ti) Root, Poria Root, Ginger rhizome, Tangerine Peel,
Polygala Root, Rehmannia (Cooked Root), Codonopsis,

Use: Dietary Supplement

A Division of The Synergy Company™

Section I

MANUFACTURER:	The Synergy Company of Utah, L.L.C.
ADDRESS:	2279 South Resource Blvd. Moab, UT 84532
PHONE:	435-259-4787
DATE MSDS PREPARED:	June 29, 2007
PREPARED BY:	Tim HarkWright

Section II - Hazardous Ingredients/Identity Information

IDENTITY/COMMON NAME:	Jujube fruit, Ligusticum root, Atractylodes root, Peony (white) root, Polygonum (Fo-Ti) Root, Poria Root, Ginger rhizome, Tangerine Peel, Polygala Root, Rehmannia (Cooked Root), Codonopsis,
HAZARD CLASS:	Not regulated
HAZARDOUS COMPONENTS:	None
HEALTH HAZARD:	Nuisance dust

Section III - Physical/Chemical Characteristics

BOILING POINT:	Not established
SPECIFIC GRAVITY (H ₂ O=1):	Not established
VAPOR PRESSURE (MM HG):	Not established
MELTING POINT:	Not established
SOLUBILITY IN WATER:	Soluble
EVAPORATION RATE:	Not established

Section IV - Fire and Explosion Hazard Data

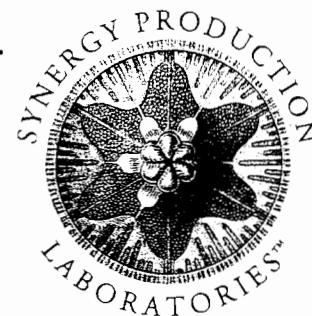
FLASH POINT:	Not established
FLAMMABLE LIMITS:	Not established
EXTINGUISHING MEDIA:	Water, dry powder or CO ₂
SPECIAL FIRE FIGHTING PROCEDURES:	None
UNUSUAL FIRE AND EXPLOSION HAZARDS:	None

Section V - Reactivity Data

STABILITY:	Stable dry powder
CONDITIONS TO AVOID:	None
INCOMPATIBILITY:	None
HAZARDOUS POLYMERIZATION:	Will not occur
HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:	None known



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Section VI - Health Hazard Data

ROUTES OF ENTRY:	Inhalation, skin, ingestion
HEALTH HAZARDS:	Nuisance dust; no hazard associated with ingestion
CARCINOGENICITY:	None known
NTP:	Not applicable
IARC MONOGRAPHS:	None
SIGNS AND SYMPTOMS OF EXPOSURE:	None known
OSHA REG.:	None
MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:	Nuisance dust; respiratory irritation possible if inhaled
EMERGENCY AND FIRST-AID PROCEDURES:	
EYES:	Irrigate thoroughly with water
SKIN:	Wash off thoroughly with soap and water
INGESTION:	No hazard anticipated
INHALATION:	Nuisance dust; remove from exposure. If irritation persists, obtain medical attention

Section VII - Precautions for Safe Handling and Use

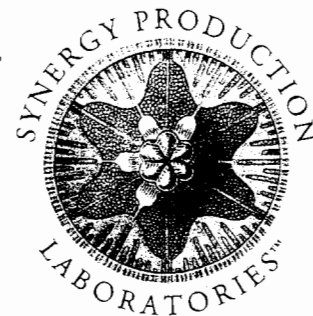
STEPS TO TAKE IN CASE MATERIAL IS RELEASED OR SPILLED:	None
WASTE DISPOSAL METHOD:	Non-hazardous (dumpster or compost)
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:	Store in well-closed containers to prevent exposure to Moisture. Store below 70 degrees F and prevent exposure to sunlight to preserve optimal nutritional values.

Section VIII - Control Measures

RESPIRATORY PROTECTION:	Dust mask or respirator
VENTILATION:	Use local ventilation
PROTECTIVE GLOVES:	Recommended
EYE:	Goggles or safety glasses recommended
OTHER:	None



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Use: Dietary Supplement



PURCHASE SPECIFICATION



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Synergized® Raw Materials: Atractylodes Root Powder Extract

Common Name:* Atractylodes Root
 Latin Name:* Atractylodes macrocephala
 Part ID:* TBD
 Plant part:* Root
 Country of origin:* Required on COA
 Certification required:* We are seeking USDA NOP 100% organic & EU council regulation EEC 2092/91 organic, If available, If unavailable conventional material may be substituted. Kosher Certification.
 Date of MFG:* Required on COA
 Shelf life:* 48 months from date of manufacture, unopened in original packaging
 Storage:* Store away from moisture, light and heat; ≤70°F
 Packaging:* 10 kg net weight, doubled food grade bags in multiple foil bags, shipping carton

TEST	SPECIFICATION	METHOD
ANALYTICAL		
Moisture*	≤6%	Gravimetric
Drying Method*	Spray-dried	
IDENTITY		
Color*	Beige to Brown	Organoleptic
Flavor*	Typical of Atractylodes Root	Organoleptic
Texture*	Fine powder	Organoleptic
Aroma*	Typical of Atractylodes Root	Organoleptic
MICROBIOLOGICAL Based on USP and EP Guidelines		
Standard plate count (SPC)*	≤10,000 CFU/g	FDA/BAM
Coliform*	≤100 CFU/g	AOAC 991.14
<i>E. coli</i> *	Absent	USP
<i>Salmonella</i> *	Absent	USP
<i>Staph. Aureus</i> *	Absent	USP
Yeast and Mold*	≤1,000 CFU/g	AOAC 997.02
HEAVY METAL Based on NSF, EP, WHO and EPA Guidelines		
Arsenic (inorganic) (As)	≤5.0 µg/g	ICP-MS
Cadmium (Cd)	≤1.0 µg/g	ICP-MS
Lead (Pb)	≤5.0 µg/g	ICP-MS
Mercury (Hg)	≤0.2 µg/g	ICP-MS
* Required on COA		

Grown and processed with out the uses of GMO, Irradiation, or Sewer Sludge.

