

Technical Data Sheet

BerryDefense™ Powder

(*Sambucus nigra*, *Aronia melanocarpa*,
Vaccinium myrtillus)

Product Code: 70380220
Date: September 2018

Product Specification

Product Description: Pure elderberry (*Sambucus nigra*), aroniaberry (*Aronia melanocarpa*), and bilberry (*Vaccinium myrtillus*) extract; processed without solvent via physical membrane separation and spray-dried with maltodextrin as an excipient; standardized to a minimum anthocyanin content of 12%; blend formulated to support the immune system

Product Properties

Color	Intensely dark red-brown
Appearance	Powder, uniform particles, hygroscopic
Taste	Characteristic of fruit; astringent
Odor	Characteristic of fruit
Mesh size	> 98% through 60 mesh (< 250 µm)
Excipient	Maltodextrin (not genetically engineered, corn-based)
Solubility	Soluble in water and water/alcohol mixtures
Extract ratio	68:1
Identity	HPLC anthocyanin profiles unique to elderberry, aroniaberry, and bilberry
Plant part used	Berries (juice)

Analytical Values

		Spec.
Anthocyanins (<i>Expr. as cyanidin-3-glucoside; pH-Diff.</i>)	12.10 – 15.30	g/100 g
Polyphenols (<i>Expr. as catechin; Folin-Ciocalteu</i>)	18.00 – 30.00	g/100 g
Color (<i>E 100%; 510 nm; pH 1.0</i>)	8,700 – 10,200	
Moisture (<i>Loss on drying; 105° C; 30 sec.</i>)	2.0 – 8.0	%
Total acidity (<i>Expr. as citric acid; anhydr.; pH 8.1</i>)	8.00 – 15.00	g/100 g

Heavy Metals and Pesticides

		Spec.
Lead (<i>ICP-MS</i>)	≤ 0.6	ppm
Arsenic (<i>ICP-MS</i>)	< 0.5	ppm
Cadmium (<i>ICP-MS</i>)	< 1	ppm
Mercury (<i>ICP-MS</i>)	< 0.1	ppm
Pesticides	Pesticide standards defined in the EC Regulations n. 396/2005, n. 149/2008, and n. 839/2008	

Microbiological Values

		Spec.
Yeast	< 20	CFU/g
Molds	< 20	CFU/g
Total plate count	< 10,000	CFU/g
<i>E. coli</i>	Negative	CFU/g
<i>Salmonella</i>	Negative	CFU/25 g

Country of Origin: Italy (manufacturing), Austria/Poland/Chile/Ukraine (raw material)

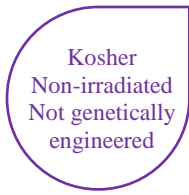
Packaging: Packed in pails of 5 kg net

Storage: The product must be stored in a dark, cool, and dry area. Keep the package well-sealed since the product is hygroscopic. Color may change at the end of shelf life.

Best Used By: 36 months after production date under proper storage conditions

Melanie Bush
Quality Control

The information contained herein is, to the best of our knowledge, correct. The data outlined and the statements made are intended only as a source of information. No warranties, expressed or implied, are made. On the basis of this information, it is suggested that you evaluate the product on a laboratory scale prior to use in a finished product.



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Composition Statement

We hereby certify that, for the above named product, the composition is as follows:

Genus and species:	<i>Aronia melanocarpa</i> , <i>Sambucus nigra</i> , <i>Vaccinium myrtillus</i>
Plant part used:	Berries (juice)
Ingredients:	Juice concentrate blend (76%) and maltodextrin (24%)
Country of origin:	Italy (manufacturing), Poland/Austria/Chile/Ukraine (raw material)
Harmonized code:	3203.00
Final form:	Powder

GMO Statement

The above named product and any excipients used in the manufacturing process are not genetically engineered.

Gluten-Free Statement

The above named product is entirely of fruit/vegetable origin. It is not produced from and does not contain any gluten or gluten byproducts; therefore, it is considered gluten-free.

Vegan Statement

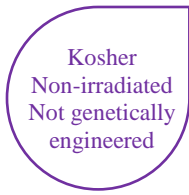
The above named product is entirely of fruit/vegetable origin and is not produced from any animal products or byproducts; therefore it is considered vegan-friendly.

BSE/TSE Statement

The above named product is risk free for BSE/TSE because it is not processed with any meat products or by-products. Furthermore, no meat products or by-products are manufactured or processed on the premises.

Irradiation and Sterilization Statement

The above named product has not been irradiated during the manufacturing process, nor has any chemical sterilization method been used. We also confirm that it has not been exposed to ethylene oxide (EtO) and is considered an EtO-free product. The product has been flash-pasteurized.



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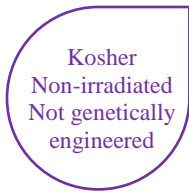
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Nutritional Profile

Mean values per 100 g

Calories (kcal)	364	kcal
Calories (kJ)	1546	kJ
Fat	0.3	g
Saturated Fat	<0.3	
Carbohydrates	85.2	g
Sugars	13.4	g
Protein	4.1	g
Salt	0.058	g

As with any organic material, there may be some variation in the nutritional composition. The following values are being supplied to you to aid in your development work, but should not be used solely to determine your nutrient labeling. You may need to analyze for those nutrients as they occur in your final product as required by the Code of Federal Regulations Title 21; section 101.9.



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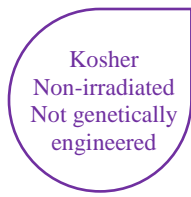


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Allergen Statement

Description of Allergen	Present in the Product	Source	Present in Other Products Mfg. on the Same Line	Present in the Same Mfg. Plant
Artificial colors/preservatives	No		No	No
Autolyzed yeast	No		No	No
Celery	No		No	No
Cereal proteins (include HVP)	No		No	No
Corn or corn products	No		No	No
Cottonseed flour	No		No	No
Egg or egg products	No		No	No
Fish or fish products	No		No	No
Gluten	No		No	No
Milk or milk-derived products	No		No	No
Mustard or mustard products	No		No	No
Peanuts or peanut products	No		No	No
Seeds or seed products	No		No	No
Sesame or sesame products	No		No	No
Shellfish, crustaceans	No		No	No
Soybeans or soybean products	No		No	No
Sulfites	No		Yes	Yes
Tree nuts (almond, brazil nut, cashew, chestnut, hazelnut, pine nuts, pistachio, pecan, macadamia, walnut)	No		No	No
Wheat or wheat products	No		No	No
Yeast or yeast products	No		No	No

Effective procedures are in place to avoid cross-contamination of the product with the allergens not present in the product but noted in columns III and IV.



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Safety Data Sheet

Section I Product and Company Identification

Product:	BerryDefense™ Powder	Product code:	70380220
Supplier:	Artemis International, Inc. 3711 Vanguard Dr. – Suite A Fort Wayne, IN 46809-3301 USA	Phone:	260-436-6899
		Fax:	260-478-6900

Section II Composition/Ingredients

Ingredients:	Elderberry, chokeberry, and bilberry juice concentrates, maltodextrin excipient
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Section III Hazard Identification

This preparation is not classified as dangerous according to Directive 1999-45-EC and its amendments.	
Physical hazards:	Not classified as a physical hazard
Health hazards:	Not classified as a health hazard
Environmental hazards:	Not classified as an environmental hazard
Specific hazards:	Dusts may irritate the respiratory tract, skin, and eyes.
Main symptoms:	Upper respiratory tract irritation, coughing, irritation of eyes and mucous membranes

Section IV First Aid Measures

Eye contact:	Dusting of powder may cause eye irritation. Flush eyes with water for 15 minutes. Get medical attention if symptoms develop and persist.
Skin contact:	Product is not irritating to skin; however, flush with water or soap and water for 15 minutes or until all traces have been removed. Seek medical attention if symptoms develop and persist.
Inhalation:	Product may cause irritation of the nose and throat. If inhaled, remove personnel to fresh air and, if needed, seek medical attention.
Ingestion:	Product is not known to result in significant adverse health effects. If swallowed, rinse mouth and throat with water. Drink water.

Section V Fire Fighting Measures

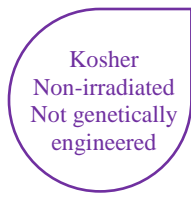
Flammability:	Product is not combustible.
Extinguishing media:	Product is not flammable. Use water, carbon dioxide, dry powder extinguisher, or other media appropriate for materials actually involved in fire.
Special firefighting procedures:	Follow the general fire precautions indicated in the workplace.
Unusual fire and explosion hazards:	None

Section VI Accidental Release Measures

Leak and spill procedures:	Prevent further spill of material, contain material already spilled. Sweep up spilled material for disposal. Flush spill area with water spray. CAUTION! Material on wet floor may be slippery.
Personal precautions:	Avoid inhalation of dust and contact with skin and eyes. Wear appropriate protective equipment and clothing during clean-up.
Methods for cleaning up:	Avoid dust formation. Remove small spills with vacuum cleaner.
Environmental precautions:	Prevent further leakage or spillage.

Section VII Handling and Storage

Handling procedures:	No special equipment required. Avoid inhalation of dust. Use only with adequate ventilation.
Hygiene practices:	Follow food GMPs. Avoid contact with skin, eyes, and clothing. Wash thoroughly after handling.
Storage:	Store in a cool, dry location. Keep container closed. Normal room ventilation satisfactory.



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Section VIII Exposure Controls and Personal Protection

Engineering controls:	Eyewash fountains and safety showers should be easily accessible.
Respiratory protection:	Provide adequate ventilation. Respirator not normally required. In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter.
Protective gloves:	Avoid skin contact. Wear gloves for extended or repeat skin contact with powder.
Eye protection:	Avoid eye contact. Wear safety glasses while handling powder.
Clothing:	Standard work clothing; wash regularly.

Section IX Physical and Chemical Characteristics

Appearance:	Intensely dark red-brown powder	Boiling point:	N/A
Odor:	Fruity	Freezing point:	N/A
Physical state:	Solid	Melting point:	Not known
pH:	Not known	Vapor pressure:	Not known
Solubility in water:	Soluble	Vapor density:	Not known
Density:	Not known		

Section X Stability and Reactivity

Chemical stability:	Stable, no decomposition
Conditions to avoid:	None known
Materials to avoid:	None known
Hazardous decomposition or byproducts:	None known
Hazardous polymerization:	Does not occur

Section XI Toxicological Information

No known toxic effects from acute or chronic exposure

Section XII Ecological Information

No known environmental impact. Product is biodegradable.

Section XIII Disposal Information

Waste disposal method:	Incinerate or landfill in accordance with local, state, or federal regulations.
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Section XIV Transportation Information

Shipping information:	Non-hazardous
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Section XV Regulatory Information

This Material Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006.

Section XVI Other Information

HMIS®	Health: 1	Flammability: 1	Reactivity: 0
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All information appearing herein is based upon data obtained from the raw material manufacturer and/or recognized technical sources. While the information above is believed to be true and accurate, the author makes no representations as to its accuracy or sufficiency. Conditions of use are beyond the producer's control, and therefore the users are responsible to verify this data under their own particular conditions, applications, and regulations to determine whether the product is suitable for their particular purposes, and they assume all risks of their use, handling, disposal, reliance upon, publication, or use of the information contained herein. This information applies only to the product designated above and does not necessarily apply to its use in combination with other materials, products, chemical compounds, structures, or processes.

Melanie Bush

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