

BLOOD MEAL

TYPICAL ANALYSIS

Crude Protein	85.00%
Crude Fat	0.50%
Crude Fiber	1.00%
Ash	5.75%
Moisture	2.00%
Grind	99% thru #12
Metabolizable Energy	1,465 Kcal/lb=3,223 Kcal/kg
Digestibility	98.00%
TDN	70.00%
NEL	0.73
UIP	90.00%

MINERALS AND VITAMINS

Calcium	0.25%
Phosphorous	0.25%
Available Phosphorous	0.25%
Salt Equivalent	0.65%
Sodium	0.26%
Chloride	0.39%
Potassium	1.00%
Choline	990 mg/kg
Iron	2,500 mg/kg

AMINO ACID PROFILE

Aspartic Acid	7.17%
Threonine	3.49%
Serine	4.08%
Glutamic Acid	8.79%
Proline	4.62%
Glycine	4.46%
Alanine	7.69%
Cystine	1.24%
Methionine	1.10%
Valine	7.08%
Isoleucine	3.19%
Leucine	11.42%
Tyrosine	2.34%
Phenylalanine	6.20%
Histidine	6.53%
Lysine	7.85%
TSAA	2.34%
Ammonia	1.13%
Arginine	4.18%
Tryptophan	1.22%

Analysis are updated periodically and may vary slightly from previous versions.

Approved plant of:

- Animal Protein Producers Institute (APPI) Code of Practice Voluntary Salmonella Reduction Program
- Food & Drug Administration (FDA) Registered

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SAFETY DATA SHEET

1. Identification

Material name **Blood Meal**
Recommended Use: Feed/Pet Food ingredient, fertilizer
Restrictions: None Known

Version # 03
Revision Date 11/7/2014
CAS # 90989-74-5
Manufacturer Darling Ingredients Inc.
251 O'Connor Ridge Blvd.
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Irving, TX
75038
United States

Telephone numbers - 24 hour emergency assistance 1-800-800-4841
Telephone numbers - General assistance 1-800-800-4841
E-mail info@darlingii.com

2. Hazards Identification

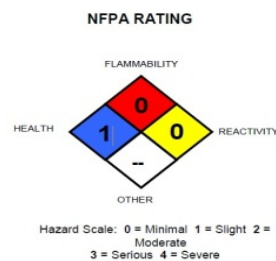
Emergency overview

HEALTH HAZARDS	Practically non-toxic
FLAMMABILITY HAZARDS	Dust accumulations in an enclosed space may present and explosion hazard.
REACTIVITY HAZARDS	Stable

Potential health effects

Routes of exposure	Inhalation, ingestion, skin and eye contact
Eyes	If contact with eyes, flush eyes with plenty of water for at least 15 minutes lifting upper and lower eye lids occasionally. Get medical attention if irritation persists.
Skin	Prolonged or excessive skin contact with this product may cause mild skin irritation. May cause an allergic reaction in some individuals.
Inhalation	Under normal condition, inhalation is not expected to be a problem. However, respirator tract irritation may occur if exposed to dust.
Ingestion	Ingestion of large amounts may cause gastrointestinal disturbances. May cause allergic reactions in some individuals.

Recommendations to physicians: Treat symptoms and eliminate overexposure.



3. Composition/information on ingredients

Components:	CAS#	Percent
Dehydrated Blood	N/A	100%
Chemical Family:		
Protein and Mineral	N/A	100%
Formula:		
Not Specified		

Synonyms:	Unknown
Composition comments	Values do not reflect absolute minimums and maximums: these values are typical which may vary from time to time. This Material Safety Data Sheet is intended to communicate potential health hazards and potential physical hazards associated with the products(s) covered by this sheet, and is not intended to communicate product specification information. For product specification information, contact your DarPro representative.

4. First aid measures

First aid procedures	
Eye contact	Flush eyes immediately with large amounts of water. Get medical attention if irritation persists.
Skin contact	Wash area thoroughly with soap and water. Get medical attention if irritation develops or persists.
Inhalation	Remove victim to fresh air. If breathing difficulty occurs, get medical attention .
Ingestion	Routine use of this product is not expected to cause any situation which could lead to ingestion. If this product is swallowed call physician or poison control center for most current information. If professional advice is not available, do not induce vomiting. Never induce vomiting or give diluents (milk or water), to someone who is unconscious, having convulsions or unable to swallow.
Notes to physician	Treat symptomatically.

5. Fire-fighting measures

Flammable properties	Material should not burn in a fire unless it contains a substantial fat/oil component. Concentrated dust in an enclosed space can pose an explosive threat.
Extinguishing media	Use water spray, dry chemical, carbon dioxide or fire-fighting foam for Class A or B fires to extinguish fire.
Suitable extinguishing media	
Protection of firefighters	
Specific hazards arising from the chemical	Combustion may produce COx and other decomposition products in the case of incomplete combustion.
Fire fighting equipment/instructions	Evacuate area and fight fire from a safe distance. Use water spray to cool adjacent structures and to protect personnel. Stay away from storage tank ends. Withdraw immediately in case of rising sound from venting safety device or any discoloration of storage tank due to fire. Firefighters must wear NIOSH approved positive pressure breathing apparatus (SCBA) with full face mask and full protective equipment.

6. Accidental release measures

Environmental precautions	Dry clean-up by sweeping and/or scooping.
Waste disposal method	Totally biodegradable. Dispose of recovered materials per local state and federal requirements.
Precautions to be taken in handling and storing	Keep dry to avoid biological decomposition.

7. Handling and storage

Handling	Good personal hygiene practices such as properly handling contaminated clothing, using wash facilities before entering public areas and restricting eating, drinking and smoking to designated areas are essential for preventing personal chemical contamination. Do not breath dust. Avoid contact with skin or eyes.
Storage	Store in tightly closed containers in a cool, dry isolated, well-ventilated area away from heat, sources of ignition and incompatibles. Avoid contact with strong oxidizers. Empty containers may contain material residue. Do not reuse without adequate precautions. Do not eat, drink or smoke in areas of use or storage.

8. Exposure controls/personal protection

Exposure limits	Not available
Engineering controls	Ventilation and other forms of engineering controls are the preferred means for controlling exposures.
Personal protective equipment	
Eye / face protection	Keep away from eyes. Eye contact can be avoided by using chemical safety glasses, goggles and/or face shield. Have eye washing facilities readily available where eye contact can occur.
Skin protection	Wash hands with soap and water. Protective gloves recommended.
Respiratory protection	Use dust masks in enclosed spaces.

9. Physical and chemical properties

Physical State Form	Powder
Color	Not applicable
Odor	Characteristic
Odor threshold	Characteristic
Physical State Form	Not available
Vapor Pressure	Not available
Vapor density	Not available
Boiling Point	N/A
Melting point	Decomposes
Solubility (water)	Insoluble
Specific gravity	Not available
Relative density	Not available
Flash point	Not available
Flammability limits in air, upper, % by volume	Not available
Flammability limits in air, lower, % by volume	Not available
Auto-ignition temperature	Not available
VOC	Not available
Evaporation rate	Not available
Viscosity	Not available
Percent volatile	Not available
Partition coefficient (n-octanol/water)	Not available
Molecular weight	Not available
Molecular formula	Not available
Other Data	
Chemical family	Protein and Mineral
Density	N/A
Electrostatic properties	
Conductivity	Not available
Cloud point	Not available

10. Stability and reactivity

Chemical stability

Material is stable under normal conditions.

Conditions to avoid

Avoid unventilated areas, heat, open flames, sparks and ungrounded electrical equipment where dust may be present.

Incompatible materials

Incompatible with alkali metals, nitrides, strong reducing agents and strong iodizing agents. See precautions under Handling & Storage (Section 7)

Hazardous decomposition products

Decomposition may cause Biological Hazard due to bacterial or mold growth.

Possibility of hazardous reactions

Not anticipated under normal conditions.

11. Toxicological information

Routes of exposure

Inhalation, ingestion, skin and eye contact

Numerical measures of toxicity

N/A

Eye contact

Get medical attention if eye irritation persists.

Skin contact

Get medical attention if skin irritation develops or persists.

Inhalation

If breathing difficulty occurs, get medical attention .

Ingestion

Routine use of this product is not expected to cause any situation which could lead to ingestion.

12. Ecological information

Eco toxicity

Material not classified as harmful to aquatic organisms. However, secondary effects such as lowered dissolved oxygen when introduced to surface water can be toxic to aquatic life.

Persistence and degradability

Readily biodegradable in the environment

Bioaccumulation/

This material is not expected to bio accumulate in aquatic animals.

Accumulation

Mobility in environmental

Not classified in terms of mobility in air, soil and water.

media

13. Disposal considerations

Disposal instruction

This material, as supplied, when discarded or disposed of, is not a hazardous waste according to Federal Regulations (40 CFR 261). Under the Resource Conservation and Recovery Act. (RCRA), it is the responsibility of the user of the material to characterize and determine, at the time of disposal, whether the material is a hazardous waste subject to RCRA.

For additional handling information and protection of employees, see Section 7 (Handling and Storage) and Section 8 (Exposure Controls/Personal Protection).

14. Transport information

General

US DOT, IATA, IMO, ADR:

U.S. DEPARTMENT OF TRANSPORTATION (DOT) SHIPPING REGULATIONS: This product is not classified as dangerous goods, per U.S. DOT regulations, under 49 CFR 172.101. NON-REGULATED

Canada

TRANSPORT CANADA, TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: This product is not classified as Dangerous Goods, per regulations of Transport Canada.

Air

INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA): This product is not classified as Dangerous Goods, by rules of IATA:

Maritime

INTERNATIONAL MARITIME ORGANIZATION (IMO) DESIGNATION: This product is not classified as Dangerous Goods by the International Maritime Organization.

European

EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR): This product is not classified by the United Nations Economic Commission for Europe to be dangerous goods.

UN number (United Nations hazardous material #)

Not a hazardous material

15. Regulatory information

US federal regulations

All ingredients are on the TSCA inventory, or are not required to be listed on the TSCA inventory.

This material does not contain toxic chemicals (in excess of the applicable de minimis concentration) that are subject to the annual toxic chemical release reporting requirements of the Superfund Amendments and Reauthorization Act (SARA) Section 313 (40 CFR 372).

Check local, regional or state/provincial regulations for any additional requirements as these may be more restrictive than federal laws and regulations. Failure to report may result in substantial civil and criminal penalties.

State regulations

Based on available information this product does not contain any components or chemicals currently known to the State of California to cause cancer, birth defects or reproductive harm at levels which would be subject to Proposition 65. Reformulation, use or processing of this material may affect its composition and require re-evaluation.

16. Other information

NFPA ratings

Health: 1

Flammability: 1

Instability: 0

Disclaimer

NOTICE: The information presented herein is based on data considered to be accurate as of the date of preparation of this Material Safety Data Sheet. Adequate training and instruction should be given by you or your employees and affected personnel. Appropriate warnings and safe handling procedures should be provided by you to handlers and users. Appropriate warnings and safe handling procedures should be provided by you to handlers and users. Additionally, the user should review this information, satisfy itself as to its suitability and completeness, and pass on the information to its employees or customers in accordance with the applicable federal, state, provincial or local hazard communication requirements. This MSDS may not be used as a commercial specification sheet of manufacturer or seller, and no warranty or representation, expressed or implied, is made as to the accuracy or comprehensiveness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. In addition, vendor neither assumes nor retains any responsibility for any damage or injury resulting from abnormal use, from any failure to adhere to appropriate practices, or from any hazards inherent in the nature of the material. Moreover, unless an employee or a customer accesses or receives a MSDS directly from the company, there is no assurance that a document obtained from alternate sources is the most currently available MSDS.

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