

MEAT & BONE MEAL

TYPICAL ANALYSIS

Crude Protein	50.00%
Crude Fat	10.40%
Crude Fiber	2.50%
Ash	28.00%
Moisture	4.00%
Grind	99% thru #10
Color	Brown
Metabolizable Energy	1,204 Kcal/lb = 2,650 Kcal/kg

MINERALS AND VITAMINS

Calcium	8.80%
Phosphorous	4.40%
Available Phosphorous	4.40%
Salt Equivalent	2.50%
Sodium	0.90%
Chloride	1.50%
Potassium	0.80%
Manganese	30 mg/kg
Choline	1,980 mg/kg
Magnesium	1.00%

AMINO ACID PROFILE

Aspartic Acid	4.16%
Threonine	1.49%
Serine	2.02%
Glutamic Acid	6.85%
Proline	3.98%
Glycine	7.09%
Alanine	4.23%
Cystine	0.44%
Methionine	0.59%
Valine	1.91%
Isoleucine	1.24%
Leucine	2.75%
Tyrosine	1.08%
Phenylalanine	1.54%
Histidine	0.78%
Lysine	2.50%
TSAA	1.33%
Ammonia	0.60%
Arginine	3.45%
Tryptophan	0.27%
Taurine	0.10%
Hydroxyproline	2.62%

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

darpro-ingredients.com

Transforming sustainable resources into
functional and nutritional solutions

DAR PRO
INGREDIENTS

DARLING
INGREDIENTS INC.



SAFETY DATA SHEET



1. Identification

Material name

Meat & Bone Meal (MBM)/Meat Meal (MM)

Recommended Use:

Feed/Pet Food ingredient, fertilizer

Restrictions:

Meal from bovine/bison sources restricted in U.S., Canada and European Union from use in feed to ruminants. Must be labeled with the caution statement: **Do Not Feed to Cattle or Other Ruminants.**

Version #

03

Revision Date

8/18/2015

CAS #

N/A

Manufacturer

Darling Ingredients Inc.
251 O'Connor Ridge Blvd.
Suite 300
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



Warning
Irritant (Skin and Eyes)

2. Hazards Identification

Emergency overview

HEALTH HAZARDS

Practically non-toxic

FLAMMABILITY HAZARDS

Dust accumulation in an enclosed space may present an 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
Cooked and dehydrated Animal (Primarily Mammal) tissue and bone by-products	N/A	100%
Chemical Family:		
Protein, Mineral and Lipid	N/A	100%
Formula:		
Not Specified		

Synonyms: Beef MBM/MM, Pork MBM/MM, Lamb MBM/MM, Bison MBM/MM, Animal By-Product Meal, Crax (Unground)

Composition comments Values do not reflect absolute minimums and maximums: these values are typical which may vary from time to time.

This 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.

Additives: May contain anti-oxidant (Stabilizer). See attached Anti-Oxidant SDS if anti-oxidant is present.

Hazardous concentration range: N/A

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 may burn in a fire.
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.

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.

Precautions to be taken in handling and storing

Beef and Bison MBM/MM must be labeled with the caution statement: **Do Not Feed to Cattle or Other Ruminants** and must be kept segregated from non-restricted MBM/MM such as pork, poultry, or lamb meals.

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	Cooked meat odor
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	0.50 average (H ₂ O=1)
Relative density	Not available
Flash point	460 Degrees F open cup (Fat content only)
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, Mineral and Lipid
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

None

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/ Accumulation

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

Mobility in environmental media

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

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

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.
U.S. regulations	Regulated under U.S. FDA Feed Rule 21CFR589.2000/21CFR589.2001

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 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 SDS 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 SDS directly from the company, there is no assurance that a document obtained from alternate sources is the most currently available SDS.

Issuer date

11/7/2014

Completed by

Darling Ingredients Inc. - Research, Technology and Governmental Affairs