

SAFETY DATA SHEET



ROXAZYME® G2 G

5001099

Version 4.0

Revision Date 10/21/2014

Print Date 03/30/2016

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : ROXAZYME® G2 G

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture : Additive for animal nutrition to be used in feed

1.3 Details of the supplier of the safety data sheet

Company : DSM Nutritional Products
 45 Waterview Blvd
 US-07054-1298 Parsippany

Telephone : (908) 475-7373
 Telefax : (908) 475-7406
 E-mail address Responsible/issuing person : sds.nutritionalproducts@dsm.com

1.4 Emergency telephone number

1-800-424-9300 (24 HR CHEMTREC, CA & US); Outside CA & US +1-703-741-5970
 (COLLECT CALLS ACCEPTED)

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

DANGER	
Appearance	granular, powder
Colour	beige
Odour	odourless

GHS Classification

Combustible dust :
 Respiratory sensitisation : Sub-category 1A

GHS Label element

Hazard pictograms :



Signal word : Danger

Hazard statements : May form combustible dust concentrations in air
 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Precautionary statements : **Prevention:**
 P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
 P285 In case of inadequate ventilation wear respiratory protection.
Response:

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MSDS_US / EN

P304 + P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.

P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/ physician.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Potential Health Effects

Inhalation : May cause allergic respiratory reaction.

Aggravated Medical Condition : None known.

Experience with human exposure

Skin contact :

Prolonged skin contact may cause skin irritation.

Carcinogenicity:**IARC**

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

OSHA

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Additional hazards and advice

Risk of dust explosion.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Brief description of the product : Mixture (preparation) containing enzymes and auxiliary substances

Hazardous components

Component	CAS-No	Weight percent
Starch	9005-25-8	30 - 50
Xylanase, endo-1,4-	9025-57-4	1 - 5
cellulase	9012-54-8	1 - 5
glucanase, endo-1,3(4)-β-	62213-14-3	1 - 5

SECTION 4. FIRST AID MEASURES

- General advice** : Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
- If inhaled** : Move to fresh air.
Consult a physician after significant exposure.
- In case of skin contact** : Take off contaminated clothing and shoes immediately.
Wash off with soap and plenty of water.
If symptoms persist, call a physician.
- In case of eye contact** : Flush eyes with water as a precaution.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.
- If swallowed** : Clean mouth with water and drink afterwards plenty of water.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
Obtain medical attention.
- Notes to physician** : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES**Flammable properties**

- Flash point** : Not applicable

Fire fighting

- Suitable extinguishing media** : Water
Foam

- Further information** : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Consider dust explosion hazard.

Protective equipment and precautions for firefighters

- Specific hazards during fire-fighting** : None known.
- Special protective equipment for firefighters** : In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures** : Evacuate personnel to safe areas.
Use personal protective equipment.
Ensure adequate ventilation.
Avoid dust formation.

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Avoid breathing dust.

Environmental precautions : Do not flush into surface water or sanitary sewer system. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up : Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal. Avoid formation of dust and aerosols.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling : Avoid formation of respirable particles. Avoid exceeding the given occupational exposure limits (see section 8). For personal protection see section 8. Provide sufficient air exchange and/or exhaust in work rooms. Dispose of rinse water in accordance with local and national regulations. Smoking, eating and drinking should be prohibited in the application area.

Advice on protection against fire and explosion : Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed. Take precautionary measures against static discharges.

Conditions for safe storage : Protect from humidity.

Keep container tightly closed and dry.

Storage temperature : < 77 °F (< 25 °C)

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
starch	9005-25-8	TWA	10 mg/m ³	ACGIH
		TWA (Respirable)	5 mg/m ³	NIOSH REL
		TWA (total)	10 mg/m ³	NIOSH REL
		TWA (total dust)	15 mg/m ³	OSHA Z-1
		TWA (respirable fraction)	5 mg/m ³	OSHA Z-1

Personal protective equipment

Respiratory protection : In the case of dust or aerosol formation use respirator with an approved filter.

Suitable mask with particle filter P3 (European Norm 143)

Hand protection	: Glove material: for example nitrile rubber
	Consider the hazard characteristics of this product and any special workplace conditions when selecting the appropriate type of protective gloves.
Eye protection	: Safety glasses with side-shields
Skin and body protection	: Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Hygiene measures	: When using do not eat or drink. When using do not smoke. Avoid contact with skin, eyes and clothing. Do not breathe dust or spray mist.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	: granular, powder
Colour	: beige
Odour	: odourless
Odour Threshold	: No information available.
pH	: No data available
Melting point/range	: not determined
Boiling point/boiling range	: not determined
Flash point	: Not applicable
Flammability (solid, gas)	: May form combustible dust concentrations in air
Vapour pressure	: Not applicable
Relative vapour density	: Not applicable
Density	: not determined
Water solubility	: practically insoluble
Partition coefficient: n-octanol/water	: Not applicable
Auto-ignition temperature	: No data available
Thermal decomposition	: Decomposes on heating. Potential for exothermic hazard
Explosive properties	: Not explosive
Oxidizing properties	: No data available

9.2 Other information

Combustibility index for deposited dust	: 2 (23 °C)
	: 2 (100 °C)
Dust explosion class	: St(H)1 (Milled sample, Median value of the tested sample)

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	0.051 mm, Loss on drying 1.5 %; The value was determined in the modified Hartmann tube.)
Minimum ignition energy	<ul style="list-style-type: none"> ⊘ 100 - 300 mJ (Milled sample, Median value of the tested sample 0.051 mm, Loss on drying 1.5 %, EN 13821) The Minimum ignition energy (MIE) of a dust/air mix depends on the particle size the water content and the temperature of the dust. The finer and the dryer the dust the lower the MIE. ⊘ General remark: The indicated dust explosion characteristics are only valid for this product and are sensitive to the sample's parameters.
Powder volume resistivity	: ca. 4E+09 Ohmm (Product sample, Median value of the tested sample 0.655 mm, Loss on drying 8.2 %)
Minimum ignition temperature of a dust/air mix	: 360 °C (Median value of the tested sample 0.655 mm) determined in the BAM oven
Bulk density	: ca. 610 kg/m ³

SECTION 10. STABILITY AND REACTIVITY

Reactivity	⊘ No hazards to be specially mentioned.
Chemical stability	⊘ Stable under recommended storage conditions.
Possibility of hazardous reactions	: Dust may form explosive mixture in air.
Conditions to avoid	: Heat.
Incompatible materials	: Strong acids and strong bases Strong oxidizing agents
Hazardous decomposition products	: No decomposition if used as directed.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute oral toxicity	: Acute toxicity estimate : > 5,000 mg/kg (Calculation method)
Skin irritation	<ul style="list-style-type: none"> ⊘ No skin irritation (Rabbit) Tested with a similar product with significantly higher enzyme activity. ⊘ not phototoxic (Guinea pig)
Eye irritation	: No eye irritation (Rabbit) Tested with a similar product with significantly higher enzyme activity.

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	: Dust contact with the eyes can lead to mechanical irritation.
Sensitisation	: May cause sensitisation by inhalation.
	: no photoallergenic skin reaction (Guinea pig)
	: Does not cause skin sensitisation. (Guinea pig, Maximisation Test (GPMT), OECD Test Guideline 406) Test performed using a similar product.
Carcinogenicity	: No indication for carcinogenicity known.
Genotoxicity in vitro	: not genotoxic (Various test systems) Tested with a similar product with significantly higher enzyme activity.
Reproductive toxicity	: This information is not available.
STOT - repeated exposure	: NOAEL (feed admix, Rat) : 2000 mg/kg bw/d Sub-chronic toxicity study (90-day) Tested with a similar product with significantly higher enzyme activity.
Experience with human exposure: Skin contact	: Prolonged skin contact may cause skin irritation.
Experience with human exposureInhalation	
Xylanase, endo-1,4-	: Inhalation may induce sensitization and may cause allergic reactions in sensitized individuals.
cellulase	: Inhalation may induce sensitization and may cause allergic reactions in sensitized individuals.
glucanase, endo-1,3(4)-β-	: Inhalation may induce sensitization and may cause allergic reactions in sensitized individuals.
Further information	: Not a respiratory irritant Tested with a similar product with significantly higher enzyme activity.

SECTION 12. ECOLOGICAL INFORMATION

Toxicity

No data is available on the product itself.

Persistence and degradability

Biodegradability : Expected to be biodegradable

Bioaccumulative potential

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Bioaccumulation : No data available

Partition coefficient: n-octanol/water : Not applicable

Mobility in soil

Distribution among environmental compartments : No data available

Other adverse effects

Regulation 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances

Remarks This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : This product has no known ecotoxicological effects. Information given is based on data on the components and the ecotoxicology of similar products.

: There is no data available for this product.

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : Do not contaminate ponds, waterways or ditches with chemical or used container.
Do not dispose of waste into sewer.
Offer surplus and non-recyclable solutions to a licensed disposal company.

User must determine if any wastes generated exhibit hazardous characteristics as per 40 CFR Part 261 or other national / local legislation.

Contaminated packaging : Dispose of as unused product.
Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION**International Regulation****UNRTDG**

Not regulated as a dangerous good

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations**49 CFR**

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Not regulated as a dangerous good

SECTION 15. REGULATORY INFORMATION

TSCA list : Not relevant
Not relevant

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

Massachusetts Right To Know

starch	9005-25-8	30 - 50 %
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Pennsylvania Right To Know

starch	9005-25-8	30 - 50 %
semolina	Not Assigned	30 - 50 %
Soybean oil	8001-22-7	5 - 10 %

New Jersey Right To Know

starch	9005-25-8	30 - 50 %
semolina	Not Assigned	30 - 50 %
Soybean oil	8001-22-7	5 - 10 %
xylanase, endo-1,4-	9025-57-4	1 - 5 %
Cellulase	9012-54-8	1 - 5 %

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glucanase, endo-1,3(4)-β-

62213-14-3

1 - 5 %

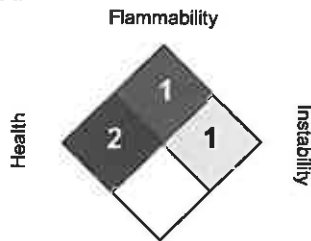
The components of this product are reported in the following inventories:

- TSCA** : Not On TSCA Inventory
- : semolina
- : xylanase, endo-1,4-

SECTION 16. OTHER INFORMATION

Further Information

NFPA:



HMIS III:

HEALTH	0*
FLAMMABILITY	1
PHYSICAL HAZARD	1

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Abbreviations: ACGIH = American Conference of Governmental Industrial Hygienists. CERCLA = Comprehensive Environmental Response, Compensation and Liability Act. CFR = Code of Federal Regulations. CPR = Controlled Products Regulations. DSL = Canadian Domestic Substance List. DOT = Department of Transportation. EINECS = European Inventory of New and Existing Chemical Substances. EPA = Environmental Protection Agency. HCS = Hazardous Communication Standard. HEPA = High Efficiency Particulate Air. HMIS = Hazardous Material Identification System. IARC = International Agency for Research on Cancer. IATA = International Air Transport Association. IMDG = International Maritime Dangerous Good. NFPA = National Fire Protection Association. NIOSH = National Institute of Occupational Safety and Health. NJTSR = New Jersey Trade Secret Registry. NTP = National Toxicology Program. OSHA = Occupational Safety and Health Administration. SARA = Superfund Amendments and Reauthorization Act. TDG = Transportation of Dangerous Goods. TLV = Threshold Limit Value. TSCA = Toxic Substance Control Act. WHMIS = Workplace Hazardous Materials Information System.