

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : FSE Enzyme Pack 1852

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

Use of the Sub-
stance/Mixture : Premix for Animal Feeds

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**

Appearance	powder
Odour	No information available.
Hazard Summary	May cause cancer.

GHS Classification

Combustible dust :
Respiratory sensitisation : Category 1
Carcinogenicity : Category 1A

GHS label elements

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.
H350 May cause cancer.

Precautionary statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.

P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

P285 In case of inadequate ventilation wear respiratory protection.

Response:

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

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Storage:

P405 Store locked up.

Disposal:

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

Potential Health Effects

Aggravated Medical Condition : None known.

Symptoms of Overexposure : No specific symptoms known.

Additional hazards and advice

Risk of dust explosion.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Brief description of the product : Mixture

Hazardous components

Component	CAS-No.	Weight percent
cellulose	9004-34-6	1 - 5
cellulase	9012-54-8	0.1 - 1
glucanase, endo-1,3(4)- β -	62213-14-3	0.1 - 1
Xylanase, endo-1,4-	9025-57-4	0.1 - 1
Quartz (SiO ₂)	14808-60-7	0.1 - 1
phosphatase, acid (6-phytase)	9001-77-8	0.1 - 1

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.
- Most important symptoms and effects, both acute and delayed : No specific symptoms known.
- Notes to physician : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES**Flammable properties**

- Flash point : Not applicable

Fire fighting

- Suitable extinguishing media : Water
Foam

- Further information : 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.
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

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- 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.
 - Do not breathe vapours/dust.
 - 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** :
- Store at room temperature.
- Keep container tightly closed and dry.

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

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
cellulose	9004-34-6	TWA	10 mg/m ³	ACGIH
	9004-34-6	TWA (Respirable)	5 mg/m ³	NIOSH REL
	9004-34-6	TWA (total)	10 mg/m ³	NIOSH REL
	9004-34-6	TWA (total dust)	15 mg/m ³	OSHA Z-1
	9004-34-6	TWA (respirable fraction)	5 mg/m ³	OSHA Z-1
quartz (SiO ₂)	14808-60-7	TWA (respirable dust fraction)	0.1 mg/m ³	OSHA P0

Hazardous components without workplace control parameters

Components	CAS-No.
Cellulase	9012-54-8
glucanase, endo-1,3(4)-β-	62213-14-3
xylanase, endo-1,4-	9025-57-4
Phosphatase, acid	9001-77-8

Personal protective equipment

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

Hand protection

Remarks : Consider the hazard characteristics of this product and any special workplace conditions when selecting the appropriate type of protective gloves. Glove material: for example nitrile rubber

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 : powder
- Odour : No information available.
- 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 : not determined
- Partition coefficient: n-octanol/water : Not applicable
- Auto-ignition temperature : No data available
- Thermal decomposition : No data available
- Explosive properties : No data available
- Oxidizing properties : No data available

9.2 Other information

No data available

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 cellulose : LD50 (Rat): > 5,000 mg/kg

cellulase : LD50 (Rat): > 2,880 mg/kg
publicly available data
(OECD Test Guideline 401)

glucanase, endo-1,3(4)- β - : LD50 : > 2,000 mg/kg
(OECD Test Guideline 401)

Xylanase, endo-1,4- : LD50 : > 2,000 mg/kg
(OECD Test Guideline 401)

phosphatase, acid : LD50 : > 2,000 mg/kg
(OECD Test Guideline 401)

Skin irritation : Prolonged skin contact may cause skin irritation.

Eye irritation : Dust contact with the eyes can lead to mechanical irritation.

Sensitisation cellulase : May cause sensitisation by inhalation.

glucanase, endo-1,3(4)- β - : May cause sensitisation by inhalation.

Xylanase, endo-1,4- : May cause sensitisation by inhalation.

phosphatase, acid : May cause sensitisation by inhalation.

Genotoxicity in vitro phosphatase, acid : not mutagenic (Various test systems)

Carcinogenicity
IARC : Group 1: Carcinogenic to humans
quartz (SiO₂) 14808-60-7

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.

STOT - single exposure (Acute exposure) : The substance or mixture is not classified as specific target organ toxicant, single exposure.

Experience with human exposure: Skin contact

cellulase : Prolonged skin contact may cause skin irritation.

glucanase, endo-1,3(4)- β - : Prolonged skin contact may cause skin irritation.

Xylanase, endo-1,4- : Prolonged skin contact may cause skin irritation.

phosphatase, acid : Prolonged skin contact may cause skin irritation.

Experience with human exposure: Inhalation

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.

Xylanase, endo-1,4- : Inhalation may induce sensitization and may cause allergic reactions in sensitized individuals.

phosphatase, acid : Inhalation may induce sensitization and may cause allergic reactions in sensitized individuals.

Aspiration toxicity : No aspiration toxicity classification

SECTION 12. ECOLOGICAL INFORMATION

Toxicity

No data is available on the product itself.

Persistence and degradability

Biodegradability

phosphatase, acid : Readily biodegradable
(OECD Test Guideline 301)

No data is available on the product itself.

Bioaccumulative potential

Bioaccumulation : No data available

Partition coefficient: n-octanol/water : Not applicable

Mobility in soil

Distribution among environmental compartments : No data available

Results of PBT and vPvB assessment

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Assessment : Not applicable

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 : 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**

Not regulated as a dangerous good

Remarks : Not classified as dangerous in the meaning of transport regulations.

SECTION 15. REGULATORY INFORMATION**TSCA list**

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

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

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
zinc acetate dihydrate	5970-45-6	1000	*

*: Calculated RQ exceeds reasonably attainable upper limit.

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
Chronic 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 112 (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 Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

zinc acetate dihydrate 5970-45-6 0.0597 %

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

zinc acetate dihydrate 5970-45-6 0.0597 %

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

Massachusetts Right To Know

sodium sulphate	7757-82-6	20 - 30 %
cellulose	9004-34-6	1 - 5 %
quartz (SiO ₂)	14808-60-7	0.1 - 1 %

Pennsylvania Right To Know

calcium carbonate	471-34-1	30 - 50 %
rice hulls	Not Assigned	30 - 50 %
sodium sulphate	7757-82-6	20 - 30 %
cellulose	9004-34-6	1 - 5 %
zinc acetate dihydrate	5970-45-6	0 - 0.1 %

New Jersey Right To Know

calcium carbonate	471-34-1	30 - 50 %
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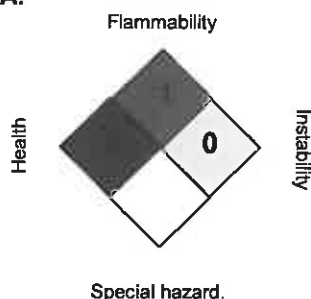
rice hulls	Not Assigned	30 - 50 %
sodium sulphate	7757-82-6	20 - 30 %
White mineral oil (petroleum)	8042-47-5	1 - 5 %
Dextrin	9004-53-9	1 - 5 %
cellulose	9004-34-6	1 - 5 %
quartz (SiO ₂)	14808-60-7	0.1 - 1 %

SECTION 16. OTHER INFORMATION**Full text of other abbreviations**

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; CPR - Controlled Products Regulations; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECl - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Cooperation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Further information

NFPA:



HMIS III:

HEALTH	0*
FLAMMABILITY	1
PHYSICAL HAZARD	0

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.

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