



HUVEPHARMA

OptiPhos[®] PF (1000 PF, 2000 PF, 4000 PF, 6000 PF)

SAFETY DATA SHEET

Revised: November 2015

Page 1 of 7

SECTION 1: IDENTIFICATION

1.1. Product Identifier:

Material name: *E. coli* 6-phytase
Trade name: OptiPhos PF (1000 PF, 2000 PF, 4000 PF, 6000 PF)
Product number: 1111115002, 1111115006, 1111115012, 1111115023

1.2. Manufacturer/Supplier:

Huvepharma Inc.	Huvepharma, Inc.
3360 Maury Avenue	525 Westpark Drive, Suite 230
St. Louis, MO 63116	Peachtree City, GA 30269
	Telephone: 1-770-486-7212
	Emergency telephone: 1-877-994-4883
	Contact e-mail: customerservice@huvepharma.us

1.3. Relevant identified uses and any restrictions:

Intended use: Enzyme feed additive for poultry and swine.
Restrictions on use: For animal use only. Not for human use.

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the chemical:

Health Hazard-Respiratory sensitization
Category 1
H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

2.2. Signal word: Danger

2.3. Statement of hazard:

H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

2.4. Precautionary statement(s):

P261: Avoid breathing dust/fume/gas/mist/vapors/spray.
P285: In case of inadequate ventilation, wear respiratory protection.
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 control center or physician.

2.5. Description of any hazards not otherwise classified:

None.

Version 1

HVP-OPPF-SDS-0615



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SAFETY DATA SHEET

Revised: November 2015

Page 2 of 7

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous

Ingredient	CAS Number	%
<i>E. coli</i> 6-phytase	9001-89-2	13-79%
Calcium Carbonate	N.A.	12-52%
Rice Hulls	N.A.	8-34%
Mineral Oil	N.A.	1%

Additional information: Ingredient(s) indicated as hazardous have been assessed under standards for workplace safety. In accordance with 29 CFR 1910.1200, the exact percentage composition of this mixture has been withheld as a trade secret.

SECTION 4: FIRST-AID MEASURES

4.1. First aid measures:

- **Eye contact:** In case of contact with eyes, rinse immediately for at least 15 minutes with plenty of water-open eyelids forcibly.
- **Skin contact:** In case of contact with skin, wash off with soap and water. Do not use any solvents.
- **Ingestion:** No special measures necessary, rinse mouth thoroughly with water.
- **Inhalation:** May cause sensitization by inhalation of dust. When inhaled, seek medical advice and show physician the label.
- **General:** Change soaked clothing. Remove clothing where dust collected.

4.2. Most important symptoms and effects, both acute and delayed:

Symptoms and effects of exposure: In sensitive and allergized individuals, may cause allergy or asthma symptoms or breathing difficulties if inhaled.

Medical conditions aggravated by exposure: None known.

4.3. Recommended immediate medical attention and special treatment needed: Treat symptomatically.



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SAFETY DATA SHEET

Revised: November 2015

Page 3 of 7

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing media:

Use fire-extinguishing media appropriate for surrounding materials.

5.2. Specific hazards arising from the substance or mixture:

May emit toxic fumes under fire conditions. They are: carbon monoxide, carbon dioxide, nitrogen oxides, and sulfur oxides.

5.3. Advice for firefighters:

Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions and protective equipment:

Avoid generation and spreading of dust. Use personal protective clothing. Follow precautions for safe handling described in this safety data sheet. For personal protection, see Section 8.

6.2. Emergency procedures: Not applicable.

6.3. Methods and materials for containment:

Avoid raising dust.

6.4. Cleanup procedures:

Use a vacuum cleaner or carefully sweep up powder and remove. Clean contaminated floors and objects thoroughly, observing environmental regulations. Flush spill area with water. For waste disposal, see Section 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling:

Avoid formation and deposition of dust. Provide exhaust ventilation if dust is formed. Avoid formulation of aerosols. Handle in accordance with GMP. Keep the workplace clean. Local exhaust is necessary. During transfer of the product, in which product could be exposed to the air, respirators with dust protective filters & PPE should be used if dust becomes overwhelming. Take precautionary measures against electrostatic loading. Observe general rules of industrial fire protection.



HUVEPHARMA

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SAFETY DATA SHEET

Revised: November 2015

Page 4 of 7

7.2. Conditions for safe storage, including any Incompatibilities:

Store product at room temperature in a tightly closed container that is away from direct sunlight.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters:

8.1. Exposure controls:

Provide adequate ventilation. Avoid contact with eyes and skin. Do not inhale dust.

8.2. Engineering controls:

In case of inadequate ventilation use suitable respirator.

8.3. Personal protective measures:

- Hands: Gloves are recommended for prolonged use. Wash hands after contact.
- Eyes: Use tight fitting goggles if dust is generated.
- Skin: Appropriate PPE should be used; protective suits and disposable gloves for complete coverage of exposed skin.
- Respiratory protection: In case of inadequate ventilation use suitable respirator.

8.4. Special requirements for PPE, protective clothing or respirators:

It is recommended to use NIOSH-approved respiratory equipment, e.g. P100 filter (e.g. 3M 8293 mask).

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Physical and chemical properties:

- | | |
|---|---------------------|
| • Appearance: | Brown/Tan, granular |
| • Upper/lower flammability or explosive limits: | Not relevant |
| • Odor: | Characteristic |
| • Vapor pressure: | No data available |
| • Odor threshold: | No data available |
| • Vapor density: | No data available |
| • pH: | Not relevant |
| • Relative density: | No data available |
| • Melting point/freezing point: | Not applicable |
| • Solubility(ies): | Not applicable |
| • Initial boiling point and boiling range: | Not applicable |
| • Flash point: | No data available |
| • Evaporation rate: | No data available |



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SAFETY DATA SHEET

Revised: November 2015

Page 5 of 7

- | | |
|---|-------------------|
| • Flammability (solid, gas): | No data available |
| • Partition coefficient: n-octanol/water: | No data available |
| • Auto-ignition temperature: | No data available |
| • Decomposition temperature: | Not relevant |
| • Viscosity: | Not relevant |
| • Specific gravity: | No data available |

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity: Non-reactive.

10.2. Chemical stability:

Stable under normal temperature conditions and recommended use.

10.3. Other:

- **Possibility of hazardous reactions:** None known.
- **Conditions to avoid:**
Elevated temperatures and humidity and direct sunlight.
- **Incompatible material:**
None that are known.
- **Hazardous decomposition products:**
None that are known.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects General Information:

Data presented refer to purified phytase fermentation product.

Sub-Chronic Repeated Dose Oral Toxicity:

Rats 90 day administration at doses of 100 mg/kg, 500 mg/kg and 1000 mg/kg was safe and well tolerated (revealed no abnormalities related to the treatment.)

Effects on the Respiratory System:

Enzymes are considered respiratory sensitizers. Adequate labeling is already provided for the present product.

Acute Skin Irritation:



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SAFETY DATA SHEET

Revised: November 2015

Page 6 of 7

Rabbits Primary Irritation Index 0 (negligible)-no skin irritation.

Acute Eye Irritation:

Rabbits No eye irritation.

Skin Sensitization:

Guinea Pigs Assessed to be not sensitizing.

Genotoxicity Including Mutagenicity:

The additive cannot be considered as potential mutagenic additive as the results from three mutagenicity tests performed with the purified fermentation products were all negative: Bacterial reverse mutation test; In-vitro Mammalian Chromosomal Aberration test; Mammalian erythrocyte micronucleus test.

Other Types of Toxicity:

Based on the experience that the strain is safe and the other toxicological studies did not raise any concern, no chronic oral toxicity (including carcinogenicity), reproduction toxicity, teratogenicity studies were performed.

Routes of exposure:

Inhalation, ingestion, skin, and eyes.

SECTION 12: ECOLOGICAL INFORMATION

The enzyme is degraded in the gastro-intestinal tract, and as it is of proteinaceous material any remaining material will further degrade in nature. No accumulation will take place.

SECTION 13: DISPOSAL CONSIDERATIONS

Dispose of in accordance with local authority regulations.

SECTION 14: TRANSPORT INFORMATION

Road Transport-ADR, Non-hazardous goods
Rail Transport-RID, Non-hazardous goods
Inland Waterways Transport-ADNR, Non-hazardous goods
Marine Transport-IMDG/UN, Non-hazardous goods
Air Transport-ICAO/IATA-DGR, Non-hazardous good



HUVEPHARMA

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SAFETY DATA SHEET

Revised: November 2015

Page 7 of 7

SECTION 15: REGULATORY INFORMATION

Hazard Statement:

H334-May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Precautionary Statements-Prevention:

P261-Avoid breathing dust/fume/gas/mist/vapors/spray.

P285-In case of inadequate ventilation wear respiratory protection.

Precautionary Statements-Response:

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 poison control or physician.

SECTION 16: OTHER INFORMATION

Prepared by: DT

Issuing date: 11/18/2015

Revision: 1

Huvepharma, Inc. believes that the information contained in this Safety Data Sheet is accurate, and while it is provided in good faith, it is without warranty of any kind, expressed or implied. If data for a hazard are not included in this document there is no known information at this time.

End of Safety Data Sheet



OptiPhos 2000 PF

Product Data Sheet

Purpose: OptiPhos 2000 PF, a phytase, will increase the digestibility of phytic-bound phosphorus in pelleted poultry and swine rations. OptiPhos will allow the producers to reduce the amount of inorganic phosphorus in the diet, in addition to significantly reducing phosphorus levels in manure.

Guaranteed Analysis: Phytase activity (*Pichia pastoris*).....2,000 U/g*

*One unit of phytase (FTU) from *Pichia pastoris* is equal to the amount of enzyme catalyzing the release of 1.0 micromole/minute of phosphorus from an excess of sodium phytate substrate at pH 5.5 and 37°C (98.6°F).

Appearance/Characteristics:

A granular product that is brown/tan in color and has a bulk density of 42 lbs./cubic feet.

Shelf Life/Storage: Unopened product: Store in a dry place at room temperature 22°C (72°F); use within 12 months from the date of manufacture. Refer to container for lot number and manufacturing date.

Opened product: Use container within a short period of time.

Packaging: 25 kg (55.1 lb.) polyethylene lined multi-layer paper bags.

Directions: RECOMMENDED MIXING DIRECTIONS

Mix into complete diets at the following rates (ton=2,000 lbs.):

Species	Grams/ton	lb./ton	FTU/ton of Feed
Layer	55-113	0.12-0.25	110,000-227,000
Broiler	91-453	0.20-1.00	182,000-906,000
Turkey	91-453	0.20-1.00	182,000-906,000
Swine	91-453	0.20-1.00	182,000-906,000