

MATERIAL SAFETY DATA SHEET

UPM BioPiva™ 100

MSDS DATE: 05/15/2017

FORMER DATE: 02/14/2014

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

PRODUCT NAME: UPM BioPiva™ 100
SYNONYMS: Kraft lignin powder
CAS NUMBER: 8068-05-01

REACH registration number

Not registered: Exempted from registration (Regulation (EU) N:o 1907/2006, Annex V and Art. 2 (8)).

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

Identified uses: The product is for research and development purposes. For commercial use as a raw material (e.g. binding agents and composites) and fuel.

1.3 Details of the supplier of the safety data sheet

SUPPLIER: UPM-Kymmene Oyj
DIVISION: UPM Biochemicals
ADDRESS: FI-53200 Lappeenranta, Finland
E-MAIL ADDRESS: lignin@upm.com
TELEPHONE: +358 5041 54235
FAX PHONE: +358 2041 55198

1.4 Emergency telephone number

EMERGENCY NUMBER: 112
Poison Information Centre (in Finland), open 24 h daily
+358 9 471977 or +358 9 4711
PL 790 (Tukholmankatu 17), 00029 HUS (Helsinki)
See section 16 for the list of emergency telephone numbers in other countries.

SECTION 2: HAZARD IDENTIFICATION

2.1 Classification of the substance or mixture

In accordance with current regulations (1272/2008 CLP), this substance has not been classified as hazardous. Classification according to 67/548/EEC-1999/45/EC: no classification.

2.2 Label elements

No labelling: in accordance with current regulations, this substance has not been classified as hazardous.

2.3 Other hazards

May pose a combustible dust explosion hazard if dried or suspended in air at sufficient concentrations and in proximity to an ignition source.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

No hazardous ingredients.

INGREDIENT	CAS NO.	% WT
Kraft lignin	8068-05-01	80-98
Sodium sulphate (impurity)	7757-82-6	0.5-3

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

EMERGENCY OVERVIEW: Kraft lignin may pose a combustible dust explosion hazard if dried and suspended in air in sufficient concentrations in proximity to an ignition source. Users of this product should examine the potential to generate lignin dust

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during handling and processing and related combustibility hazards and controls. See additional comments in MSDS. The primary health hazards posed by kraft lignin are due to skin and eye contact and dust inhalation.

INHALATION: Kraft lignin may cause unpleasant obstruction in the nasal passages, resulting in dryness of nose, dry cough, sneezing, and headaches. Remove person to fresh air. Seek medical advice if persistent irritation, severe coughing, or breathing difficulties occur.

SKIN CONTACT: Flush contaminated skin with plenty of water to remove powder particles. Wash with mild soap and water.

EYE CONTACT: Immediately flush with running water for 15 minutes, also under the eyelids. Treat powder in eyes as a foreign object. Flush with water to remove powder particles. Seek medical help if irritation persists.

INGESTION: Do not induce vomiting. Rinse mouth with water. Drink large amount of water. If persistent irritation or symptoms occur seek medical help.

4.2 Most important symptoms and effects, both acute and delayed

ROUTES OF ENTRY: Skin, inhalation and eyes.

POTENTIAL HEALTH EFFECTS

INHALATION: Prolonged inhalation may result in irritation of the respiratory system.

SKIN: pH is neutral to mildly acidic; prolonged exposure may result in slight irritation. Skin irritation may occur in case of very sensitive persons.

EYES: Contact with dust may cause redness and mechanical irritation of eyes.

INGESTION: Not likely to occur under normal use – may irritate mouth, throat and stomach if ingested.

4.3 Indication of any immediate medical attention and special treatment needed

No information.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Water and dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

As with other organic dusts, airborne clouds of kraft lignin dust may ignite and burn with explosive force. Residual sulphur compounds in material may form toxic sulphur compounds such as sulphur oxides and hydrogen sulphide.

5.3 Advice for firefighters

Be cautious to avoid dispersing dust. Wear self-contained breathing apparatus for firefighting if necessary. Use water to wet down dust to reduce likelihood of ignition.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Avoid inhalation of dust. Arrange good ventilation and use an approved filtering respirator (dust mask), and goggles where ventilation is inadequate or not possible or for additional worker comfort.

6.2 Environmental precautions

Prevent large amounts of product to reach the environment.

6.3 Methods and material for containment and cleaning up

Place recovered kraft lignin in a container for proper disposal.

6.4 Reference to other sections

See sections 7, 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid eye contact. Avoid prolonged or repeated contact with skin. Avoid dust formation. Avoid prolonged or repeated inhalation of kraft lignin. Avoid contact with oxidizing agents, alkalis or drying oils.

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Observe the risk of fire and explosion due to the handling of a dry, dusty product. Danger can be reduced by keeping the product moist. Avoid deposits of dry, fine dust on surfaces or air. Dust handling should be done away from sources of ignition. Normal measures for fire prevention.

7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Avoid accumulation of dust.

Incompatible materials, see subsection 10.5.

7.3 Specific end use(s)

See subsection 1.2.

SECTION 8: EXPOSURE CONTROL/PERSONAL PROTECTION

8.1 Control parameters

OCCUPATIONAL EXPOSURE LIMIT VALUES

Not available for kraft lignin.

Wood dust, inhalable (8 h) 2 mg/m³ (Finland). For new operations or plants, the limit value is 1 mg/m³.

OTHER LIMIT VALUES

No information.

LIMIT VALUES GIVEN IN OTHER COUNTRIES

No information.

DNEL

Chemical safety assessment has not been performed.

PNEC

Chemical safety assessment has not been performed.

8.2 Exposure controls

PERSONAL PROTECTIVE EQUIPMENT

EYE PROTECTION: Tight fitting chemical goggles are recommended.

SKIN PROTECTION: Nitrile or other protective chemical gloves for prolonged or repeated contact.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Chemical protective clothing – if extremely dusty.

WORK HYGIENIC PRACTICES: Wash hands after handling product.

RESPIRATORY PROTECTION: Use approved filtering respirator (dust mask) and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU), or handle dry material in ventilated enclosures such as an approved fume hood if protection from nuisance levels of dusts are desired.

VENTILATION: Approved local exhaust ventilation/fume hood.

PREVENTION OF ENVIRONMENTAL EXPOSURE: Do not allow large amounts of product to reach the environment or sewage system.

SECTION 8 NOTE: Ensure that exhaust ventilation and material transport systems involved in handling this product contain explosion relief vents or suppression systems if operating conditions justify their use.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Brown fine powder or cake. Solid (powder, lump, grain).
Odour	Aromatic odour, vanilla, slightly sulfurous.
Odour threshold	No information.
pH	2.5-4.5 (10 % solution)
Melting point	Does not melt but decomposition starts at 200 °C.
Initial boiling point and boiling range	No information.
Flash point	No information.
Evaporation rate	Not applicable.
Flammability (solid, gas)	Minimum ignition temp. (layer): >440°C Minimum ignition temp. (cloud): 400°C (UNE-EN 50281-2-1:1999)
Upper/lower flammability or explosive limits	LEL 30 g/m ³ .
Vapour pressure	Not applicable.
Vapour density	Not applicable.
Relative density	No information.

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Solubility(ies)	Soluble in water in alkaline conditions.
Partition coefficient: n-octanol/water	No information.
Auto-ignition temperature	No information.
Decomposition temperature	≥200 °C
Viscosity	Not applicable.
Explosive properties	Not explosive, dust explosion possible.
Oxidizing properties	Not oxidizing.

9.2 Other information

Not available.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

No information.

10.2 Chemical stability

Stable under ordinary conditions of use and storage.

10.3 Possibility of hazardous reactions

No information.

10.4 Conditions to avoid

Sources of ignition.
Strong oxidizing agents, avoid open flame.
Avoid dusting. Significant risk of dust explosion in dust-generating operations.

10.5 Incompatible materials

Strong oxidizing agents, alkalis and drying oils.

10.6 Hazardous decomposition products

Thermal decomposition of kraft lignin produces irritating and toxic fumes and gases including acrid smoke, carbon oxides (CO, CO₂), nitrogen oxides (NO, NO₂ etc.), aldehydes and organic acids.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

ACUTE TOXICITY: No classification. Acute inhalation toxicity (LC50, 4 h, rat): >5.12 mg/L (OECD 403).

SKIN CORROSION/IRRITATION: No classification. In vitro skin irritation (OECD TG 439): reconstructed human epidermis test method: not skin irritant.

SERIOUS EYE DAMAGE/IRRITATION: No classification. Draize test (rabbit, OECD 405): not irritating. In-vitro eye irritation (OECD 438): not irritating. May cause mechanical eye irritation.

SKIN SENSITISATION: No classification. Skin sensitisation - Local Lymph Node Assay for EU (OECD TG429): not skin sensitizer. Prolonged or repeated contact with skin may cause allergic reactions to sensitive individuals.

MUTAGENICITY, CARCINOGENICITY OR REPRODUCTIVE TOXICITY: No classification.

STOT-SINGLE EXPOSURE: No classification. May cause respiratory tract irritation in prolonged inhalation.

STOT-REPEATED EXPOSURE: No classification.

ASPIRATION HAZARD: No classification.

POTENTIAL HEALTH EFFECTS: See subsection 4.2.

TOXICOLOGICAL INFORMATION: To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

No information.

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12.2 Persistence and degradability

Slowly biogrades in water and soil (half-life of 1 month – 1 year). Multiple bacterial degradation pathways have been reported.

12.3 Bioaccumulative potential

No information.

12.4 Mobility in soil

No information.

12.5 Results of PBT and vPvB assessment

Chemical safety assessment has not been performed.

12.6 Other adverse effects

No information.

12.7 Additional information

None.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

PRODUCT: Observe all federal, state, and local environmental regulations.

CONTAMINATED PACKAGING: Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number

Not classified for transport.

14.2 UN proper shipping name

None.

14.3 Transport hazard class(es)

None.

14.4 Packing group

None.

14.5 Environmental hazards

Not classified as hazardous to environment.

14.6 Special precautions for user

May form explosive air-dust mixtures.

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

Not applicable.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

No specific regulations.

15.2 Chemical safety assessment

Chemical safety assessment has not been performed.

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SECTION 16: OTHER INFORMATION

CHANGES TO PREVIOUS VERSION

May 15, 2017: Formatting edited to match different language versions.

May 1, 2015: Classification changed, not classified as skin irritant or sensitizer.

February 14, 2014: Harmonised classification for sulphur added. Use category broadened.

October 22, 2012: Content and template updated.

ABBREVIATIONS

CLP – Regulation on Classification, Labelling and Packaging of Substances and Mixtures

DNEL – Derived No-Effect Level

PNEC – Predicted No-Effect Concentration

NIOSH – National Institute for Occupational Safety and Health

CEN – European Committee for Standardization

LEL – Lower Explosive Limit

PBT – Persistent, Bioaccumulative and Toxic

vPvB – Very Persistent and Very Bioaccumulative

LC50 – Lethal concentration, 50 percent

OECD – The Organisation for Economic Co-operation and Development

REFERENCES

Material safety data sheet by producer December 9, 2011.

Degree on Concentrations known to be Hazardous (1213/2011) (HTP-arvot 2011).

USED METHOD FOR CLASSIFICATION

Not relevant.

TRAINING OF WORKERS

See MSDS.

EMERGENCY TELEPHONE NUMBERS

Europe wide emergency number 112

USA, Canada, Brazil 911

Poison information centres

AUSTRIA (Vienna, Wien) +43 1 406 43 43; **BELGIUM** (Brussels, Bruxelles) +32 70 245 245; **BULGARIA** (Sofia) +359 2 9154 409; **CZECH REPUBLIC** (Prague, Praha) +420 224 919 293; **DENMARK** (Copenhagen) 82 12 12 12; **ESTONIA** (Tallinn) 112; **FINLAND** (Helsinki) +358 9 471 977; **FRANCE** (Paris) +33 1 40 0548 48; **GERMANY** (Berlin) +49 30 19240; **GREECE** (Athens, Athinai) +30 10 779 3777; **HUNGARY** (Budapest) 06 80 20 11 99; **ICELAND** (Reykjavik) +354 525 111 or +354 543 2222; **IRELAND** (Dublin) +353 1 8379964; **ITALY** (Rome) +3906 305 4343; **LATVIA** (Riga) +371 704 2468; **LITHUANIA** (Vilnius) +370 5 236 20 52 or +370 687 53378; **MALTA** (Valletta) 2425 0000; **NETHERLANDS** (Bilthoven) +31 30 274 88 88; **NORWAY** (Oslo) 22 591300; **POLAND** (Gdansk) +48 58301 65 16 or +48 58 349 2831; **PORTUGAL** (Lisbon, Lisboa) 808 250 143; **ROMANIA** (Bucharest) +40 21 3183606; **SLOVAKIA** (Bratislava) +421 2 54 77 4166; **SLOVENIA** (Ljubljana) + 386 41 650500; **SPAIN** (Barcelona) +34 93 227 98 33 or +34 93 227 54 00 bleep 190; **SWEDEN** (Stockholm) 112 or +46 833 12 31 (mon-fri 9.00-17.00); **UNITED KINGDOM** (London) 112 or 0845 4647 (NHS Direct).

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