

MATERIAL SAFETY DATA SHEET

<p>CENTRE FOR STANDARDS ADDRESS : HARELBEKESTRAAT 72 9000 GENT BELGIUM</p>

SECTION I : IDENTITY

COMMON NAME	BROMELAIN FIP STANDARD
ORIGIN	pineapple
CAS NUMBER	9001-00-7
LABELLING	- Xn (harmful) - R 36/37/38-42/43 (irritating to eyes, respiratory system and skin, may cause sensitisation by inhalation and skin contact) - S 22-24-37 (do not breath dust, avoid contact with skin and wear suitable gloves)

SECTION II : HAZARDS IDENTIFICATION

Irritating to eyes, respiratory system and skin. May cause sensitisation by inhalation and skin contact.

SECTION III : PHYSICAL DATA

BOILING POINT	n/a
SPECIFIC GRAVITY (H ₂ O = 1)	n/a
VAPOR PRESSURE (mm Hg)	n/a
PERCENT VOLATILE BY VOLUME (%)	n/a
VAPOR DENSITY (AIR = 1)	n/a
EVAPORATION RATE	n/a
SOLUBLE	readily soluble in water (10 g/l) (20 °C)
PH	n/a
BULK DENSITY	near 200 kg/m ³
INCOMPATIBILITIES	none known
REACTIVITY IN WATER	n/a
APPEARANCE AND COLOUR	solid weakly yellowish powder, odourless
FLASH POINT	n/a
FLAMMABLE LIMITS	LOWER n/a UPPER n/a
IN AIR % BY VOLUME	n/a
EXTINGUISHER MEDIA	water, foam and halones
AUTO-IGNITION TEMPERATURE	n/a

n/a = not applicable

SECTION IV : FIRE AND EXPLOSION HAZARD DATA

FLASH POINT	n/a
EXTINGUISHING MEDIA	Water, foam and powder
SPECIAL FIRE FIGHTING AND PROCEDURES	As with all fires, evacuate personnel to safe area. Fire fighters should use self-contained breathing equipment and protective clothing.
UNUSUAL FIRE AND EXPLOSION HAZARDS	This material is assumed to be combustible. As with all dry powders it is advisable to ground mechanical equipment in contact with dry material to dissipate the potential build-up of static electricity
FLAMMABLE LIMITS	LOWER n/a UPPER n/a
STABILITY	() Unstable (x) Stable
CONDITIONS TO AVOID	Material is stable from a safety point of view.
HAZARDOUS DECOMPOSITION PRODUCTS	Not known
HAZARDOUS POLYMERIZATION	() May Occur (x) Will Not Occur

SECTION V : HEALTH HAZARD DATA

TRESHOLD LIMIT VALUE	None established
EFFECTS OF OVEREXPOSURE	LD ₅₀ (oral, rat) > 10000 mg/kg After inhalation : irritations of the mucous membranes, coughing and dyspnoea. After skin contact : irritations After eye contact : irritations After ingestion of large amounts : irritations of mouth, pharynx and oesophagus Systemic effect : sensitisation with allergic manifestations in predisposed persons

PRECAUTIONS TO CONSIDER

Persons developing hypersensitivity (anaphylactic) reactions must receive immediate medical attention. Avoid prolonged or repeated contact with skin. Material may be irritating to mucous membranes and respiratory tract. As a general rule, when handling FIP Reference Standards avoid all contact and inhalation of dust, fumes, mist, and/or vapours associated with the material. Keep container tightly closed and use with adequate ventilation; wash thoroughly after handling. Individuals working with chemicals should consider all chemicals to be potentially hazardous even if their individual hazards may be uncharacterised or unknown.

**MEDICAL CONDITIONS
AGGRAVATED BY EXPOSURE
EMERGENCY AND
FIRST AID PROCEDURES**

Hypersensitivity to material. Dermatological problems.

Remove from exposure. Remove contaminated clothing. Persons developing serious hypersensitivity reactions must receive immediate medical attention. Upon eye or skin contact, flush affected area with copious quantities of water. Use general supportive measures. Obtain medical attention. If not breathing give artificial respiration. If breathing is difficult give oxygen.

1. INHALATION	May cause irritation of respiratory tract. Avoid inhalation. Remove to fresh air. If irritation occurs consult a doctor.
2. EYES	May cause irritation. Flush with copious quantities of water (at least 15 minutes).
3. SKIN	May cause irritation. Flush with copious quantities of water. Remove contaminated clothing.
4. INGESTION	May cause irritation. Flush out mouth with water. If irritation occurs, seek medical advice.

In any case seek medical advice and call the nearest poison centre.

SECTION VI : SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

(SPECIFY TYPE)

Anti-dust mask

VENTILATION

Adequate

LOCAL EXHAUST

Recommended

MECHANICAL (GENERAL)

Recommended

OTHER

n/a

PROTECTIVE GLOVES

Impervious/chemically compatible

EYE PROTECTION

Safety goggles

OTHER PROTECTIVE CLOTHING

OR EQUIPMENT

Protect exposed skin, appropriate laboratory apparel

SECTION VII : SPILL OR LEAK PROCEDURES

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE	Store in tight container. This material should be handled and stored per label and other instructions to ensure product integrity
OTHER PRECAUTIONS	Avoid contact with eyes, skin or clothing. Avoid breathing dust or mist. Use with adequate dust control. Wash thoroughly after handling. Wear fresh clothing daily. Wash contaminated clothing before reuse. Do not permit eating, drinking or smoking near material.
STEPS TO BE TAKEN IN CASE MATERIAL IS SPILLED OR RELEASED	Wear approved respirator and chemically compatible gloves. Vacuum or sweep up spillage. Avoid dust. Place spillage in appropriate container for waste disposal. Wash contaminated clothing before reuse. Ventilate area and wash spill site.
WASTE DISPOSAL METHOD	Dispose of waste in accordance with all applicable Federal, State and local laws.

NOTICE : The information contained herein is applicable solely to the chemical substance when used as a FIP Reference Standard and does not relate to any other use of the substance described. Its use is intended by persons having technical skill and at their own discretion and risk. The information has been developed from sources considered reliable but has not been independently verified by the FIP. Therefore, the FIP Commission cannot guarantee the accuracy of the information in these sources nor should the statements contained herein be considered an official expression. **NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE** is made with respect to the information contained herein.

ATTENTION: This Product is Sold as a Reference Standard for Use in Chemical Analysis. Not for Human Consumption.