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## BROMELAIN (Ananas comosus)

### SPECIFICATION SHEET

I.U.B. 3.4.22.4

### DESCRIPTION

A Non-GMO purified, highly active, soluble proteolytic enzyme derived from the mature pineapple plant stems of the Bromeliceae family (Ananas Comosus).

### PHYSICAL PROPERTIES

A tan to light brown colored free-flowing powder with typical bromelain odor. It is readily soluble in water, the solution being somewhat opalescent due to nonenzymatic particles that are less soluble. Insoluble in alcohol, chloroform and ether. It has a sharp latex odor and mild taste.

### ENZYMATIC PROPERTIES

The effective pH range is 4.0 to 9.0 with the optimum dependent upon the substrate being treated. For example, the optimum pH is 6.0 for casein and 5.0 for gelatin. The effective temperature range is 40°C to 65°C with the optimum being 50°C to 60°C.

### ACTIVITY

Bromelain can be assayed by measuring digestion action on substrates such as casein, gelatin, or nonfat dry milk and the activity is expressed as CDU (Casein Digestion Unit), GDU (Gelatin Digestion Unit), MCU (Milk Digestion Unit) or FCC Botanical Protease Units. The acceptance criteria for all enzyme assays is: NLT 85.0% and NMT 115.0% of the declared units of enzyme activity.\*

**COUNTRY OF ORIGIN** Indonesia

### STORAGE/SHELF LIFE/STANDARD PACK SIZE

Product is stable for two years (24 months) if stored at or below 10°C in sealed poly bags in boxes or drums away from sunlight and high humidity. Product is packed in 25 kilo fiber drums or double-wall boxes

### HANDLING PRECAUTIONS

Avoid the formation of aerosol and dust of the product. Repeated inhalation of enzyme aerosol or dust may cause allergic type reactions in sensitized individuals. For detailed information please refer to the SDS.

Description	Specification	Method
Activity:	NLT 3,000 GDU/GM	Industry
Identity:	Bromelain	FTIR
Moisture:	NMT 10%	Ohaus MB-45
Metals:		
Lead	NMT 5 ppm	SW-846 6020
Microbiological Data:		
TPC	<10,000 CFU/g	Soleris / AOAC 990.12
E. coli	Negative/10g	Soleris / AOAC 991.14
Entero	<100 CFU/g	AOAC 2003.01
Salmonella**	Negative/25g	BAM Ch. 5/AOAC 2011.03
Yeast	<1,000 CFU/g	Soleris / AOAC 997.02
Mold	<1,000 CFU/g	Soleris / AOAC 997.02
Coliforms	<100 CFU/g	Soleris / AOAC 991.14

\*FCC 9 Page 414

\*\*If Entero test results exceed 100 CFU/g then Salmonella testing is completed.

Product Code: 112004/12.15.20

