



CHR. HANSEN

NATUREN Liquid Rennet-15lts / 1000 ltrs Product Information (Aust & NZ)

Description:

NATUREN is a standardised solution manufactured by extraction of the fourth stomach of calves, (the abomasum).

NATUREN contains milk clotting enzymes with a high specific cleaving effect on kappa-casein, resulting in a very good curd formation. The general proteolytic activity has also significant influence on the flavour and texture development of cheese.

NATUREN complies with JECFA (FAO/WHO) and FCC recommended specifications for food grade enzymes.

Chr Hansen's rennets are produced in strict compliance with the regulations of relevant health authorities, for the production of food enzymes.

Appearance:

NATUREN is an amber liquid with a characteristic smell.

Enzyme Content:

The active milk-coagulating enzymes are chymosin (EC 3.4.23.4) and bovine pepsin (EC 3.4.23.1).

Product Range:

The following **NATUREN** rennet types are produced:

Type	IMCU/ ml	Product No.	Chymosin %
Naturen 280 D/ S 15 ltrs	280 ± 10	667601	90
Naturen 280 D/ S 1000 ltrs	280 ± 10	668043	90
Naturen 140 S/ S 15 ltrs	140 ± 5	667602	90

The average strength in IMCU/ ml (International **M**ilk **C**lotting **U**nits) is given as suffix in the name and the enzymatic composition is measured according to IDF Standard 110B. The content of Chymosin is indicated with the remaining part being bovine pepsin.

Note: D/S = Double Strength

S/S = Single Strength

Packaging:

NATUREN is available in the standard packing size of 15 and 1000 litre or a size which can be tailored to specific vat volumes. In addition, all are packed to a tolerance of $\pm 1\frac{1}{2}\%$ of the nominal volume in either rigid recyclable or flexible packing.

**Technical Data/
Specification:**

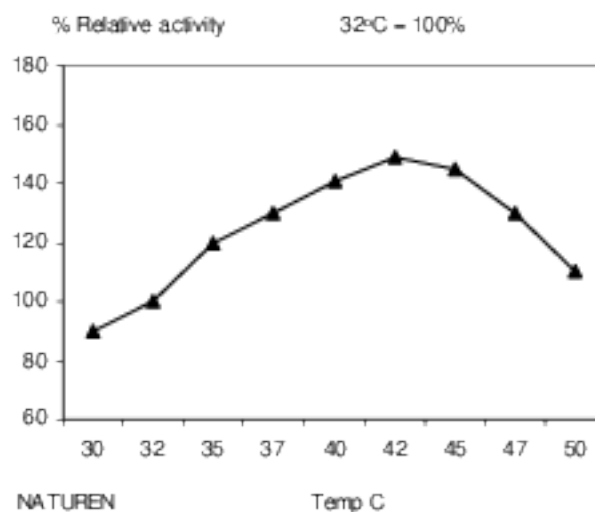
pH:	5 – 6
Sodium chloride:	min 16% w/v
Heavy metals:	
Arsenic:	<3 ppm
Lead:	<5 ppm
Mercury:	<0.5 ppm
Cadmium:	<0.5 ppm

Residual Activity:

All **Naturen** products are inactivated (>98%) during normal pasteurisation of whey (72°C for 15 sec), if the whey has a pH at 6.0 or higher.

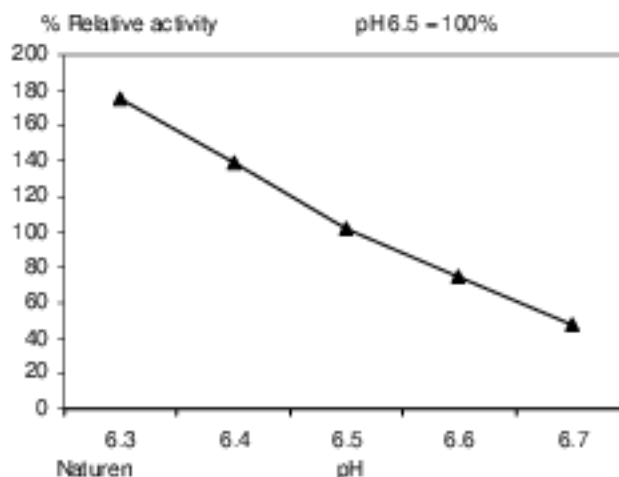
Temperature:

The relative activity of different rennet types depends on the temperature. The temperature optimum for **NATUREN** is around 42°C.

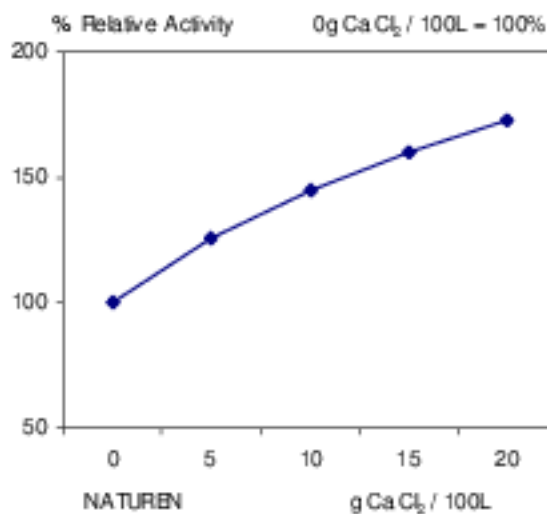
Influence of temp on clotting activity

pH:

The activity of rennets is dependent on the pH in the milk. **NATUREN** has little sensitivity to pH change, because of its high chymosin content.

Influence of pH on clotting activity**Calcium:**

Addition of Calcium Chloride to the milk increases the activity of **NATUREN** mainly due to the decrease in pH. Excessive use of Calcium Chloride could induce bitterness in the cheese.

Influence of Ca Cl₂ on Clotting Activity

Storage/ Transport:

NATUREN should be stored in a cool place at temperatures between 0°C and 8°C in the closed original container.

NATUREN may be transported under such conditions that the temperature of the product will not exceed 20°C.

Stability:

When handled as mentioned under storage/transport, the product will comply with the specifications for at least 12 months.

Application:

NATUREN is suitable for cheesemaking of any type of cheese – hard cheeses, semi-hard cheeses, soft cheeses and mould cheeses.

How to Use:

Heat the milk to the desired renneting temperature. Guidelines for dosage are given in the table below. It is advised not to dilute the liquid in larger quantities than needed, to ensure a uniform distribution in the cheese vat. It is recommended to dilute 1 part rennet in 5-15 parts of water prior to use. The water must be clean with slightly acid to neutral pH and free from chlorine. The diluted rennet is added immediately to the milk while stirring for 2 –3 minutes. It is important that the rennet is properly distributed in the milk.

Dosage :

Guidelines for the dosage for rennets are given in the table below.

Product Name	Dosage MI/ 100ltr milk
Naturen 280 D/ S Naturen 140 S/ S	10 / 100 ltr 20 / 100 ltr

The correct dosage of rennets depends on the following factors:

- ❖ Strength and type of the rennet
- ❖ Cheese type
- ❖ Temperature of the cheese milk
- ❖ pH of the cheese milk when adding the rennet
- ❖ The use of starter
- ❖ Cheese milk
- ❖ Dosage of CaCl_2 and NaCl

Some of these factors vary from country to country, from dairy to dairy and sometimes from day to day. Therefore, the exact dosage should be adjusted individually.

Handling Precautions:

The product is non-flammable, completely miscible with water and safe when used according to directions. For additional information, please refer to Safety Data Sheets.

Technical Service:

Chr Hansen offers assistance and instruction through the use of its world-wide facilities and technological experience.

The information contained herein is, to our knowledge, true and correct and presented in good faith. To the best of our knowledge, this product does not infringe the Intellectual Property Rights of any third party.