

CHR HANSEN

SALSA 1, SALSA 2*Staphylococcus xylosus*

Product Information

*Bacteria cultures***Description**

Staphylococcus xylosus belongs to the ***Micrococcaceae***. Both genera *Staphylococcus* and *Micrococcus* - belonging to the *Micrococcaceae* - are present in the natural flora of many cheeses. *Staphylococcus* is the predominant genus. *Staphylococcus xylosus* is an important bacterium in cheesemaking processes due to its **flavouring** and **texturing activity** as well as its role in the **colouring** of the surface - for smeared cheeses - when pigmented.

Origin

Staphylococcus xylosus cultures are the result of the latest technological development within ripening bacteria cultures. The *Staphylococcus xylosus* cultures are selected single strains with origin in traditional cheesemaking.

Technical data

Product name	Pigmentatio (color)	Flavourin	Texturin
SALSA 1	Light orange	High	High
SALSA 2	Beige	Low	High

Enzymatic activities

Product name	Proteolysis	Amino-peptidase	Lipolytic activity	Esterasic activity
SALSA 1	High	Very low	Very low	Low
SALSA 2	Medium	Very low	Very low	Medium

EN-SALSA-PI-05-2003

1/6

Chr. Hansen SA - Le Moulin d'Aulnay - BP 64 - 91292 Arpajon - Phone: 01.69.88.36.36 - Fax: 01.60.84.15.94 - www.chr-hansen.com

The information contained herein is to our knowledge true and correct, and presented in good faith. However, no warranty, guarantee or freedom from patent infringement is implied or inferred. This information is offered solely for your consideration and verification, and may not be duplicated or used in any other form without Chr. Hansen's prior written consent.

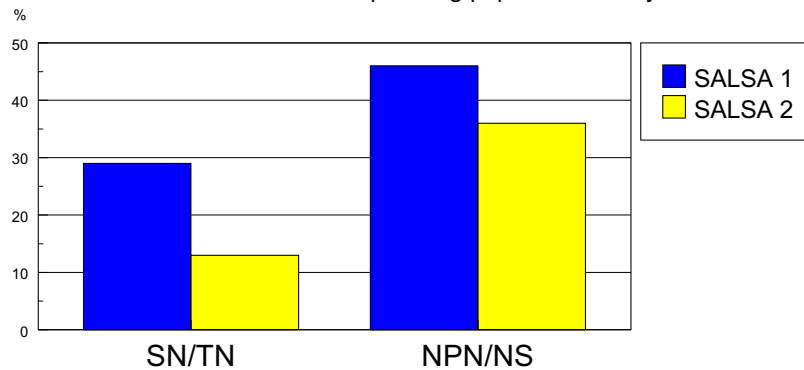
SALSA 1 - SALSA 2

Product Information



Proteolytic activity

SN/TN = ratio expressing caseolytic activity
 NPN/SN = ratio expressing peptidase activity



TN = total nitrogen, SN = soluble nitrogen, NPN = soluble non proteic nitrogen

Inoculation level:	3u/100 kg
Substrate:	Soft cheese model
Temperature and duration:	18 days at 12°C + 12 days at 4°C

Physiological features

	SALSA 1 - SALSA 2
Temperature	Min 4°C, max 40°C, opt. 30°C
pH	Moderate acido sensible cultures
Salt	Possible inhibition - depending on strains
O₂	Aero-anaerobic culture
Lysozyme	Possible inhibition - depending on strains. To be taken into consideration when inoculation into the milk

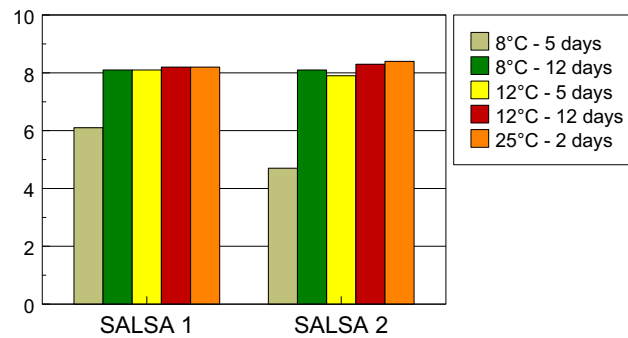
SALSA 1 - SALSA 2

Product Information



Influence of temperature

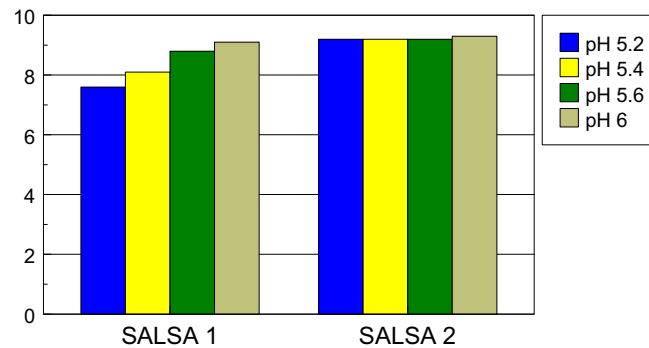
Log N - Growth (cfu/ml)



Inoculation level:	10 ⁴ cfu per ml
Broth:	Trypcase soy broth

Influence of pH

Log N - Growth (cfu/ml) after 72 hours



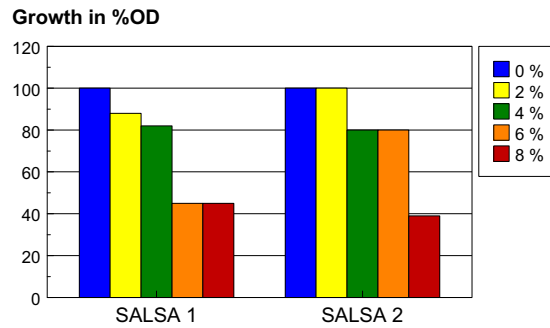
Inoculation level:	5 x 10 ⁵ cfu per ml
Broth:	Casein soy broth
Temperature:	25°C

SALSA 1 - SALSA 2

Product Information



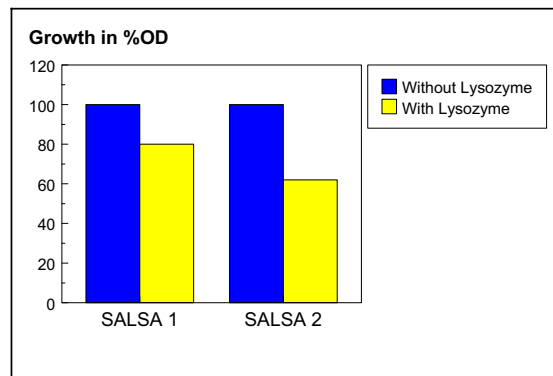
Influence of salt (NaCl)



Inoculation level:	10 ⁴ cfu per ml
Broth:	Casein soy broth
Temperature:	30°C
Duration:	2 days

Influence of lysozyme

Dosage of lysozyme: 100 ml of Afilact Fluid or 20 g of Afilact Instant/1,000 l vat milk



Inoculation level:	10 ⁴ cfu per ml
Broth:	Casein soy broth
Temperature:	30°C
Duration:	2 days



Range

Item no	Name	Form	Unit	No of pouches/boxes
201026	SALSA 1	FD	10	10
201076	SALSA 2	FD	10	10

Storage

SALSA 1 and SALSA 2 can be used up to 18 weeks after packing when stored at 18°C.

Application

SALSA 1 and SALSA 2 can be used in many types of cheeses. Please see the following table.

Cheese type	Application
SALSA 1 All smeared cheeses	Pigmentation. Generates flavour. Sulphur notes/ traditional smeared cheese aroma. Contributes to soften the cheese body.
SALSA 2 All soft and semi-hard cheeses	Contributes to soften the cheese body. Decreases ripening time.

SWING interplay

Combined with a yeast, eg LAF 3, growth and effect of SALSA cultures will be stimulated.

Recommended Dosage

SALSA 1 and SALSA 2: 1u/1,000 l of milk.

How to use

SALSA cultures can be added to the milk before renneting and/or applied on the curd surface by spraying or washing.

The logo for Chr. Hansen, featuring the text "CHR HANSEN" in white on a dark blue rectangular background, with a small green diamond shape positioned below the letter "H".

Technical service

Chr. Hansen's world-wide facilities and personnel of our applied technological department are at your disposal with assistance and instruction.

EN-SALSA-PI-05-2003

6/6

Chr. Hansen SA - Le Moulin d'Aulnay - BP 64 - 91292 Arpajon - Phone: 01.69.88.36.36 - Fax: 01.60.84.15.94 - www.chr-hansen.com

The information contained herein is to our knowledge true and correct, and presented in good faith. However, no warranty, guarantee or freedom from patent infringement is implied or inferred. This information is offered solely for your consideration and verification, and may not be duplicated or used in any other form without Chr. Hansen's prior written consent.

text and
Insert Picture
in frame

CHR HANSEN

SALSA 1, SALSA 2

Staphylococcus xylosus

Appendix
Bacteria cultures

The genus *Staphylococcus*

As well as *Micrococcus*, *Staphylococcus* is a genus belonging to the *Micrococcaceae* family.

Among the 27 species belonging to *Staphylococcus* three of them are well-known for being pathogenic for humans and animals, ie the following:

- *Staphylococcus aureus*
- *Staphylococcus intermedius*
- *Staphylococcus hyicus*

The other *Staphylococcus* species are mainly represented by germs largely represented in the nature without representing any risk for humans. Some of them are present in the natural flora of fermented food, ie in cheese or meat.

How to differentiate between pathogenic and non-pathogenic *Staphylococcus*?

Coagulase enzymes

Pathogenic *Staphylococcus* produce coagulase enzymes which are able to coagulate blood plasma. These germs are thus called coagulase+. These enzymes may either be excreted or bound to the cell surface. If they are bound to the cell surface they are called "clumping factors". This form is specific for *Staphylococcus aureus* which causes severe fever to humans.

Other enzymes or toxins

Other enzymes, eg lecithinase, or toxins may have a role in the infection process. Some of them are specifically produced by *Staphylococcus aureus* and are used for the identification of these species.

The species *Staphylococcus xylosus*

Micrococcaceae are well-known as part of the natural flora of smeared cheeses as well as traditional French Camembert. Among the *Micrococcaceae*, *Staphylococcus xylosus* is the one often found in the above-mentioned cheese flora:

Benchmarks - Micrococcaceae population on cheeses:

- ◆ Traditional French Camembert: 10^6 to 10^9 cfu/g (surface) and 10^3 to 10^6 cfu/g in the cheese paste.
- ◆ Roquefort: approx 10^{10} cfu/g on the surface and 10^6 cfu/g in the cheese paste.

Staphylococcus xylosus does not produce any coagulase (due to which this specie is called coagulase-), any "clumping factor" or lecithinase.

EN-SALSA-PISPEC-0500

1/2

Chr. Hansen SA - Le Moulin d'Aulnay - BP 64 - 91292 Arpajon - Phone: 01.69.88.36.36 - Fax: 01.60.84.15.94 - www.chr-hansen.com

The information contained herein is to our knowledge true and correct, and presented in good faith. However, no warranty, guarantee or freedom from patent infringement is implied or inferred. This information is offered solely for your consideration and verification, and may not be duplicated or used in any other form without Chr. Hansen's prior written consent.

SALSA 1, SALSA 2

Appendix

CHR HANSEN

**Comparison between *Staphylococcus xylosus* - *Staphylococcus aureus*:
Characteristics and identification**

	<i>S. aureus</i>	<i>S. xylosus</i>
Growth on Baird Parker media*	+	+
Black colonies on presence of potassium tellurite*	+	+
Lecithinase* (lyse around colonies on B. Parker + yellow egg)	+	-
Free coagulase (coagulation of blood plasma)	+	-
Growth at 44°C	+	- (weak)
Clumping factor (germ agglutination in presence of blood plasma)	+	-
Novobiocine sensitivity*	S	R
Protein A (wall protein able to establish link with human immunoglobulin) Slidex Staph Kit - bioMérieux SA	+	-
Fibrinogen receptor* (these receptors lead to the coagulation of red blood cells in presence of fibrinogen) Staphyslide test - bioMérieux SA	+	-
β-galactosidase* (ONPG disque test)	-	+
Hemolysine presence (toxine inducing red cell blood lysis) ELISA test	+	-
Enterotoxine presence (inducing food intoxication) ELISA test	+	-

* tests made at Chr. Hansen's, France

EN-SALSA-PISPEC-0500

2/2

Chr. Hansen SA - Le Moulin d'Aulnay - BP 64 - 91292 Arpajon - Phone: 01.69.88.36.36 - Fax: 01.60.84.15.94 - www.chr-hansen.com

The information contained herein is to our knowledge true and correct, and presented in good faith. However, no warranty, guarantee or freedom from patent infringement is implied or inferred. This information is offered solely for your consideration and verification, and may not be duplicated or used in any other form without Chr. Hansen's prior written consent.