

CHOOZIT™

Solutions for Cheddar Cheese



Give Cheddar cheese the quality, consistency and taste consumers prefer with Danisco's complete range of top performing cultures.

Combinations of CHOOZIT™ Cultures secure fast acidification, well-defined flavours and phage protection – in short, everything a manufacturer needs to live up to consumer expectations.

Produced at the rate of more than two million tonnes a year, Cheddar cheese is a market worth making the most of. Mature and flavoured Cheddar for the premium and low-fat segments is a particular growth area, as are strong flavours in food products where Cheddar is used as an ingredient.

The Danisco range for Cheddar cheese comprises acidifying cultures, blends of thermophilic and mesophilic bacteria, Ripening Enzymes and Flavour Adjuncts.



DANISCO

First you add knowledge...

A comprehensive range to enhance flavours quicker

Danisco offers a range of key ingredients for Cheddar-type cheeses that provide reliable acidification, customized flavours and great texture:
 – A comprehensive range of freeze-

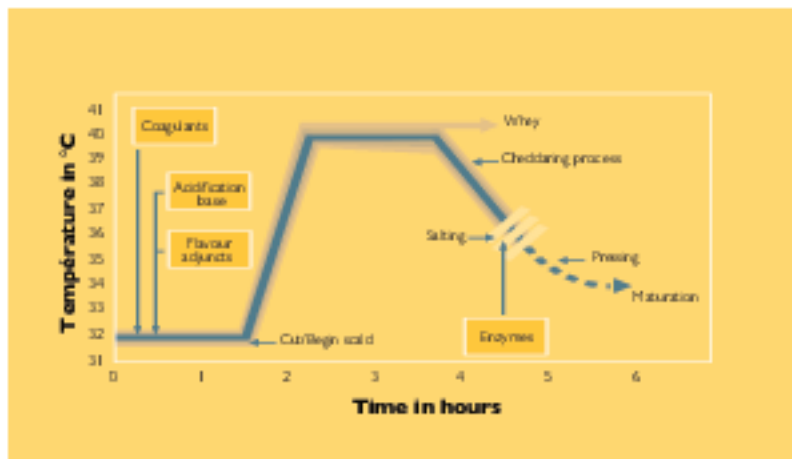
dried and frozen direct inoculation systems as well as blends of acidification starters and flavour adjuncts

- CHOOZIT™ FLAV flavour adjuncts combining acid, sulphur, sweet or savoury notes, including CHOOZIT™

FLAV 43, a patented solution

- CHOOZIT™ Flavogard attenuated starter for bitterness prevention and texture improvement (Low Fat Cheese)
- Accelase® enzymes for accelerated ripening

Temperature process flow chart



Benefits of using Danisco cultures

	Customer Benefits	Consumer Benefits
DVI cultures for acidification	Reliability and reproducibility in acidification and final pH control Phage control (fewer generations in cheese factory) Ready-to-use cultures Cost saving High activity (RA70's)	Quality consistency of the end product Homogeneous texture Product safety
DVI Flavour Adjuncts	Accelerate flavour production and ripening, cost saving Enhance overall intensity	Provide more intensely flavoured cheeses Improved flavour recognition from the consumer
Ripening enzymes	Customized flavour profiles Shorten ripening Enhance strong flavours for cheese as food ingredient	Improve texture and taste Increased cheese value

Danisco range for Cheddar

Acidification

CHOOZIT™ acid cultures primary purpose are to convert lactose into

lactic acid in the production of many cheese types including Cheddar:

Products	Composition	Dosage (/1,000L)	Format	Comments
CHOOZIT™ RA 020 series (RA 21, 22, 24, 26)	<i>Lc. lactis</i> , <i>Lc. cremoris</i> , <i>St. thermophilus</i>	5-10 DCU	Freeze-dried	Fast acidifying cultures for premium Cheddar providing a unique flavour
CHOOZIT™ RA 070 series (RA 71, 73)	<i>Lc. lactis</i> , <i>Lc. cremoris</i> , <i>St. thermophilus</i>	3-8 DCU	Freeze-dried	Very fast acidifying culture
CHOOZIT™ MR 800 series (MR 801, 803, 820, 830)	<i>Lc. lactis</i> , <i>St. thermophilus</i>	5-15 DCU	Frozen pellets	Very fast acidifying culture

Lc. lactis: *Lactococcus lactis* *Lc. cremoris*: *Lactococcus cremoris* *St. thermophilus*: *Streptococcus thermophilus* DCU: Danisco Cultures Units

Flavour enhancement control

The CHOOZIT™ FLAV Flavour Adjuncts range strongly enhances the

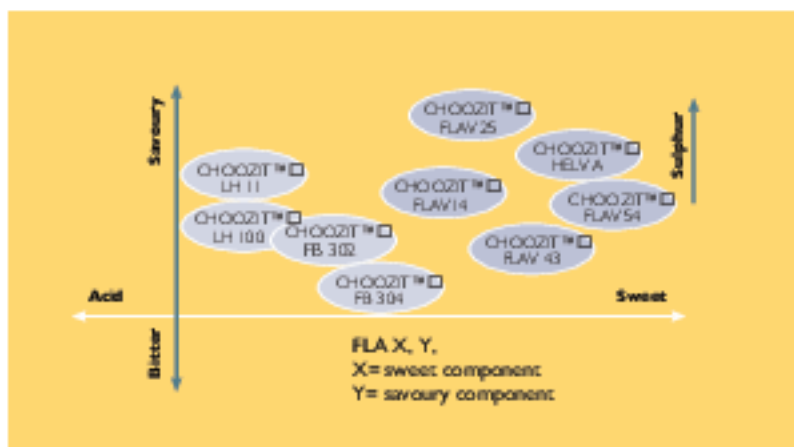
flavour development in Cheddar by way of key notes: savoury, sweet, acid or sulphur. It is then possible to achieve

different styles of flavour. These strains also shorten ripening time and reduce manufacturing costs.

Products	Composition	Dosage (/1,000L)	Format	Comments
CHOOZIT™ FLAV 14	<i>Lb. plantarum</i>	0.2-1 dose	Freeze-dried	Sharp and savoury note
CHOOZIT™ FLAV 25	<i>Lb. helveticus</i>	0.2-1 dose	Freeze-dried	Sulphuric and savoury note
CHOOZIT™ FLAV 43	<i>Pc. acidilactici</i>	0.2-1 dose	Freeze-dried	Sweet and savoury note, patented solution (Pediocine production)
CHOOZIT™ FLAV 54	<i>Lb. helveticus</i>	0.2-1 dose	Freeze-dried	Sweet and savoury note, autolysis properties
CHOOZIT™ Helv A	<i>Lb. helveticus</i>	0.2-1 dose	Frozen pellets	Sweet and savoury note
CHOOZIT™ LH 11	<i>Lb. helveticus</i>	2-4 DCU	Frozen	Mostly savoury flavour notes
CHOOZIT™ LH100	<i>Lb. helveticus</i>	2.5-5 DCU	Freeze-dried	Balanced, rounded notes
CHOOZIT™ FB 302	<i>Lb. casei</i>	5 DCU	Frozen can	Balanced, rounded notes
CHOOZIT™ FB 304	<i>Lb. casei</i> , <i>Lb. helveticus</i>	5 DCU	Frozen	Mostly sweet flavour notes

Lb. plantarum: *Lactobacillus plantarum* *Lb. helveticus*: *Lactobacillus helveticus* *Pc. acidilactici*: *Pediococcus acidilactici* *Lb. casei*: *Lactobacillus casei*
DCU: Danisco Cultures Units

Range positioning





Other blends

All in one blends providing acidification and flavour formation.

Products	Composition	Dosage (Doses/1,000L of milk)	Format	Comments
CHOOZIT™ RAF 070 series	<i>Lc. lactis</i> , <i>St. thermophilus</i> , <i>Lb. helveticus</i>	4-7 DCU	Freeze-dried	Fast ripening, sweet and savoury flavour
CHOOZIT™ MRF 900 series	<i>Lc. lactis</i> , <i>St. thermophilus</i> , <i>Lb. helveticus</i>	4-7 DCU	Frozen	Fast ripening, flavour enhancement

Lc. lactis: *Lactococcus lactis* *St. thermophilus*: *Streptococcus thermophilus* *Lb. helveticus*: *Lactobacillus helveticus* DCU: Danisco Cultures Units

Enzymes

Accelase® can be used in some applications according to local regulations.

Accelase®	Application	Effect on texture	Dosage (% per ton of cheese)	Comments
AMC 50	Salt addition	+	0.55	Enhance British Cheddar flavour
AM 59	Salt addition	+	0.55	Swiss flavour
AM 113	Salt addition	+	0.55	Cheddar as food ingredient
AM 119	Milk addition	+	0.55	Parmesan flavour
AM 317	Milk addition	+	0.55	Enhance Cheddar flavour
RST 100	Salt addition	+	0.2-0.35	Parmesan flavour
AM 250M	Dual addition	+++	0.75	Low-Fat Cheddar
AM 250C	Dual addition	+++	0.75	Low-Fat Cheddar

CHOOZIT™ Flavogard cultures

Used at 20-60 FLAPU/100L for low-fat Cheddar; improving texture and flavour (bitterness prevention).

Coagulants

Danisco also provides a large range of coagulants: Marzyme® (microbial coagulant) produced by fermentation of the organism *Mucor miehei*.

Danisco Cultures Units (DCU)

Danisco has launched a new universal unit system for defining culture activities within the DVI lactic range. The Danisco

Cultures Units system (DCU) replaces all previous systems, harmonizes the dosage recommendations, and applies to all frozen and freeze-dried lactic DVI cultures. The

aim is to harmonise and standardise the previous systems, making the real activities of the cultures easily understandable whatever the product format.

The information contained in this publication is based on our own research and development work and is to the best of our knowledge reliable. Users should, however, conduct their own tests to determine the suitability of our products for their own specific purposes and the legal status for their intended use of the product. Statements contained herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for the infringement of any patents.

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First you add knowledge ...