

**CHR HANSEN**

*Improving food & health*

# Dairy Cultures & Enzymes Product Catalog

2015



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# Information on Direct Vat Set / DVS

## DESCRIPTION

DVS is a highly concentrated and standardized frozen or freeze-dried dairy culture, used for direct inoculation of milk. DVS cultures need no activation or other treatment prior to use.

## APPEARANCE

Frozen DVS cultures are water-soluble pellets, approximately 5 mm in diameter, with off-white to brownish color. The pellets have a slight peptone-like odor. Freeze-dried DVS cultures are water-soluble granules, 2-5 mm in diameter, with off-white to slightly red or brown color. The granules have a slight peptone-like odor.

## TECHNICAL DATA

Chr. Hansen's DVS cultures rely only on lactic acid bacteria internationally approved for the dairy industry. Our cultures are all of natural origin and are produced using the latest production technology. The number of viable cells in frozen DVS cultures is min  $1 \times 10^{10}$  cfu per gram. In freeze-dried DVS cultures the number is min  $5 \times 10^{10}$  cfu per gram.

## PURITY

Chr. Hansen's DVS cultures comply with IDF 149A (International Dairy Federation) standards regarding maximum contaminant content.

## STORAGE AND STABILITY

Frozen DVS cultures should be stored at  $-45^{\circ}\text{C}$  ( $-49^{\circ}\text{F}$ ) or below. If frozen DVS cultures are stored correctly, the shelf life is at least 12 months. Freeze-dried DVS cultures should be stored at  $-18^{\circ}\text{C}$  ( $0^{\circ}\text{F}$ ) or below. If freeze-dried cultures are stored correctly, the shelf life is at least 24 months. At  $+5^{\circ}\text{C}$  ( $41^{\circ}\text{F}$ ) the shelf life is at least 6 weeks.

## GUARANTEE

Chr. Hansen's dairy cultures are produced in strict conformity with the regulations of local health authorities.

## TECHNICAL SERVICE

Chr. Hansen has internationally dispersed development centers, as well as application centers in all major dairy markets. For specific application advice and support, please contact your local Chr. Hansen representative

## PERFORMANCE RATING

Chr. Hansen cultures are designed to perform in specific product applications and our range covers a wide selection of cultures with unique performances. The culture's performance is, when relevant, rated for acidification speed, phage robustness, flavor contribution, gas production, texture, and/or post acidification on a scale from 1 to 5 in which 1 is low and 5 is high.



# Information on Enzymes and Coagulants

## DESCRIPTION

**CHY-MAX® M** is a second-generation fermentation produced chymosin (FPC), which delivers numerous benefits including yield increase, dosage reduction, improved texture stability, better taste, reduced bitterness and increased whey value.

**CHY-MAX® Extra** is the first-generation FPC, which delivers several benefits such as increased yield, better flavor profile and enhanced whey value when compared with microbial coagulants.

**Hannilase®** Is a microbial coagulant produced by the fungus *Rhizomucor miehei*. HANNILASE® is the right coagulant for Organic cheese (NB version), home made and informal cheese production.

**YieldMAX® PL** enhances fat value and improves yield in pizza cheese.

**LactoYIELD®** enhances whey value and increases yield in pizza cheese.

**Ha-Lactase™** hydrolyses lactose to a mixture of glucose and galactose.

## TECHNICAL DATA

In order to meet your needs, Chr. Hansen enzymes and coagulants are available in different packaging sizes and different strengths, both in liquid and granulated forms

## PURITY

Chr. Hansen's fermentation produced enzymes are tested for the relevant mycotoxins and metabolites according to JECFA's General Specifications for Enzymes.

## STORAGE AND STABILITY

**Liquid coagulants** should be stored under refrigeration at 32 to 46°F or 0 to 8°C (avoid freezing) to ensure maximum activity. Shelf life is 12 months from quality release when stored according to the recommended storage conditions. Shelf life is limited to 6 weeks after opening, provided the product is kept according to the recommended storage conditions.

**Powder coagulants** should be stored dry at <10°C / <50°F. Shelf life is 24 months from quality release when stored according to the recommended storage conditions. Shelf life is limited to 3 months after opening, provided the product is maintained according to the recommended storage conditions.

## GUARANTEE

Chr. Hansen's enzymes and coagulants are produced in strict compliance with the regulations of Danish and other relevant health authorities for the production of food enzymes.

## TECHNICAL SERVICE

Chr. Hansen has internationally dispersed development centers, as well as application centers in all major dairy markets. For specific application advice and support, please contact your local Chr. Hansen representative




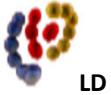







## PERFORMANCE RATING

Chr. Hansen enzymes and coagulants are designed to perform in specific product applications. Our range includes a selection of products with different activity strength expressed in IMCU/ml, NLU/g, LEU-P/ml or LFU.











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# Types of Microorganisms in Dairy Cultures

Culture Type	Name	Characteristics
	<i>Lactococcus lactis</i> subsp. <i>cremoris</i> <i>Lactococcus lactis</i> subsp. <i>lactis</i>	Mesophilic Homofermentative Flavor contribution
	<i>Leuconostoc</i> sp.	Mesophilic Heterofermentative Gas production
	<i>Lactococcus lactis</i> subsp. <i>lactis</i> biovar <i>diacetylactis</i>	Mesophilic Homofermentative Flavor contribution Gas production from citrate
	<i>Lactococcus lactis</i> subsp. <i>cremoris</i> <i>Lactococcus lactis</i> subsp. <i>lactis</i> <i>Leuconostoc</i> sp. <i>Lactococcus lactis</i> subsp. <i>lactis</i> biovar <i>diacetylactis</i>	Mesophilic Heterofermentative Flavor contribution Gas production
	<i>Streptococcus thermophilus</i>	Thermophilic Homofermentative
	<i>Lactobacillus helveticus</i>	Thermophilic Homofermentative Flavor contribution
	<i>Lactobacillus delbrueckii</i> subsp. <i>bulgaricus</i>	Thermophilic Homofermentative Flavor contribution
	<i>Lactobacillus paracasei</i>	Mesophilic Fac. Heterofermentative Flavor contribution
	<i>Lactobacillus delbrueckii</i> subsp. <i>lactis</i>	Thermophilic Homofermentative Flavor contribution
	<i>Lactobacillus rhamnosus</i>	Thermophilic Fac. Heterofermentative Flavor contribution
	<i>Lactobacillus curvatus</i>	Mesophilic Fac. Heterofermentative Flavor contribution

# Types of Microorganisms in Dairy Cultures

Culture Type	Name	Characteristics
 Lb pl	<i>Lactobacillus plantarum</i>	Mesophilic Fac. Heterofermentative Flavor contribution
 Lb jo	<i>Lactobacillus johnsonii</i>	Thermophilic Homofermentative Flavor contribution
 P ac	<i>Pediococcus acidilactici</i>	Thermophilic Homofermentative Flavor contribution
 PC	<i>Penicillium candidum</i>	Surface yeast Flavor contribution White to grayish color tones
 PR	<i>Penicillium roqueforti</i>	Core yeast Flavor contribution Green to bluish color tones
 GEO	<i>Geotrichum candidum</i>	Surface yeast Flavor contribution
 LAF	Yeast	Surface yeast Flavor contribution pH neutralizing and/or fermenting properties
 SALSA	<i>Staphylococcus xylosus</i>	Flavor contribution
 BL	<i>Brevibacterium</i>	Smearing bacteria Flavor contribution Surface coating Orange color tones
 PAB	<i>Propionibacterium</i>	Thermophilic Heterofermentative High gas production

Enzymes & Coagulants		Product Form and Item Number									
Product Name	Activity	Liquid							Powder		
	Average Strength	6x1 liter Bottles in Box	4x1 gal Container	1x5 gal Container	1x55 gal Drum	1x265 gal Tote	1x10 L Bag in Box	1x20L Jerry Can	1x1 kg Bag	1x5 kg Can/Tin	20x0.5kg Can/Tin
<b>Fermentation Produced Chymosin (FPC)</b>											
CHY-MAX® Extra	640 IMCU/mL		73812	73811	73810	73890					
CHY-MAX® Extra Powder NB	2235 IMCU/g										142514
CHY-MAX® Ultra	765 IMCU/mL			73727							
CHY-MAX® M 1000 NB	1000 IMCU/mL							129205			
CHY-MAX® M	1000 IMCU/mL	127202		127223	127224						
Cottage Cheese Coag	17.4 IMCU/mL		70677								
<b>Microbial Coagulants</b>											
HANNILASE® XP 750	750 IMCU/mL			706293		711051					
HANNILASE® XP 750 NB	750 IMCU/mL							118905			
<b>Lactase</b>											
Ha-Lactase™ 5200	5200 NLU/g		705612								
Ha-Lactase™ S2000	2000 NLU/g						450706				
<b>Yield Enhancing Enzyme (Phospholipase)</b>											
YieldMAX® PL	2300 LEU-P/mL			191223							
<b>Microbial Lipase</b>											
SpiceIT™ AC	80 LFU								712149		
SpiceIT™ AG	80 LFU								712150		
SpiceIT™ AL	80 LFU								712151		
SpiceIT™ AM	57 LFU								712152		
SpiceIT™ MR	4000 LFU/g									710600	

Cheese Cultures								Product form and item number							
Culture name	Composition			Performance				Frozen DVS							
	O	ST	LbB	Acidification speed	Phage Robustness	Flavor Contribution	Gas production	6 x 1000U Bags in Box	5 x 1200U Bags in Box						
<b>EASY-SET® A900 Series</b>															
A920	■	■		5	5	2	0	666123	672796						
A926	■	■		5	5	2	0	706886	707069						
A940	■	■		5	5	2	0	666284	681177						
A945	■	■		5	5	2	0	668824	699043						
A955	■	■		5	5	3	0	673781	681178						
A965	■	■		5	5	2	0	699023	699219						
A986	■	■		5	5	2	0	707656							
A990	■	■		5	5	3	0	691292	705000						
<b>EASY-SET® A2000 Series</b>															
A2020	■	■		5	5	2	0	683735							
A2021	■	■		5	5	2	0	705284							
A2026	■	■		5	5	2	0	704416							
A2040	■	■		5	5	2	0	683736							
A2045	■	■		5	5	2	0	694905							
A2055	■	■		5	5	2	0	683737							
A2065	■	■		5	5	2	0	698298							
A2070	■	■		5	5	2	0	704057							
<b>EASY-SET® A3000 Series</b>															
A3010	■	■		5	6	4	0	712117							
A3020	■	■		5	6	4	0	712123							
A3030	■	■		5	6	4	0	712124							
A3040	■	■		5	6	4	0	712125							
A3050	■	■		5	6	4	0	712127							



Cheese Cultures										Product form and item number					
Culture name	Composition					Performance				Frozen DVS					
	O	L	D	ST	LbB	Acidification speed	Phage Robustness	Flavor Contribution	Gas production	5 x 750U Bags in Box	8 x 500U Bags in Box	12 x 375U Bags in Box	10 x 500U Bags in Box	5 x 1000U Bags in Box	6 x 1000U Bags in Box
<b>EASY-SET® i400 Series - Group 1 - High Moisture</b>															
i405				■		5	4	2	0		690870			689846	
i410				■		5	4	2	0		690871			690807	
i415				■		5	4	2	0		693645			693646	
i450				■		5	4	2	0		691479			668365	
<b>EASY-SET® i400 Series - Group 2 - Standard moisture</b>															
i420				■		5	4	2	0		694687			694688	
i455				■		5	4	2	0		688871			668366	
i460				■		5	4	2	0		688872			670167	
i475				■		5	4	2	0		688873			677238	
<b>EASY-SET® FLORA™ Continental</b>															
FLORA™ C150	■					4	5	2	0	710588			708649		
FLORA™ C160	■					4	5	2	0	710589			708650		
FLORA™ C950	■	■				4	5	3	2				708651		
FLORA™ C960	■	■				4	5	3	2				708653		
FLORA™ C1050	■	■	■			4	5	4	3			712227	708655		
FLORA™ C1060	■	■	■			4	5	4	3			712228	708657		
<b>Fresco® 1000NG</b>															
1000NG-10	■			■		5	5	2	0					713390	
1000NG-20	■			■		5	5	2	0					713391	
1000NG-30	■			■		5	5	2	0					713843	
1000NG-40	■			■		5	5	2	0					713844	
<b>Fresco® 3000</b>															
3000-10	■			■		5	5	2	0						697941
3000-20	■			■		5	5	2	0						697942
3000-30	■			■		5	5	2	0						697943
3000-40	■			■		5	5	2	0						697944
3000-50	■			■		5	5	2	0						697945
3000-60	■			■		5	5	2	0						713943

Cheese Cultures														Product form and item number						
Culture Name	Composition										Performance				Frozen DVS			Freeze-dried DVS		
	O	L	D	ST	LbH	LbB	LD	LbP	PAB	Acidification speed	Phage Robustness	Flavor Contribution	Gas production	500 g Carton	10 x 500U Bags in Box	6 x 1000U Bags in Box	10 x 50U Bags in Box	20 x 500U Bags in Box	25 x 200U Bags in Box	
<b>pHage Control™ R-600 / R-700</b>																				
R-603	■										4	4	2	0		704633				
R-604	■										4	4	2	0		704634				
R-607	■										3	3	3	0		704635				
R-608	■										3	3	3	0		704636				
R-703	■										4	4	2	0				100156		
R-704	■										4	4	2	0			100096	100157	100123	
<b>LD-Series</b>																				
B-11	■	■	■													704678				
CHN-11								■			2	4	5	3		704679		100099	100160	
CHN-19								■			2	4	5	3		704681		100100	100161	
FLORA DANICA®								■			1	4	5	4		704685		100103	100163	100129
<b>D-Cultures</b>																				
SDMB-4			■								2	4	4	3	201176					
SDMB-5			■								2	4	4	3	617507					
<b>ST (Coccus)</b>																				
SSC-17				■							3	3	1	0		704912				
SSC-100				■							3	4	1	0	699475					
SSC-102				■							3	4	1	0		708622				
SSC-103				■							3	4	1	0		708211				
ST-B01				■							3	4	1	0		704900		100113		
<b>GRANA</b>																				
GRANA-102				■	■	■		■			3	5	5	0		704798				
GRANA-105				■	■	■		■			3	5	5	0		710781				
GRANA-106				■	■	■		■			3	5	5	0		710782				
<b>Kosher for Passover</b>																				
KFP CHEESE 01	■			■							5	5	2	0			697228			
KFP CHEESE 03	■			■							5	5	2	0			699643			
KFP CHEESE 04	■			■							5	5	2	0			699646			
KFP CHEESE 05	■			■							5	5	2	0			703376			
KFP R-604	■										4	4	2	0		704659				
KFP R-608	■										3	3	3	0		704657				
KFP CHN-19								■			3	2	5	0		704694				
KFP PS-1								■			0	5	4	0		704899				
KFP STC-7				■							3	4	1	0		704881				
KFP LH-17					■						2	5	5	0		704807				

Cheese Cultures														Product form and item number								
Culture name	Composition											Performance				Frozen DVS					Freeze-dried DVS	
	O	LbH	LbB	LbL	LbP	PAB	Lb rh	Lb jo	Lb cu	Lb pl	Pediococcus	Acidification speed	Phage Robustness	Flavor Contribution	Gas production	10 x 200U Bags in Box	10 x 475U Bags in Box	10 x 500U Bags in Box	16 x 250U Bags in Box	20 x 500U Bag in Box	30 x 50U Bags in Box	10 x 5U Bags in Box
<b>FlavorControl™ Ripening Series</b>																						
PS-1						■						0	5	4	2			704891				100118
PS-4						■						0	5	5	4			704893				
PS-40						■						0	5	5	4			704896				
PS-60						■						0	5	4	5					704898		
LH-32		■										2	5	5	0				704806			
LH-B01		■										2	5	3	0			704803				
LH-B02		■										2	5	5	0			704804			713584	
LH-B03		■										2	5	5	0			705257				
CR-213	■											1	5	3	0	704714						
CR-319	■											1	5	3	0			704717				
CR-520	■	■			■							1	5	5	0		704718					
CR-540	■	■		■								1	5	5	0		704719					
CR-550	■				■							1	5	5	0		704721					
CR-BOUQUET01	■		■						■			1	5	4	0			710317				
CR-BUTTERY01	■				■		■					1	5	4	0			710314				
CR-MATURE01	■							■	■	■		1	5	4	0			710315				
EMFOUR		■										1	5	5	0			704802				
ENZOBACT		■										1	5	5	0			704805				

YoFlex® Yogurt Cultures											Product form and item number									
Culture name		Composition					Performance*				Frozen DVS				Freeze-dried DVS					
ST	LbB	Lb rh	Lactococcus lactis ssp lactis	LbP	Bifidobacterium sp	Lactobacillus acidophilus	Gel firmness	Mouth thickness	Fermentation speed	Post acidification	Yogurt flavor	500 g Carton	10 x 500U Bags in Box	12 x 500U Bags in Box	16 x 250U Bags in Box	2000U Bag	10 x 50U Bags in Box	30 x 50U Bags in Box	25 x 200U Bags in Box	20 x 500U Bags in Box
<b>YoFlex® Range</b>																				
YC-180	■	■	■				2	2	2	3	4		704938				100249		100255	100260
YC-380	■	■					2	2	4	5	5		704939				100253			
YC-381	■	■					2	2	4	5	5						100414			
YC-470	■	■					2	2	4	5	5		704940							
YC-471	■	■					2	2	4	5	5		704943							
YC-X11	■	■					3	2	4	3	4		704946				600869		612772	
YF-L702	■	■					3	3	4	1	2		704947							
YF-L703	■	■					3	3	4	3	3		704948							
YF-L705	■	■					4	3	3	2	3	685135								
YF-L706	■	■					4	3	5	3	4		704988							
YF-LX700	■	■					3	3	4	1	2		704949							
YF-L812	■	■					3	3	2	1	3							713513		
YF-L901	■	■					5	4	3	3	2		704950							
YF-L902	■	■					4	4	3	2	3		704989							
Advance 1.2	■	■					2	5	3	1	1	699244								
Creamy 1.0	■	■	■				5	5	4	2	2		706168							
Mild 1.0	■	■					5	4	4	1	1			702897						
Mild 2.0	■	■					4	4	3	1	1		704984			711774				
Mild 3.0	■	■					4	4	3	1	1		713277							
Premium 1.0	■	■					5	5	4	2	2		706161							
Premium 2.0	■	■					5	4	1	2	2		705304							
Premium 3.0	■	■					5	4	3	2	2	704282								
Premium 1.0 PLUS	■	■		■	■	■	5	5	4	2	2		711829							
Premium 3.0 PLUS	■	■		■	■	■	5	4	3	2	2		712443							
SoGreek F1	■	■					4	3	4	2	3		710740							
SoGreek F2	■	■					4	3	4	2	3		710742							
SoGreek S1	■	■					5	4	4	1	1		710738							
SoGreek S2	■	■					5	4	4	1	1		710739							
SoGreek S1 Plus	■	■		■	■	■	5	4	4	2	1		711356							
SoGreek S2 Plus	■	■		■	■	■	5	4	4	2	1		711357							
SoGreek S3 Plus	■	■		■	■	■	5	4	4	2	1		713638							
<b>Yo-Fast® Range</b>																				
Yo-Fast® 10	■	■		■	■	■	3	2	4	3	4					704856				
Yo-Fast® 12	■	■		■	■	■	3	2	4	3	4					704857				
Yo-Fast® 16	■	■		■	■	■	3	3	4	3	4		704863			704858				
Yo-Fast® 20	■	■		■	■	■	4	3	4	3	3		704862			704859				
Yo-Fast® 21	■	■		■	■	■	4	3	4	3	3		704861			704860				
Yo-Fast® 22	■	■		■	■	■	4	3	4	3	3					704865				
Yo-Fast® 88	■	■		■	■														623900	
<b>Kosher for Passover</b>																				
KFP CH-3	■	■					2	2	4	5	5		704956							
KFP YC-2	■	■					5	4	3	3	2		704958							

\*Performance scale: 1 = very low/very slow, 2 = low/slow, 3 = medium, 4 = high/fast, 5 = very high/very fast

eXact® Mesophilic Cultures													Product form and item number										
Culture name	Composition						Performance*				Frozen DVS			Freeze-dried DVS									
	O	L	D	ST	Debaryomyces hansenii	LbP	Lb rh	Bifidobacterium sp	Lactobacillus sp.	Fermentation speed	Texture	Post acidification	Flavor	Gas formation	500 g Carton	500U Carton	10 x 500U Bags in Box	15 x 500U Bags in Box	16 x 250U Bags in Box	10 x 50U Bags in Box	20 x 500U Bags in Box	15 x 100U Bags in Box	
<b>eXact® Range</b>																							
CHN-22	■	■	■							2	2	2	5	4			704759				100101	100162	
CHN-120	■	■	■							2	2	2	5	4			704680						
DSG-2000-10	■	■								3	2	2	3	3			704773						
DSG-2000-40	■	■								3	2	2	3	3			704774						
DSG-2000-70	■	■								3	2	2	3	3			704775						
DSG-2000-80	■	■								3	2	2	3	3			704776						
DSG-2000-90	■	■								3	2	2	3	3			704778						
DSG-4000-10	■	■								3	4	2	3	3			704781						
DSG-4000-20	■	■								3	4	2	3	3			704783						
DSG-4000-70	■	■								3	4	2	3	3			704782						
DSG-4000-80	■	■								3	4	2	3	3			704784						
DSG-4000-90	■	■								3	4	2	3	3			704785						
eXact® KEFIR 1	■	■	■	■	■					4	5	2	4	4									710294
eXact® KEFIR 2	■	■	■	■	■					4	5	2	4	4									710295
eXact® KEFIR 12	■	■	■			■	■	■	■								713005						
MO-1	■									5	2	2	1	1	200103								
MO-2	■									5	2	2	1	1	703263								
MO-3	■									5	2	2	1	1	670823								
XPL-1	■	■	■	■						4	5	2	4	4			704770				675876		
XPL-2	■	■	■	■						5	5	2	4	4			704771						
XPL-30	■			■						5	5	4	1	1			705345						
XT 312	■	■	■							2	4	2	4	3			704765						
XT 313	■	■	■							2	4	2	4	3			704768						
XT 314	■	■	■							4	4	2	4	3			704769						
XT 315	■	■	■							4	4	2	4	3			713135						
XTQ-1	■	■	■							4	4	2	5	2		698740							
XTQ-2	■	■	■							4	4	2	5	2		699196							
XTQ-3	■	■	■							3	4	2	5	2		702788							
<b>eXact® Adjunct Cultures</b>																							
CAF		■															704780						
DSG-FLVR 1		■	■																704779				
DSG-FLVR 2		■	■																704786				
DSG-HB	■																		704777				
eXact® NG Flavor+						■		■											712710				
<b>Kosher for Passover</b>																							
KFP SC1	■	■	■							2	2	2	5	0			706617						
KFP SC2	■	■	■							2	2	2	5	0			706618						

\*Performance scale: 1 = very slow/very low/no gas, 2 = slow/low, 3 = medium, 4 = fast/high, 5 = very fast/very high

nu-trish® Probiotics											Product form and item number												
Culture name	Composition							Performance*				Frozen DVS				Freeze-dried DVS							
	BB-12®	LA-5®	L. casei 431®	LC-01™	Bifidobacterium sp	ST	LbB	LbP	Lactobacillus acidophilus	Gel firmness	Mouth thickness	Fermentation speed	Post acidification	Yogurt flavor	8 x 500U Bags in Box	10 x 500g Bags in Box	10 x 500U Bags in Box	16 x 200g Bags in Box	20 x 250g Bags in Box	10 x 50U Bags in Box	25 x 200U Bags in Box	20 x 500U Bags in Box	20 x 25g Bags in Box
<b>Cultures with clinical documentation on health benefits</b>																							
BB-12®	■								0	0	0	0	0		704822			704833					706146
LA-5®		■							0	0	0	0	0		704830								706152
L. casei-01			■						0	0	0	0	0		704823								
L. casei 431®			■						0	0	0	0	0		704824			712238					
Nu-Trish a/B™	■	■							0	0	0	0	0		704826			704827					
BY-Mild	■					■	■		0	0	0	0	1	703016									
ABT-1	■	■				■			5	2	1	3	2							100130			
ABT-4	■	■				■			4	1	4	4	2			704840							
ABY-3	■	■				■	■		3	2	4	2	3			704844				669852	666092	666091	
ABY-10	■	■				■	■		4	3	5	3	3			704850							
<b>Cultures without clinical documentation on health benefits</b>																							
ABC					■		■	■					0					705259					
LA-K							■						0		704829								
<b>Kosher for Passover</b>																							
LA-K (KFP)							■						0		704832								

\*Performance scale: 1 = very low/very slow, 2 = low/slow, 3 = medium, 4 = high/fast, 5 = very high/very fast









Bio-Protective Cultures								Product form and item number					
Culture name	Composition			Performance				Frozen DVS		Freeze-Dried DVS			
	O	LbP	Lb rh	Acidification speed	Phage Robustness	Flavor Contribution	Gas production	10 x 500U Bags in Box		10 x 65U Bags in Box	20 x 500U Bags in Box		
<b>Bio Protection - Cheese</b>													
BS-10	■			1	4	2	0			704642			
FreshQ® Cheese 1		■	■				0	711617					
<b>Bio Protection - Sour Cream</b>													
FreshQ® 1		■	■				0	709065					
<b>Bio Protection - Yogurt</b>													
FreshQ® 2			■				0	710371			707679		
FreshQ® 4		■	■				0				708256		
FreshQ® 5		■					0	710999					

Dairy Colors										
Product Name	Color Shade				Product form and item number					
	Orange	Red	Cream	White	4x1 gal Container	1x5 gal Container	4 x 10 lb (gal) per Case	45 lb Container	15 kg Can	
<b>Colors</b>										
Cheese Color 2X	■					70471				
Cheese Color 4X COF	■					700094				
B-40		■					70596	70597		
Ice Cream Color			■		70445					
Blego				■		71438				
<b>DairyMax™ White Whey™</b>										
Orange Red 002 WSS	■								708661	



Freezers			
Product Name	Product form and item number		
	24.9 CuFt	25 CuFt	Comments
<b>Freezer</b>			
Kelvinator Chest	667676		Dairy: Alarm auto sounds at -32°
Kelvinator Chest w/alarm	705351		Wine: Alarm wired to phone system
So-Low Upright		698819	

# Distinguishing Characteristics of Lactic Acid Bacteria

Schematic illustration									
Organism	<i>Streptococcus thermophilus</i>	<i>Lactococcus lactis</i> subsp. <i>cremoris</i>	<i>Lactococcus lactis</i> subsp. <i>lactis</i>	<i>Lactococcus lactis</i> subsp. <i>Lactis biovar diacetylactis</i>	<i>Leuconostoc</i> sp.	<i>Lactobacillus helveticus</i>	<i>Lactobacillus delbrueckii</i> subsp. <i>bulgaricus</i>	<i>Lactobacillus delbrueckii</i> subsp. <i>Lactis</i>	
Shape	Cocci	Cocci	Cocci	Cocci	Cocci	Rod	Rod	Rod	
Isomer of Lactate	L	L	L	L	D	DL	D	D	
% Lactic Acid Produced in Milk	0.6	0.8	0.8	0.8	< 0.5	2	1.8	1.8	
Metabolism of Citrate (Flavor)	-	-	-	+	+	-	-	-	
Growth at	10°C (50°F)	-	+	+	+	+	-	-	-
	40°C (104°F)	+	-	+	+	-	+	+	+
	45°C (113°F)	+	-	-	-	-	+	+	+
Fermentation of	Glucose	+	+	+	+	+	+	+	+
	Galactose	-	+	+	+	+	+	-	+/-
	Lactose	+	+	+	+	+	+	+	+