

Stirred Sour Cream - eXact® Direct fermentation recipe

Type of technology	Stirred sour cream
Source of milk	High quality milk and cream is used
Culture	eXact® range
Description	Sour cream is typically made by fermentation of cream with mesophilic cultures. Sour cream has a smooth and viscous texture and a mild flavor. Depending on the desired flavor (diacetyl), aromatic (LD type) cultures or homofermentative (O-type: O-ST-type) cultures can be used.

Table 1: F-DVS recommendations

Product	Product characteristics	eXact® culture
Traditional sour cream	Sour cream with high mesophilic flavor	CHN-22; CHN-13
Classic sour cream	Sour cream with high mesophilic flavor and high texture	XT-312; XT-313; XT-314; XT-315 DSG-6000-10; 20; 30
Modern sour cream	Sour cream with mesophilic flavor but with very high texture and fast acidification	XPL-1; XPL-2
Mild sour cream	Sour cream with very higher texture, fast acidification and no CO ₂ production during fermentation or distribution	XPL-30; XPL-40; XPL-50 NG Flavor+
	Sour cream, fast acidification and no CO_2 production during fermentation or distribution	MO-1; MO-2, MO-3, MO-4 NG Flavor+

Table 2: FD-DVS recommendations

Product	Product characteristics	eXact® culture
Traditional sour cream	Sour cream with high mesophilic flavor	CHN-22
Modern sour cream	Sour cream with mesophilic flavor but with very high texture and fast acidification	XPL-1; XPL-2
Mild sour cream	Sour cream with very higher texture, fast acidification and no CO ₂ production during fermentation or distribution	XPL-30; XPL-40

Milk/Cream Fat Standardization

The sour cream can be made with different fat contents from 6% to 42% to get all the range

It is recommended to de-aerate in order to lower the oxygen content. This might improve

Homogenization is normally carried out at 60-70°C (140-158°F). The used pressure is from

100-150 bar (1087-1450-psi) for products with low fat content (e.g. 9%) and around 100bar (

The milk /cream should be of high quality and not contain any inhibitory agents, e.g.

from light to whole sour cream.

the quality of the cream.

(1087psi) for high fat content (E;g. 30%).

antibiotics. The fat and solids non-fat(SNF) is standardized to the desired level.



Culture

The milk/cream is heated through HTST to 90-95°C (194-203°F) for 3-5 min; vat pasteurization 85°C (185°F) for 30 min; milk is then cooled to incubation temperature, i.e. 21-32°C (70-90°F).

The choice of culture influences the characteristics of the final product such as flavor, acidity, texture and appearance. The main characteristics of the eXact[®] cultures are described in the eXact[®] brochure.

	Inoculation	
_		_

Amount of milk to be inoculated	250 l/	1000 l/	2500 l/	5000 l/	10000 l/
	66 gal	264 gal	660 gal	1320 gal	2640 gal
Amount of DVS ™culture	50 U	200 U	500 U	1000 U	2000 U

The culture is taken out from the freeze just prior to use. The package is disinfected prior to opening. After opening the culture is poured into the milk. The mixture is agitated slowly for 10-15 minutes to distribute the culture evenly.

Fermentation

The inoculated milk/cream is left undisturbed until cut pH (4.55-4.65). Flavor, aroma, texture, fermentation time and gas formation can be optimized by changing the incubation temperature. The optimal temperature depends on the selected culture as well as the requested product profile. The recommended fermentation temperature for XPL cultures is $30-32^{\circ}c$ ($86-90^{\circ}F$) to get highest texture and fastest fermentation.



When cut pH is reached, the product is stirred until it has obtained a smooth texture and finally cooled to $14-16^{\circ}C$ (57-61°F).

To reduce post-acidification, cooling time should be limited, preferably by use of a plate or tubular cooler.

Storage

The product is placed in a cold store at approximately 4-8°C (39-46°F).



DVS™	DVS [™] is the abbreviation for Direct Vat Set, and it is a registered trademark of Chr. Hansen.
Probiotics	The nu-trish [®] range consists of well documented probiotic strains with credible health benefits based on research and strong clinical documentation. Available as single strain probiotics which can be added with the YoFlex [®] cultures. nu-trish [®] cultures are also available as ready to use blends for production of Probiotic Stirred Yogurt.
Bioprotection Keep it great! with FreshQ®	FreshQ [®] are natural bioprotective food cultures used as adjunct cultures to the yogurt starter culture. With the use of FreshQ [®] you can meet a growing demand for natural products and extend your shelf life, without adding artificial preservatives. FreshQ [®] cultures can help you take control of your yeast and mold

for natural products and extend your shelf life, without adding artificial preservatives. FreshQ[®] cultures can help you take control of your yeast and mold risk, lowering your product recalls and consumer complaints. With FreshQ[®] you can protect your brand by making sure that your product stays the way you made it throughout shelf life, even after it has been opened.

ABOUT CHR. HANSEN

Founded in 1874, Chr. Hansen (www.chr-hansen.com) is a global bioscience company that develops natural ingredient solutions for the food, nutritional, pharmaceutical and agricultural industries. All solutions are based on strong research and development competencies coupled with significant technology investments. With more than 2,500 employees in over 30 countries, the facilities and personnel of our worldwide Local and Regional Application Centers are at your disposal with assistance, instructions and guidance for your choice of cultures and coagulants.

The information contained herein is presented in good faith and is, to the best of our knowledge and belief, true and reliable. It is offered solely for your consideration, testing and evaluation, and is subject to change without prior and further notice unless otherwise required by law or agreed upon in writing. There is no warranty being extended as to its accuracy, completeness, currentness, non-infringement, merchantability or fitness for a particular purpose. To the best of our knowledge and belief, the product(s) mentioned herein do(es) not infringe the intellectual property rights of any third party. The product(s) may be covered by pending or issued patents, registered or unregistered trademarks, or similar intellectual property rights. All rights reserved.