Stirred yogurt

Recipe recommendation

Type of technology

Stirred yogurt

Source of milk

High-quality milk

Culture

YoFlex® range

Characteristics

Stirred yogurt is defined as a fermented milk product whose fermentation and coagulation take place in a tank. Stirred yogurt can be made using different combinations of fat and dry matter and different DVS® cultures, depending on the characteristics desired in the final product. Yogurt cultures are comprised of symbiotic combinations of *Streptococcus thermophilus* and *Lactobacillus delbrueckii ssp. bulgaricus* strains. Depending on local regulations and the definition of yogurt in a given market, yogurt cultures may also include other lactic acid bacteria and/or probiotic bacteria.

Frozen DVS® culture recommendations

Flavor and acidity	Texture profile	Culture name
Low yogurt flavor, low acidity	High texture	Mild 1.0 Acidifix 1.0
Mild yogurt flavor, low acidity	Very high texture	Premium 11 and 12
Medium yogurt flavor, low acidity	High texture	Premium 1.0, 3.0, 4.0, 8, 10
High yogurt flavor, medium acidity	Medium to high texture	YF-L901
High yogurt flavor, medium to high acidity	Medium texture	YF-L706 YC-X16

Freeze-dried DVS® culture recommendations

Flavor and acidity	Texture profile	Culture name
Low yogurt flavor , low acidity	High texture	Mild 1.0 Acidifix 1.0
Low yogurt flavor, low acidity	Medium texture	KeepIt 1.0 YF-L812
Medium yogurt flavor, medium acidity	Medium to high texture	YF-L903, YF-L904 Premium 5.0, 6.0
High yogurt flavor, medium to high acidity	Medium texture	YC-X11 YC-X16

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Steps	Description
Milk 	The milk should be of high quality and not contain any inhibitory agents such as antibiotics. The fat and solids non-fat(SNF) should be standardized to the desired level. Producers may opt to modify texture and flavor by adding other ingredients, such as LM pectin (0.1-0.2%), starch (0.5-1.75%), sugars, sweeteners, etc.
Fortification 	To optimize the texture of the product, it is common to standardize the protein content to approximately 3.5-5.0%. The following methods can be used for this: › Addition of milk powders, such as skim milk powder (SMP), whey protein concentrate (WPC), milk protein concentrate (MPC), and other high-protein powders made from UF retentate and/or casein. › Evaporation › Ultra-filtration (UF)
Hydration 	If milk powders are used, hydration should be considered, e.g. 6-8° C (43-46°F) for 1-3 hours or as advised by the powder supplier.
De-aeration 	We recommended to deaerate in order to lower the oxygen content. This may improve the quality of the yogurt and shorten the fermentation time.
Homogenization 	Homogenization is typically carried out at 60-70°C (140-158°F) at a pressure of 100-200 bar (1,450-2,900 psi).
Heat treatment 	The milk is heated through HTST to 95°C (203°F) for 5 min; vat pasteurization 85°C (185°F) for 30 min; milk is then cooled to incubation temperature, i.e. 36-44°C (97-111°F).
Culture 	The choice of culture influences characteristics of the final product including flavor, acidity, texture and appearance. The primary characteristics of the YoFlex® cultures are described in the YoFlex® Product Range brochure. For the production of stirred yogurt, a yogurt culture that produces high proportions of exopolysaccharides (EPS) is generally recommended for producing a yogurt with high texture. EPS is produced by many lactic acid bacteria cultures during fermentation, and numerous studies have shown that EPS significantly improves properties such as mouth thickness and appearance.
Inoculation 	The culture is taken out from the freezer 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.

Amount of milk to be inoculated	250 l/ 66 gal	1,000 l/ 264 gal	2,500 l/ 660 gal	5,000 l/ 1,320 gal	10,000 l/ 2,640 gal
Amount of DVS® culture	50 U	200 U	500 U	1,000 U	2,000 U

Fermentation 	The inoculated milk is left undisturbed until reaching cut pH of 4.50-4.60.
Post-treatment 	When cut pH is reached, the product is stirred, and then typically pumped through a smoothening filter or back pressure valve to obtain a smooth appearance. Finally, the product is cooled to 20-25°C (68-77°F) and packaged. Mechanical treatments should be as gentle as possible. To reduce post-acidification, cooling time should be limited, preferably through the use of a plate or tubular cooler.
Flavoring 	Before the product is packaged, fruit preparation and/or flavor may be added to the yogurt by in-line mixing.
Packing and storage 	The product is placed in a cold store at approximately 4-8°C (39-46°F).

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