



# Catalog

**Yogurt**

**Doogh**

**Milk**

**Cream**

**Cheese**

**Juice**

**Ice cream**

PROVIDER OF ALL KINDS OF FOOD STABILIZERS



# SCHWAN

## YOGURT STABILIZER



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# YOGURT STABILIZER

For a long time, fermented milk products have played a significant role in the nutrition of families due to their favorable nutritional properties, long shelf life, unique flavor, and therapeutic properties. Among them, yogurt is produced from the lactic fermentation of milk with the activity of bacterial starters. Due to having distinctive characteristics such as the presence of living bacteria and high levels of lactic acid, yogurt has significant therapeutic and probiotic nutritional properties – such as improving food digestion, strengthening the immune system, having anti-cancer activity and high levels of calcium and potassium, as well as pleasant aroma and taste from the activity of lactic acid bacteria – and is one of the most popular fermented products.



# YOGURT STABILIZER

Structurally, yogurt is a three-dimensional network of proteins formed during the activity of lactic acid bacteria by connecting casein protein deposits, fat globules, and denatured serum proteins available in this network as filling agents, affecting the quality characteristics of yogurt such as textural, viscosity, and syneresis characteristics.



# ADVANTAGES OF USING STABILIZERS AND EMULSIFIERS IN YOGURT

- \_ Making the final product affordable by replacing some expensive milk components such as proteins and fat
- \_ Strong product water binders
- \_ Reducing or eliminating the risk of syneresis/whey separation
- \_ Improving viscosity and preventing watery mouthfeel
- \_ Improvement of the texture creaminess in fat-free and fat-poor products
- \_ The emulsifier acts as an anti-foam agent during the filling process and prevents the formation of foam on surface of the yogurt, so reducing syneresis and weakening the jelly power
- \_ Emulsifier increases the glossiness of the yogurt surface





**In Schwan Group Parseh  
Production Company  
based on science and use of  
the best ingredients in the  
formulation of this product  
different stabilizer codes have  
been designed  
and produced as follows**



# Set Yogurt

Code	Dosage	Ingredients
Y 100	0.3-0.5%	WPC/ MPC/ E 440/ E 471/ E407
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Improving texture and strengthening it</li> <li>• Reducing syneresis and controlling it in difficult conditions of distribution and storage</li> <li>• Improving mouth feeling and creating a creamy state</li> <li>• Having the possibility of replacing with part of the dry matter or protein added to the formulation</li> <li>• Containing milk protein</li> </ul>	
Y 110	0.3-0.5%	MPC/ SMP/ E 440/ E441/ 471
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Improving texture and strengthening it</li> <li>• Reducing syneresis and controlling it in difficult conditions of distribution and storage</li> <li>• Improving mouth feeling and creating a creamy state</li> <li>• Having the possibility of replacing with part of the dry matter or protein added to the formulation</li> <li>• Containing milk protein</li> <li>• Making the surface of the product gloss</li> </ul>	
Y 131	0.5-1%	E 440/ E 471/ Milk Protein Mixture
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Improving texture and strengthening it</li> <li>• Reducing syneresis and controlling it</li> <li>• Having the possibility of replacing with powdered milk added to the formulation</li> <li>• Improving mouth feeling</li> </ul>	
Y 151 Positive Iodine	2%	Corn starch/ E 441/ Milk Protein Mixture/ E471
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Improving texture and strengthening it</li> <li>• Reducing syneresis and controlling it</li> <li>• Having the possibility of replacing with powdered milk added to the formulation</li> <li>• Improving mouth feeling</li> </ul>	



# Stirred Yogurt

Code	Dosage	Ingredients
Y 200	2-2.5%	E 401/ E471/ E 1422/ Milk Protein Mixture
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Improving the appearance of the texture: Reducing syneresis and making the surface of the product gloss</li> <li>• Improving the mouth feeling and creating a creamy state</li> <li>• Increasing the viscosity and improving the rheological properties of the product texture</li> <li>• Having the possibility of replacing with powdered milk and other milk proteins added to the product formulation</li> </ul>	
Y 250	1.5-2.5%	Corn starch/ E471/ E441/ Milk Protein Mixture
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Improving the appearance of the texture: Reducing syneresis</li> <li>• Improving the mouth feeling and creating a creamy state</li> <li>• Increasing the viscosity and improving the rheological properties of the product texture</li> <li>• Having the possibility of replacing with powdered milk and other milk proteins added to the product formulation</li> <li>• Reducing the cost of the product</li> </ul>	





# Strained Yogurt

Code	Dosage	Ingredients
Y 300	2.5-3%	E 440/ E471/ Corn starch Milk Protein Mixture
<p><b>Properties</b></p> <ul style="list-style-type: none"> <li>• Improving the appearance of the texture: Reducing syneresis</li> <li>• Improving the mouth feeling and creating a creamy state</li> <li>• Increasing the viscosity and improving the rheological properties of the product texture</li> <li>• Having the possibility of replacing with powdered milk and other milk proteins added to the product formulation</li> <li>• Reducing the cost of the product</li> <li>• Controlling and reducing syneresis after adding fruit puree, shallots, etc., during shelf life</li> </ul>		



# Flavored and Fruity Yogurt

Code	Dosage	Ingredients
Y 400	2-2.5%	Corn starch/ E471/ E441 Milk Protein Mixture
<p><b>Properties</b></p> <ul style="list-style-type: none"> <li>• Improving the appearance of the texture: Reducing syneresis</li> <li>• Improving the mouth feeling and creating a creamy state</li> <li>• Increasing the viscosity and improving the rheological properties of the product texture</li> <li>• Having the possibility of replacing with powdered milk and other milk proteins added to the product formulation</li> <li>• Reducing the cost of the product</li> <li>• Controlling and reducing syneresis after adding fruit puree, shallots, etc., during shelf life</li> </ul>		



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## DOOGH STABILIZER



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## DOOGH

Fermented milk-based drinks have a variety of names and diversity in different countries. These include yogurt drink in Europe, kefir and koumiss in the Middle East, ayran in Turkey, and doogh in Iran.

This product is obtained by diluting yogurt with drinking water, whey, or fermented butter milk. To produce doogh, milk is subjected to heat treatment, which leads to the accumulation of whey proteins and their interaction with casein.





## DOOGH

One of the main challenges in making doogh is phase separation

To prevent protein accumulation and water separation in these products, various stabilizers are used, with hydrocolloids being the most common.

The use of hydrocolloids is a technological method used to create unique texture and rheological properties in food products.





## DOOGH

Hydrocolloids are widely used in the food industry. These compounds play an important role in controlling the quality characteristics of food products, such as thickening and gelling agents, stabilizers for foams, emulsions, and solutions, preventing moisture loss, preserving color, and increasing shelf life. Nowadays, many researchers recommend adding stabilizers or hydrocolloid compounds as a practical solution to prevent phase separation in acidic milk drinks. Generally, hydrocolloids work in acidic dairy drinks in two ways: either as a thickening agent such as locust bean gum, alginate, xanthan, and guar gum, or as anionic hydrocolloids such as pectin, carrageenan, lambda-carrageenan, and carboxymethyl cellulose that react with positively charged caseins.



The use of this technique in yogurt can result in stabilizing suspensions and suspending solid particles. Generally, the use of stabilizers or stabilizers in yogurt leads to the following properties:

- Stabilization of suspensions
- Improved mouthfeel
- Increased apparent volume in the solid phase of yogurt
- Improved rheological and textural properties of the product
- Increased viscosity
- Creating a single phase in the product and preventing phase separation

In Schwan Group Parseh production facility, with scientific research and testing, various codes have been designed and produced for different types of yogurts, including single-phase yogurt, two-phase yogurt, and vegetable yogurt.



## single phase

Code	Dosage	Ingredients
<b>YD 100</b>	<b>0.3-0.4%</b>	<b>E 466/ E 440/ E 471 E401/ Maltodextrin</b>
<b>Properties</b>	<ul style="list-style-type: none"> <li>• By helping to stabilize the colloid, it prevents the sedimentation of particles to a large extent</li> <li>• By creating a strong colloidal network by increasing the consistency and viscosity of the tissue buttermilk</li> <li>• It produces very well</li> <li>• Improve mouth feel</li> <li>• No aftertaste</li> </ul>	
<b>YD 110</b>	<b>0.25-0.4%</b>	<b>E 471/ E 410/ E401/ E 418</b>
<b>Properties</b>	<ul style="list-style-type: none"> <li>• By helping to stabilize the colloid, it prevents the sedimentation of particles to a large extent</li> <li>• By creating a strong colloidal network by increasing the consistency and viscosity of the tissue buttermilk</li> <li>• It produces very well</li> <li>• Improve mouth feel</li> <li>• No aftertaste</li> </ul>	
<b>YD 120</b>	<b>0.3-0.4%</b>	<b>E 418/ E 401/ E 407/ E 471/ E452</b>
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Improving texture and strengthening it Reducing watering and controlling it during shelf life</li> <li>• By helping to stabilize the colloid, it prevents the sedimentation of particles to a large extent</li> <li>• By creating a strong colloidal network by increasing the consistency and viscosity of the tissue buttermilk It produces very well</li> <li>• Improve mouth feel</li> <li>• No aftertaste</li> </ul>	







## thickener (double-phase Doogh)

Code	Dosage	Ingredients
Y 200	0.3-0.4%	E 415/ E 466/ E 440 E471/ Maltodextrin
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Creating the desired consistency and concentration Creating an increase in apparent volume in the solid phase of buttermilk</li> <li>• Improving mouth feeling</li> <li>• No aftertaste</li> </ul>	
YD 210	0.25-0.4%	E 471/ E 410/ E401/ E 418
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Creating the desired consistency and concentration Creating an increase in apparent volume in the solid phase of buttermilk</li> <li>• Improving mouth feeling</li> <li>• No aftertaste</li> </ul>	



## Vegetable doogh

Code	Dosage	Ingredients
Y 300	0.3-0.4%	E 471/ E 407/ E418/ E401/ E 415
<b>Properties</b>	<ul style="list-style-type: none"> <li>• By helping to stabilize the colloid, it prevents the sedimentation of particles to a large extent</li> <li>• Suspension of vegetables during shelf life</li> <li>• Improve mouth feel</li> <li>• No aftertaste</li> </ul>	



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# SCHWAN

FLAVORED MILK STABILIZER  
( cocoa, coffee, Fruity )



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## **FLAVORED MILK STABILIZER** **( cocoa, coffee, Fruity )**

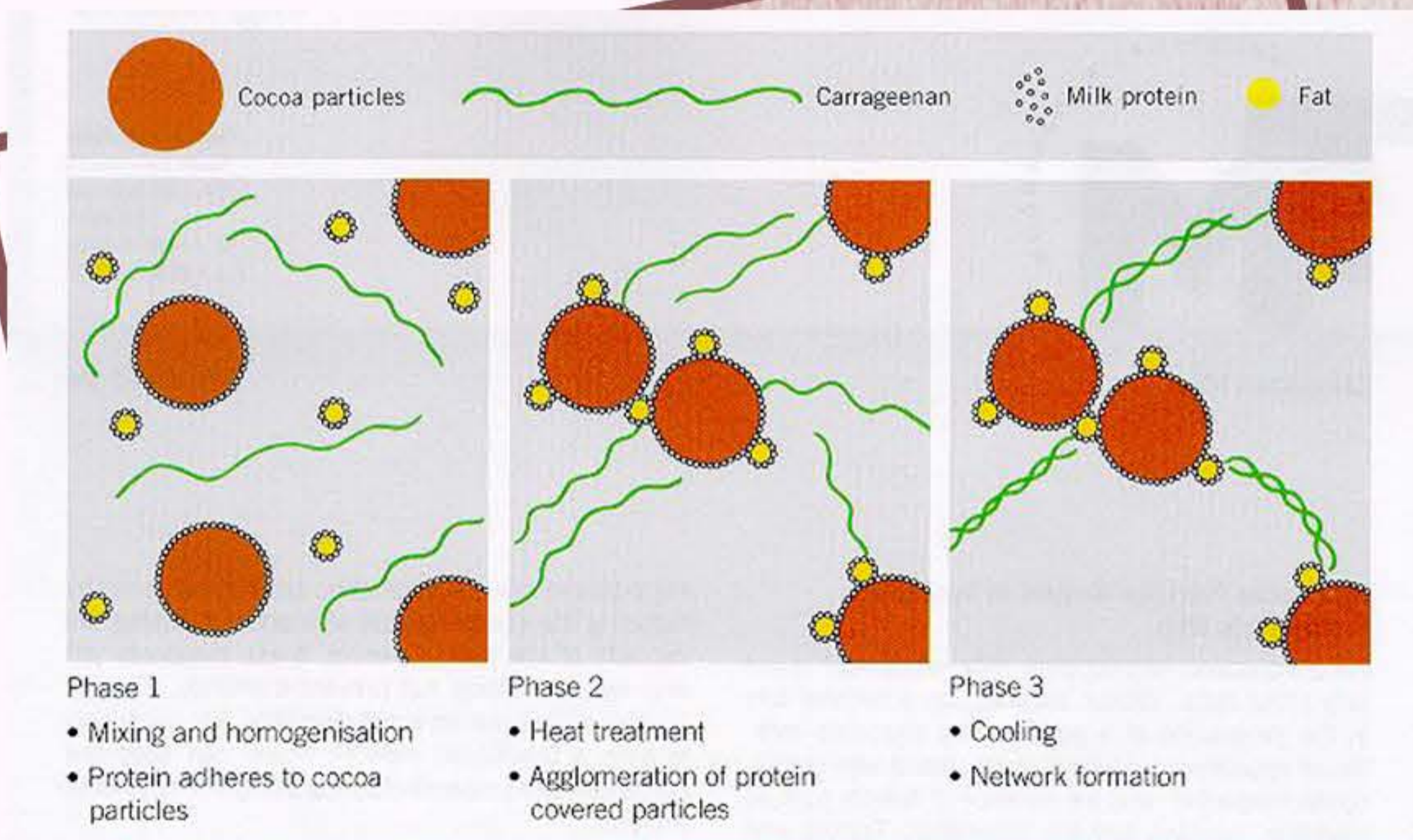
Flavored milk, exactly like milk, has all the minerals, vitamins and nutrients such as calcium, protein, vitamin D, vitamin A, vitamin B12, potassium, phosphorus and niacin. Because base of all of them is cow's milk. Due to the nutritional value of flavored milk being the same as milk, drinking flavored milk daily, can meet most of the needs of children's bodies and help them grow very well.

Supplying protein, which is the need of body, ossification with the help of flavored milk's calcium, improving brain function due to milk's phosphorus, increasing energy due to the presence of vitamin B12 and increasing the strength of the body's immune system due to the presence of vitamins D and A, are some of the wonderful benefits of drinking milk during the day.



# REQUIREMENTS (FLAVORED MILKS)

No sedimentation of cocoa, coffee and...  
Stable fat emulsion  
Creamy feeling in the mouth  
Appropriate and desirable viscosity



## The assessment of flavored milk is like this:

- Visual assessment
- Sedimentation
- Fat phase separation
- Tendency to become gelatinous
- Watering and ring formation

## Organoleptic assessment

- Mouthfeel
- creamy formation

## viscosity



# EMULSIFIER EFFECTS IN FLAVORED MILKS

Preventing the fusion of fat cells  
Forming a stable emulsion of fat  
Coagulation control  
Improving the creamy formation of the product

## Stabilizing effect in particles containing milk

Stabilizes product particles (cocoa powder particles, etc.)  
Preventing two phases of the product during  
shelf life  
Improves mouthfeel



In Schwan Parseh Group production complex a stabilizer for flavored milk has been designed and produced for pasteurization and UHT processes, which is as follows:

## flavored milk

Code	Dosage	Ingredients
CM 500	0.1%	E471/ E407/ E412
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Creating the Suitable viscosity</li> <li>• Creating a good mouth feel</li> <li>• No adverse effect on the flavor of the product</li> <li>• Preventing two phases of the product during the shelf life</li> <li>• Suitable for pasteurization and UHT process</li> </ul>	



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# SCHWAN

## CREAM STABILIZER



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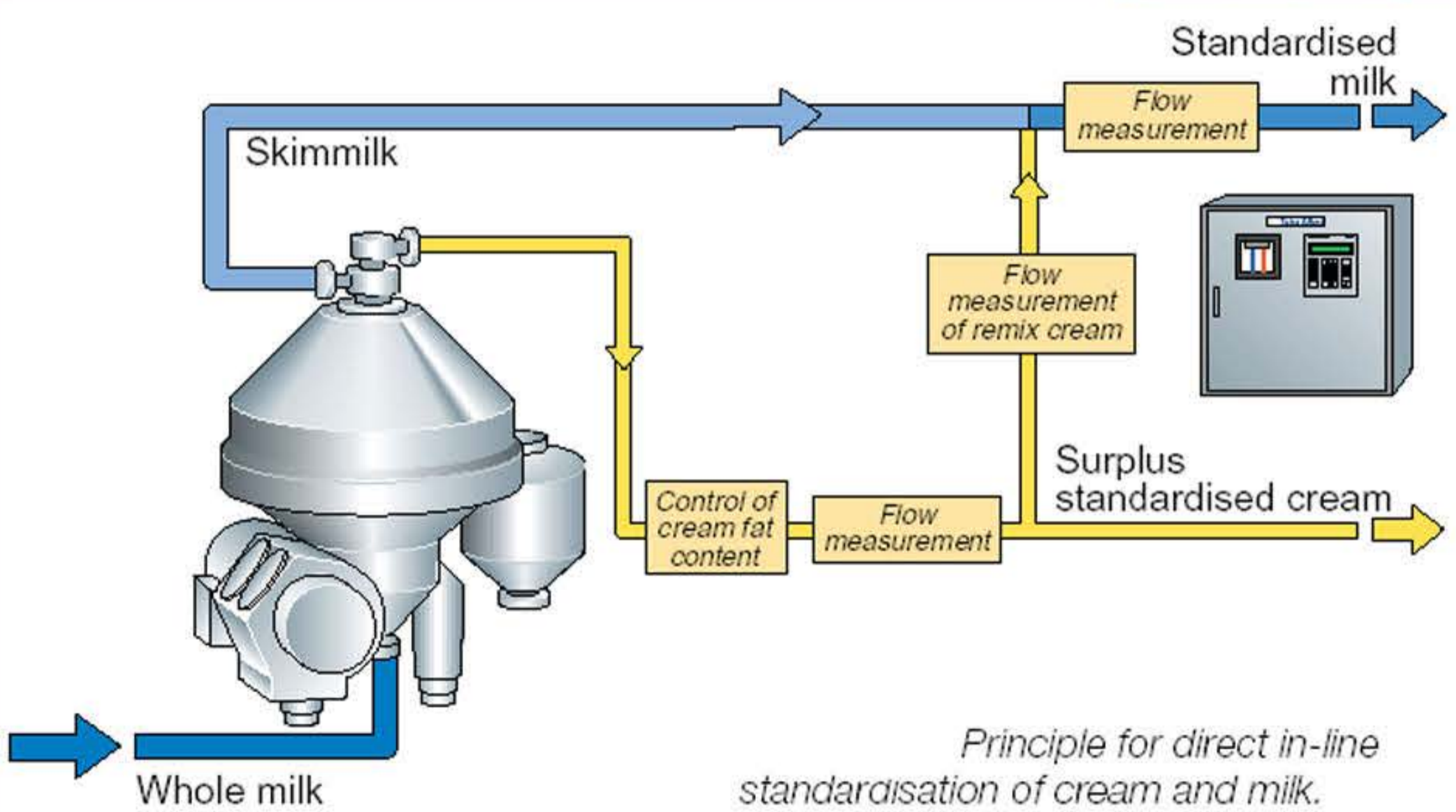


## CREAM

Cream or skimmed milk is the part of milk that contains high fat and is separated from milk by churning. Like milk, it is an oil-in-water emulsion. In non-homogenized milk, a light layer of fat is formed on surface of the milk over time. In the past, the preparation of this product required keeping the milk still so that the fat particles accumulate on the surface of the milk



However, today, fat is separated from other parts of milk with a separator device, by using the centrifuge method.



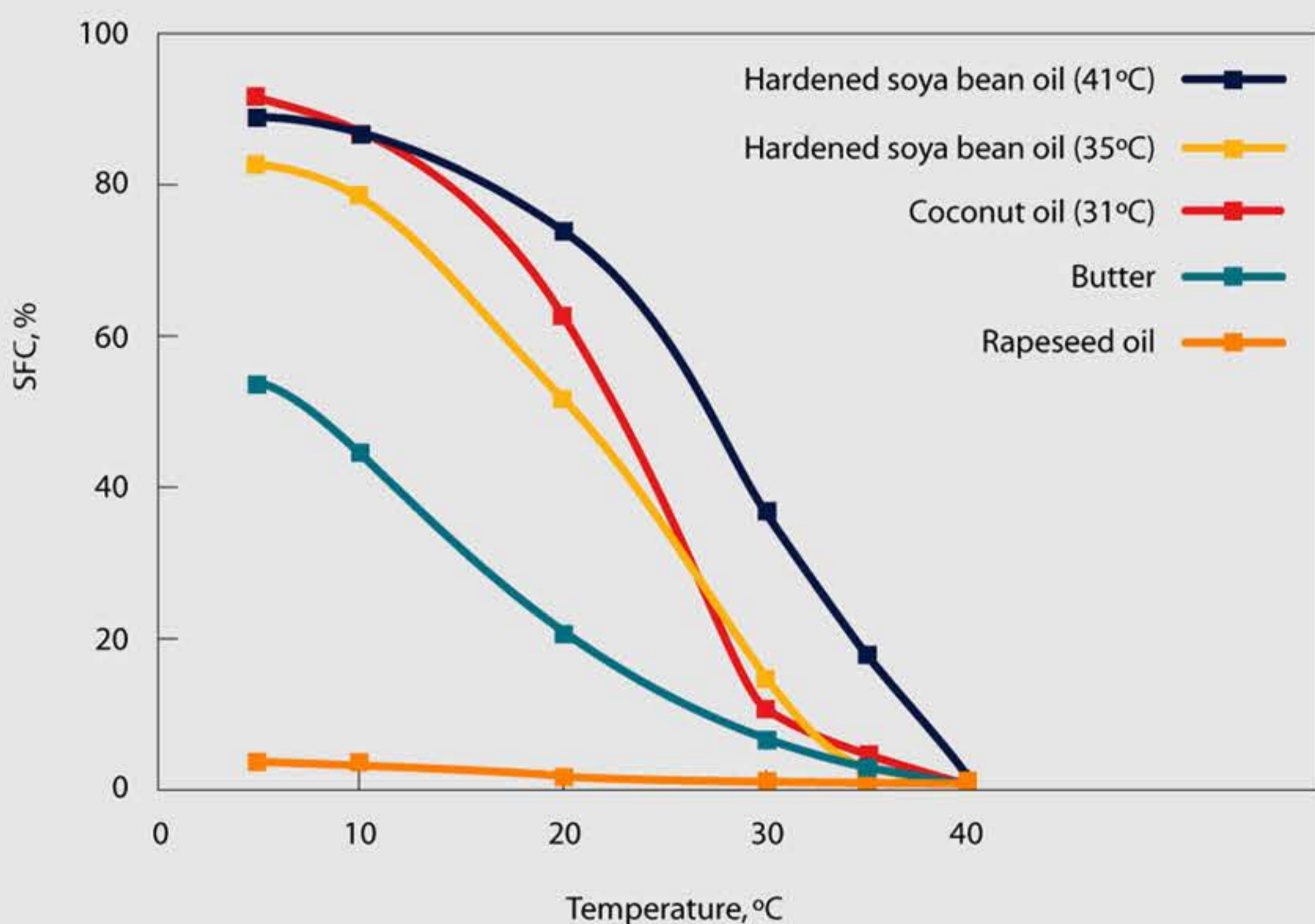
Viscosity of cream is influenced by percentage of fat, amount of dry matter, use of stabilizers, and homogenization and processing conditions.

## Types of cream based on the production method

- Pasteurized cream
- UHT cream
- Reconstituted cream
- Fermented cream
- Sour cream by adding lactic acid
- Frozen cream
- Aerosol cream under pressure
- Confessionary cream or Minarin



## SFI of different types of vegetable fat



Also, as a result of proper selection and balance of the ingredients of this product, the cream produced with this stabilizer has good durability, maintains its shape for a long time, and does not undergo syneresis. The time of whipping is also reduced. In addition, due to the creation of a complete emulsion and the exact proportion of hydrocolloid and emulsifier materials in the formula of this product, the cream produced with this stabilizer is completely light and does not rub on tongue.



Also, as a result of proper selection and balance of the ingredients of this product, the cream produced with this stabilizer has good durability, maintains its shape for a long time, and does not undergo syneresis. The time of whipping is also reduced. In addition, due to the creation of a complete emulsion and the exact proportion of hydrocolloid and emulsifier materials in the formula of this product, the cream produced with this stabilizer is completely light and does not rub on tongue.





In Schwan Group Parseh Production Co., some stabilizers are designed and produced for pasteurization and UHT processes, for different kinds of cream with different percentages of fat, of vegetable and animal types. These stabilizers are as follows.

## Pasteurized Cream

Code	Dosage	Ingredients
<b>CC 200</b>	<b>0.3-0.4%</b>	<b>E 401/ E 407/ E412/ E 471/ E 415 Dextrose</b>
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Increasing cream stability and favorable mouthfeel</li> <li>• Reducing syneresis during storage</li> <li>• Increasing and improving the shelf life of cream</li> <li>• Providing appropriate consistency and viscosity</li> <li>• Non-formation of undesirable jelly texture</li> <li>• Suitable for cream with 25-30% fat</li> </ul>	
<b>CC 210</b>	<b>0.25-0.4%</b>	<b>E 401/ E 471/ E 412/ E 407/ E 415 Dextrose</b>
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Increasing cream stability and its favorable mouthfeel</li> <li>• Reducing syneresis during storage</li> <li>• Increasing and improving the shelf life of cream</li> <li>• Providing appropriate consistency and viscosity</li> <li>• Non-formation of undesirable jelly texture</li> <li>• Suitable for cream with 25-30% fat</li> <li>• Suitable for the production of vegetable cream</li> </ul>	
<b>CC 220</b>	<b>0.25-0.35%</b>	<b>E401/ E 407/ E412/ E 471/ E 410 Dextrose</b>
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Increasing cream stability and its favorable mouthfeel</li> <li>• Reducing syneresis during storage</li> <li>• Increasing and improving the shelf life of cream</li> <li>• Providing appropriate consistency and viscosity</li> <li>• Non-formation of undesirable jelly texture</li> <li>• Suitable for cream with at least 20% fat</li> <li>• Suitable for the production of vegetable cream</li> </ul>	

## Pasteurized Cream (low-fat)

Code	Dosage	Ingredients
CCL 210	0.4%	E 407/ E415/ E 471/ E 410 Dextrose
<b>Properties</b>	<ul style="list-style-type: none"><li>• Increasing cream stability and favorable mouthfeel</li><li>• Reducing syneresis during storage</li><li>• Increasing and improving the shelf life of cream</li><li>• Providing appropriate consistency and viscosity through reducing fat</li><li>• Non-formation of undesirable jelly texture</li><li>• Suitable for cream with 16-18% fat</li></ul>	





## UHT Cream

Code	Dosage	Ingredients
SCH497	0.4%	E401/ E410/ E 471/ E407 Dextrose
<b>Properties</b>	<ul style="list-style-type: none"><li>• Increasing cream stability and favorable mouthfeel</li><li>• Reducing syneresis during storage</li><li>• Increasing and improving the shelf life of cream</li><li>• Providing appropriate consistency and viscosity through reducing fat</li><li>• Non-formation of undesirable jelly texture</li></ul>	



## Confectionary

Code	Dosage	Ingredients
<b>CC 100</b>	<b>0.4%</b>	<b>E 407/ E 471/ E 401/ E 415 Malto dextrin</b>
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Increasing the stability of whipped cream</li> <li>• Improving and increasing overrun cream</li> <li>• Preventing the cream from syneresis</li> <li>• Maintaining the shape of the cream on cake</li> </ul>	
<b>CC 110</b>	<b>0.5-0.6%</b>	<b>E 471/ E 407/ E412/ E 401/ E 415 Malto dextrin</b>
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Increasing the stability of whipped cream</li> <li>• Improving and increasing overrun cream</li> <li>• Preventing the cream from syneresis</li> <li>• Maintaining the shape of the cream on cake</li> </ul>	



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# SCHWAN

## CHEESE STABILIZER



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## CHEESE STABILIZER

In the food industry, stabilizers are basic compounds which increase the consistency, stability, quality, and concentration of the product and reduce the prime price of it. Stabilizer ingredients for each food product are different from that of others.

Cream cheese is soft fresh cheese with a mild taste. It is different from other cheeses in that it is not left to ripen; rather, it is consumed fresh. Cream cheese is usually fermented with mesophilic starter cultures. It is divided into two types: fat-rich cream cheese (usually 30% fat and approximately 7-8% protein) and fat-poor cream cheese (usually 15-20% fat and approximately 8-9% protein.)

Cream cheese stabilizer is designed to make a cohesive, hard texture in all kinds of cream, hard-processed cheeses. A distinctive feature of this compound is its capability to absorb water and create a very suitable consistency and viscosity, so providing a hard, cohesive, water-free, and buttery texture. For cream and soft-texture cheeses, it is recommended to use cream cheese stabilizer.

**Cheese is categorized and classified from different aspects, the most important of which are as follows**

## **1 BASED ON MOISTURE**

Moisture content of cheese is expressed as moisture content in cheese without fat

- **Moisture in fat free cheese (MFFC)**
- **Dried**            **MFFC < 40%**
- **Grated**         **MFFC = 40% - 49.9%**
- **Hard**            **MFFC = 50 – 59.9%**
- **Soft**             **MFFC = 60 – 69.9%**
- **Fresh**          **MFFC = 70 – 82%**

## **2 BASED ON THE AMOUNT OF CALCIUM IN THE SOLID SUBSTANCE WITHOUT FAT AND NA<sub>2</sub>CO<sub>3</sub>, WHICH ARE AFFECTED BY THE ACIDIFICATION**

- **More than 2.5%**
- **2.1-2.5%**
- **1.6-2%**
- **1.1-1.5%**
- **0.6-1%**
- **Less than 0.6%**

### **3 BASED ON THE COAGULATION METHOD**

- **Rennet cheese**
- **Acid cheese**
- **Heat-Acid coagulation**

### **4 BASED ON FAT PERCENTAGE**

- **High fat :** >60%
- **Full fat :** 45-60%
- **Medium fat :** 25-45%
- **Low fat :** 10-25%
- **Skim :** <10%

### **5 BASED ON RIPE**

### **6 BASED ON HAVING OR NOT HAVING A SHELL**

### **7 BASED ON EFFECTIVE FACTORS IN RIPENING**

- **Mold ripened** ( Surface – Internally)
- **Bacterially ripened** ( Internally – surface
- **Smear ripened** (Bacteria + yeast)

### **8 BASED ON THE PORES OF THE BODY**

### **9 BASED ON THE PRODUCTION METHOD**

- **Rennet coagulated (natural cheese)**
- **Heat- acid coagulation**
- **Concentration – crystallization**
- **Acid coagulated**
- **Dried Cheese**
- **Enzyme – modified**
- **Cheese Analogues**
- **Processed Cheese**

### **10. BASED ON THE MILK TYPE**

# THE REASONS FOR USING EMULSIFIER AND STABILIZER IN CHEESE FORMULATION

- **Inhibition of whey separation**
- **Regulation of organoleptic properties**  
Texture, mouth feel, gel strength, spreadability, glossiness
- **Protein stability**  
Level and type of protein, fat level, dry matter level, thermal load, pH
- **Reduced price**

## Whey retention

Good

Excellent

\* also sticky, waxy mouthfeel  
\*\* tendency to skin formation

## Texture (spread)

Brittle

Alginate

Firm

Carrageenan

Short

LBG

Smooth

Gelatine

Creamy

Guar gum \*

Xanthan gum \*\*

Low viscosity

Mono-diglycerides of fatty acids

Mouthfeel

Dry

Smooth

Very creamy & smooth





In Schwan Group Parseh Production Co., some stabilizers are produced, with different percentages of fat, using vegetable and animal fat, for all kinds of processed, soft cheeses – including cream cheese – as follows.

## Cream Cheese Stabilizers

Code	Dosage	Ingredients
<b>CH 1</b>	<b>0.3-0.4%</b>	<b>E 401/ E 410/ E412/ E 471 E 415/ E 407</b>
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Increasing stability and favorable mouthfeel</li> <li>• Non-syneresis during storage</li> <li>• Providing cream cheese-appropriate consistency and viscosity</li> <li>• Providing right taste and improving mouthfeel</li> <li>• Providing cream texture and preventing the cheese from drying out</li> <li>• Non-formation of undesirable jelly texture</li> </ul>	
<b>CH 3</b>	<b>0.3-0.4%</b>	<b>E410 /E471 /E466 /E412 /E407</b>
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Increasing stability and favorable mouthfeel</li> <li>• Non-syneresis during storage</li> <li>• Providing cream cheese-appropriate consistency and viscosity</li> <li>• Providing right taste and improving mouthfeel</li> <li>• Providing cream texture and preventing the cheese from drying out</li> <li>• Non-formation of undesirable jelly texture</li> </ul>	
<b>CH 5</b>	<b>0.3-0.4%</b>	<b>E401 /E471 /E466 /E412 E415 /E407</b>
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Increasing stability and favorable mouthfeel</li> <li>• Non-syneresis during storage</li> <li>• Providing cream cheese-appropriate consistency and viscosity</li> <li>• Providing right taste and improving mouthfeel</li> <li>• Providing cream texture and preventing the cheese from drying out</li> <li>• Non-formation of undesirable jelly texture</li> </ul>	



## Cream, Gouda, and Cheddar Cheese Stabilizers

Code	Dosage	Ingredients
CH 7	0.3-0.4%	E410 /E471 /E407 /E412 /E425
<b>Properties</b>		<ul style="list-style-type: none"><li>• Increasing stability and favorable mouthfeel</li><li>• Non-syneresis during storage</li><li>• Providing cream cheese-appropriate consistency and viscosity</li><li>• Providing right taste and improving mouthfeel</li><li>• Providing cream texture and preventing the cheese from drying out</li><li>• Non-formation of undesirable jelly texture</li></ul>



## Jar Cheese Stabilizers

Code	Dosage	Ingredients
CH 13	0.5%	E 401 /E 410 /E412 /E 471 E 415 /E 407
<b>Properties</b>	<ul style="list-style-type: none"><li>• Increasing stability and favorable mouthfeel</li><li>• Non-syneresis during storage</li><li>• Providing cream cheese-appropriate consistency and viscosity</li><li>• Providing right taste and improving mouthfeel</li><li>• Providing cream texture and preventing the cheese from drying out</li><li>• Non-formation of undesirable jelly texture</li></ul>	



## Triangle Cheese

Code	Dosage	Ingredients
CH - T1	0.5%	E 407 / E 471 /E 401 /E 415

### Properties

- Increasing stability and favorable mouthfeel
- Non-syneresis during storage
- Providing appropriate consistency and viscosity
- Providing right taste and improving mouthfeel
- Providing elastic texture and preventing the cheese from drying out



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# SCHWAN

## BEVERAGE STABILIZER



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## Juice Stabilizer

Juice is one of the best alternatives to carbonated soft drinks around the world. This beverage made from all kinds of fruits is one of the basic industries in the food sector, and this has made the global market of juices and concentrates very prosperous and hot.

Fruits and vegetables contain antioxidants fiber, minerals (zinc, selenium, etc.), various vitamins (B4, B6, E, A, E, C), beta-carotene and plenty of water; so, they are necessary for growth and physical activity; coping with stress; prevention of cancers and constipation cholesterol reduction; etc



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According to the standard, fruit drinks are classified into three categories:

## **Juice**

It is a product obtained from 100% fruit extract, by squeezing fruit, or from natural fruit puree and fruit concentrate and mixing it with drinking water until the desired concentration is achieved.

## **Nectar**

It is obtained from a mixture of natural fruit extract, concentrate, or fruit puree along with water, sugar, or other permitted additives. In comparison with juice, this product contains less percentage of fruit extract, and its minimum content, depending on the type of fruit, is variable from 30% to 50%.

## **Non-carbonated fruit drink**

This product contains at least 20% fruit extract – or its equivalent, concentrate –, water, and other ingredients such as sugar, edible acid, flavoring, and natural color.

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## **The purpose of using stabilizers in juice**

The noteworthy point is that due to the high viscosity of pulp and fruit flesh particles, after some time, sediments are formed in the product, which, in addition to the negative effect on the taste, also has an adverse effect on the popularity of the juice market. In this regard, by adding the stabilizer to the juice, one can prevent the formation of sediments, and by increasing the viscosity of the product, one can improve its mouthfeel.

By designing and producing juice stabilizers, Schwan Group Parseh Production Company has been able to take a positive step to solve the related problem in the production of this valuable product.



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Stabilizers designed in Schwan Group Parseh Production Company are as follows.

## Juice Thickening Agent

Code	Dosage	Ingredients
J250	0.15-0.25%	E401/ E440/ E331/ Dextrose
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Increasing product viscosity and improving mouthfeel</li> <li>• Increasing the stability and taste of the product</li> <li>• Preventing the formation of sediment during the storage period of the product</li> <li>• Not affecting the flavor of the product</li> <li>• Resistance to acidic conditions compared to CMC</li> <li>• With viscosity similar to CMC, being a suitable substitute for it</li> </ul>	
J300	0.15-0.25%	E331/ E401/ E440 E415/ Dextrose
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Increasing product viscosity and improving mouthfeel</li> <li>• Increasing the stability and taste of the product</li> <li>• Preventing the formation of sediment during the storage period of the product</li> <li>• Not affecting the flavor of the product</li> <li>• Resistance to acidic conditions compared to CMC</li> <li>• With viscosity similar to xanthan and pectin, being a suitable substitute for them</li> </ul>	
J350	0.15-0.25%	E331/ E418/ E417 E415/ Dextrose
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Increasing product viscosity and improving mouthfeel</li> <li>• Increasing the stability and taste of the product</li> <li>• Preventing the formation of sediment during the storage period of the product</li> <li>• Not affecting the flavor of the product</li> <li>• Resistance to acidic conditions compared to CMC</li> <li>• Suitable for juice with a high percentage of puree and providing a single-phase state</li> </ul>	

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## Juice Suspending Agent Basil seed, Aloe vera, fruit pieces, etc

In recent years, special attention has been paid to the production of drinks containing fruit particles (plant seeds) such as aloe vera drink with pulp, basil seed drink, and flaxseed syrup. These drinks have gained special importance due to the presence of plant seeds and attractiveness for the consumer. Homogenous suspension of fruit particles or pulp in the drink adds to its visual appeal and sensory acceptance.

One of the interesting points about this type of stabilizer is that it keeps fruit particles or plant seeds in suspension during the shelf life of the product, even at room temperature, and prevents them from settling.

By designing and producing this type of juice stabilizer, Schwan Group Parseh Production Company has been able to take a positive step to solve the related problem in the production of this product.

### Juice Suspending Agent

Code	Dosage	Ingredients
J100	0.15-0.16%	E418/ E401/ E331/ Maltodextrin

#### Properties

- Increasing product stability
- Not affecting the flavor of the product
- Resistance to acidic conditions
- Keeping the pulp and pieces of fruit (Basil seed, Aloe vera, orange, coconut, etc.) suspended
- Keeping the ingredients suspended at a temperature of 25 to 30 degrees Celsius without needing to be placed in a cold room

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# Syrup

By designing and producing this type of stabilizer, Schwan Parse Production Group has taken a positive step to solve the related problem in the production of this product.

The stabilizer designed in Schwan Parse Production Group is as follows.

## Syrup

Code	Dosage	Ingredients
J 600	0.3-0.4%	E417/ E440/ E466/ E331/ Dextro
<b>Properties</b>	<ul style="list-style-type: none"><li>• Increasing product stability</li><li>• Not affecting the flavor of the product</li><li>• Resistance to acidic conditions</li><li>• Increasing product viscosity and improving mouthfeel</li></ul>	



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# SCHWAN

## ICE CREAM STABILIZER



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## ICE CREAM

Ice cream and related products are generally classified as frozen desserts.

By definition, ice cream is a frozen product produced from milk or milk products by adding different ingredients. Physically, ice cream is a type of gas-in-liquid emulsion in which small air bubbles are dispersed in a partially frozen continuous phase. The general purpose of ice cream design is to combine several different insoluble substances (air bubbles, ice crystals, and fat globules) in an aqueous phase in the smallest sizes and in the largest possible number. The type and amount of ingredients in different ice creams are different, but in general, normal ice cream contains about 7-12% fat, 7-12% fat-free solids, 12-16% sweetener agent, 0.4-0.8% thickener agent and emulsifier, 34-45% total solids, and 55-65% milk or water.



### Ice cream

- Super Permium
- Premium
- Standaed
- Low fat/Non fat
- Low calorie
- No sugar added (NSA)

### Ice milk

- Sorbet
- Sherbet
- Water Ice
- Frozen mousse

### Ice cream

- Soft serve
- Milk shake
- Slush ice
- Frozen yogurt
- Dispenser ice cream

Ice cream stabilizer which is a combination of gums and emulsifiers is used to create concentration and homogenization in ice cream. The combination of stabilizer and emulsifier is one of the main and important factors in the texture and structure of ice cream and plays a significant role in the production of industrial and traditional ice cream. Stabilizers are used to provide soft, uniform consistency and texture in ice cream and prevent the formation of ice crystals and sand texture, the rapid melting of ice cream, and thermal shock during consumption. The main role of stabilizer is to reduce the amount of free water in the ice cream mixture by connecting it as "hydration water" or by immobilizing it in the gel structure. Also, using a small percentage of stabilizer, ice cream can absorb and retain large amounts of water.



Stabilizers maintain product texture uniformity and control ice crystal growth during the aeration freezing process.

During cold storage, stabilizers play an important role in resistance against structural changes resulting from thermal shock" (an inevitable temperature during storage and distribution that causes ice crystal growth and other types of damage, leading to structural changes). During serving and consumption, stabilizers contribute to uniform melting, mouthfeel, and texture of ice cream.

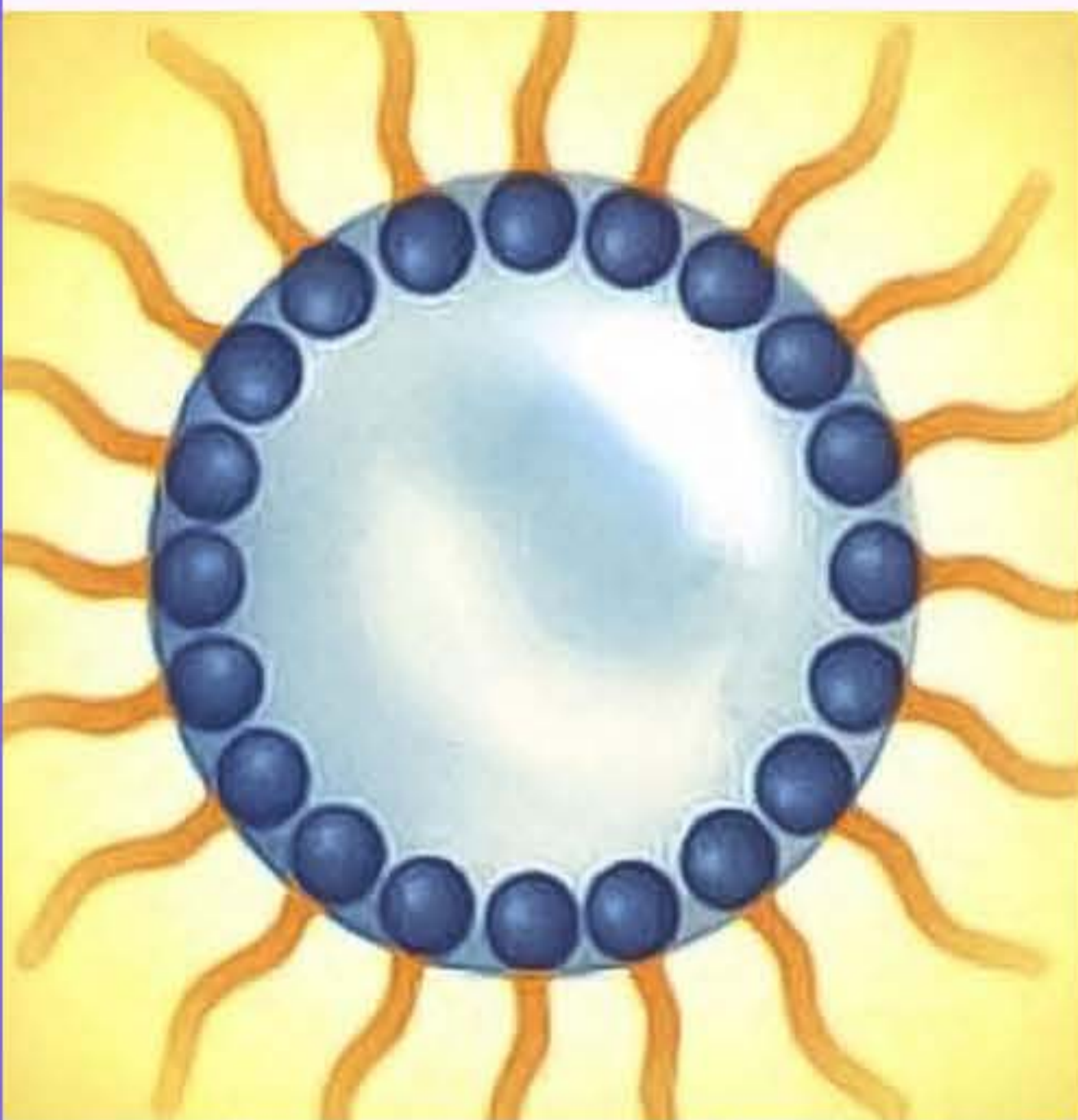
Most polysaccharide-based ice cream stabilizers affect the rheological properties in the continuous phase. Some stabilizers form complexes with ice cream ingredients; for example, carrageenan-casein complex prevents cheese from separating during mixing. In making ice cream, it is always difficult to achieve all the properties of ice cream using hydrocolloids. Today, food industry specialists are able to obtain very good properties of ice cream by combining hydrocolloids and emulsifiers in different proportions.

# EFFICIENCY OF EMULSIFIERS AND HYDROCOLLOIDS IN ICE CREAM

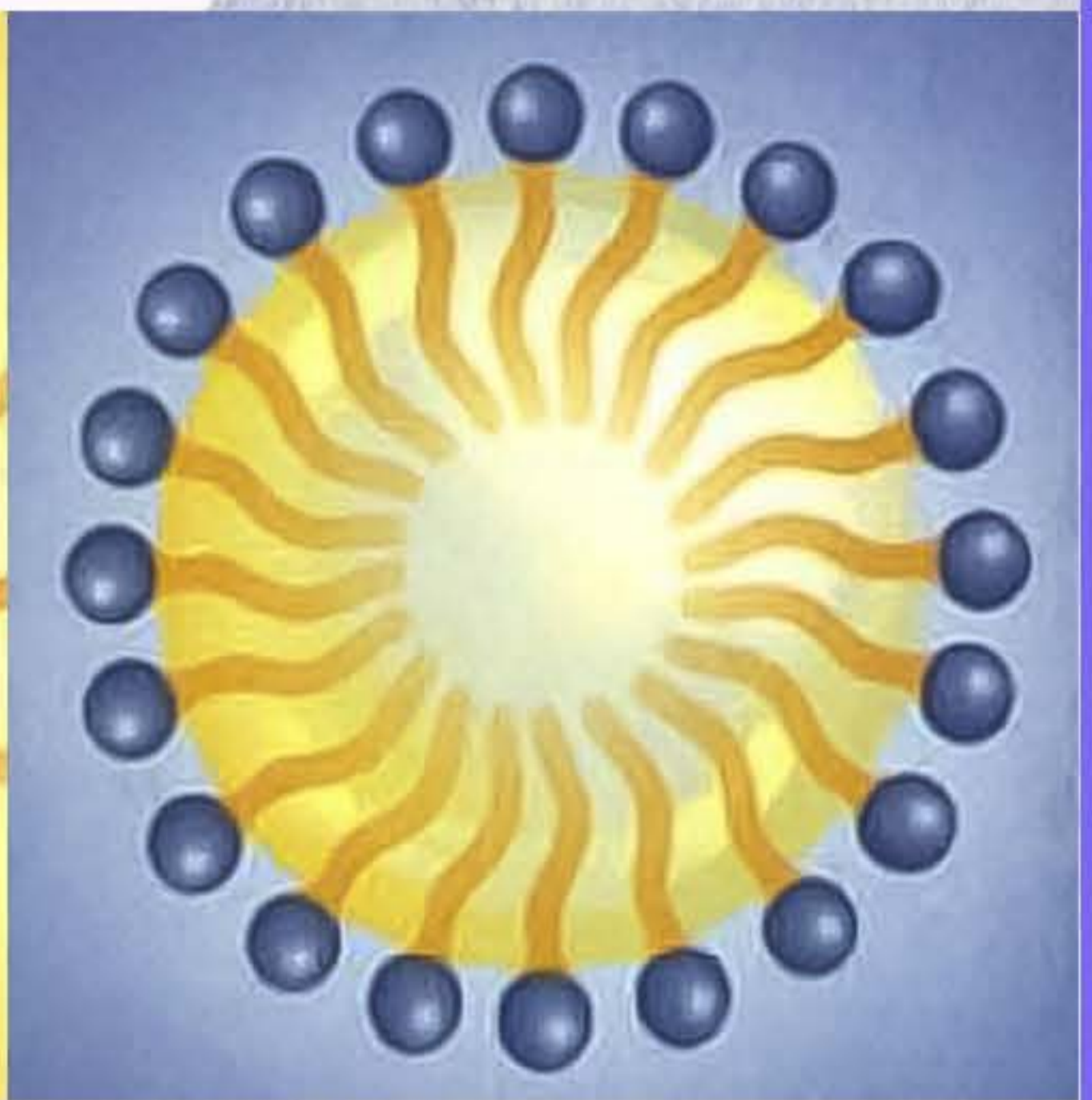
## 1. Emulsifiers

Emulsifier is an active surface component that is located in the oil-water boundary and makes two immiscible faces mix together.

In fact, it reduces the surface tension between two different phases.



water-in-oil emulsion



Oil-in water emulsion

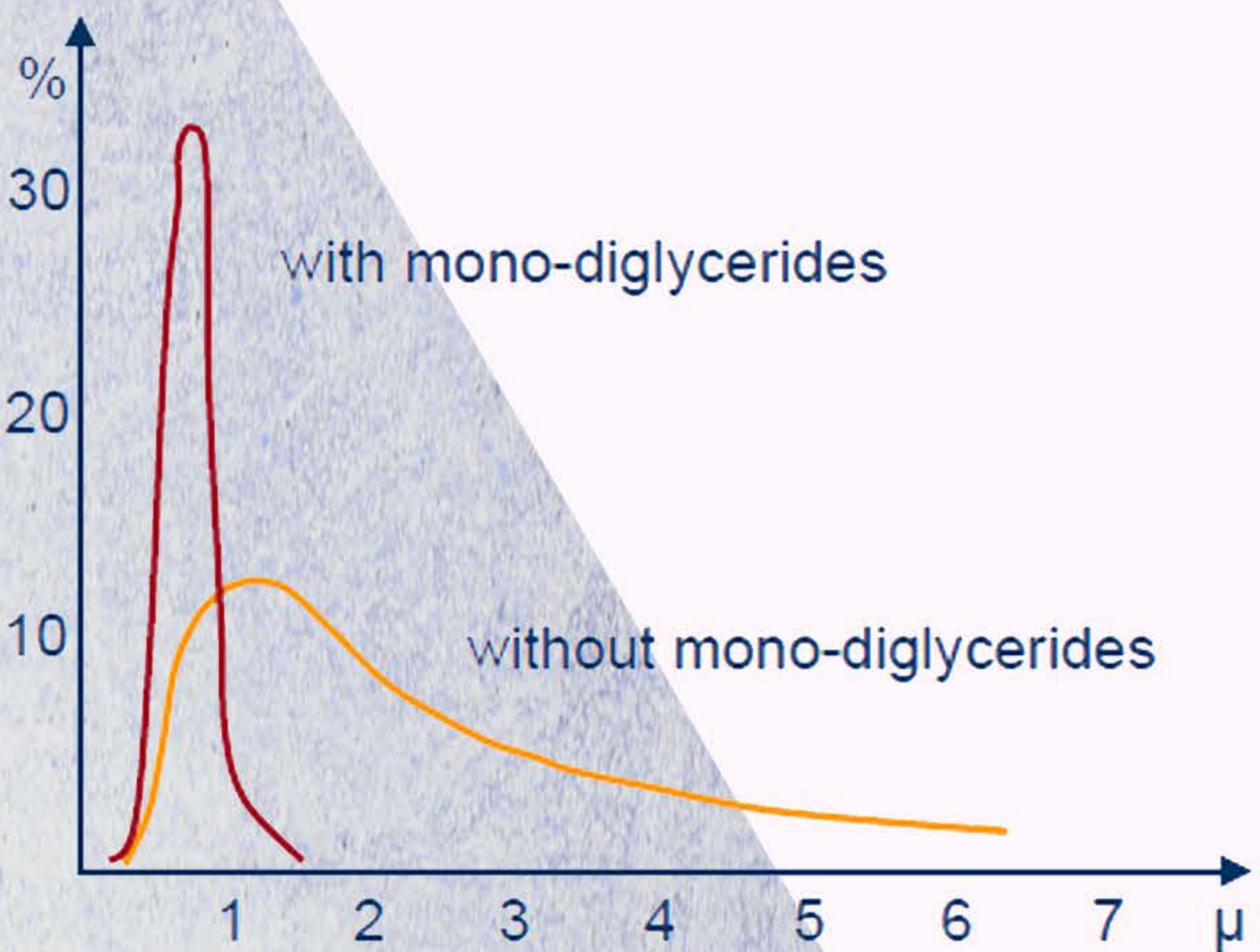
**The effect of emulsifiers during the process:**

### A) Homogenization

It makes the size of the fat cell more uniform and smaller and makes it stable

It improve fat distribution

## Particle size distribution with and without mono -diglycerides



### B) Aging period

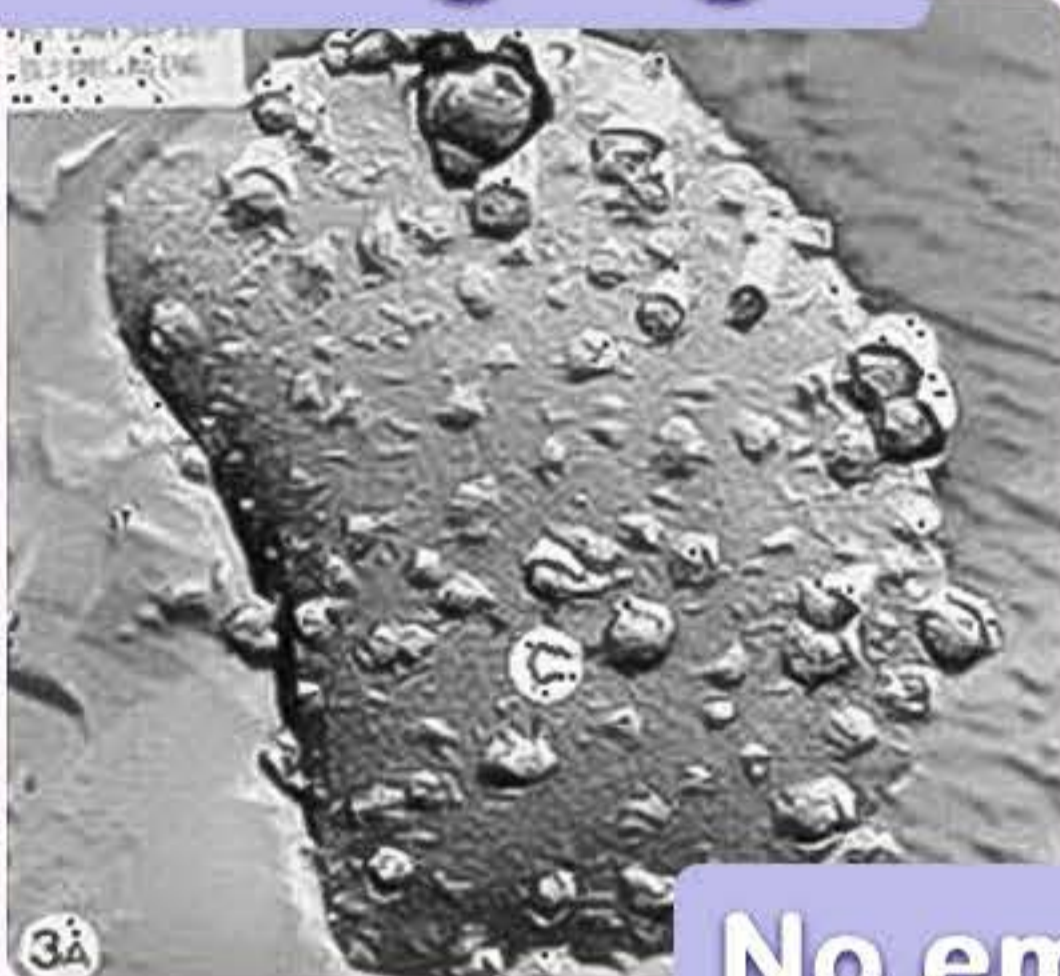
It increases the amount of protein excreted from the fat globule.

It facilitates the crystallization in the fat phase



## Protein desorption in emulsions

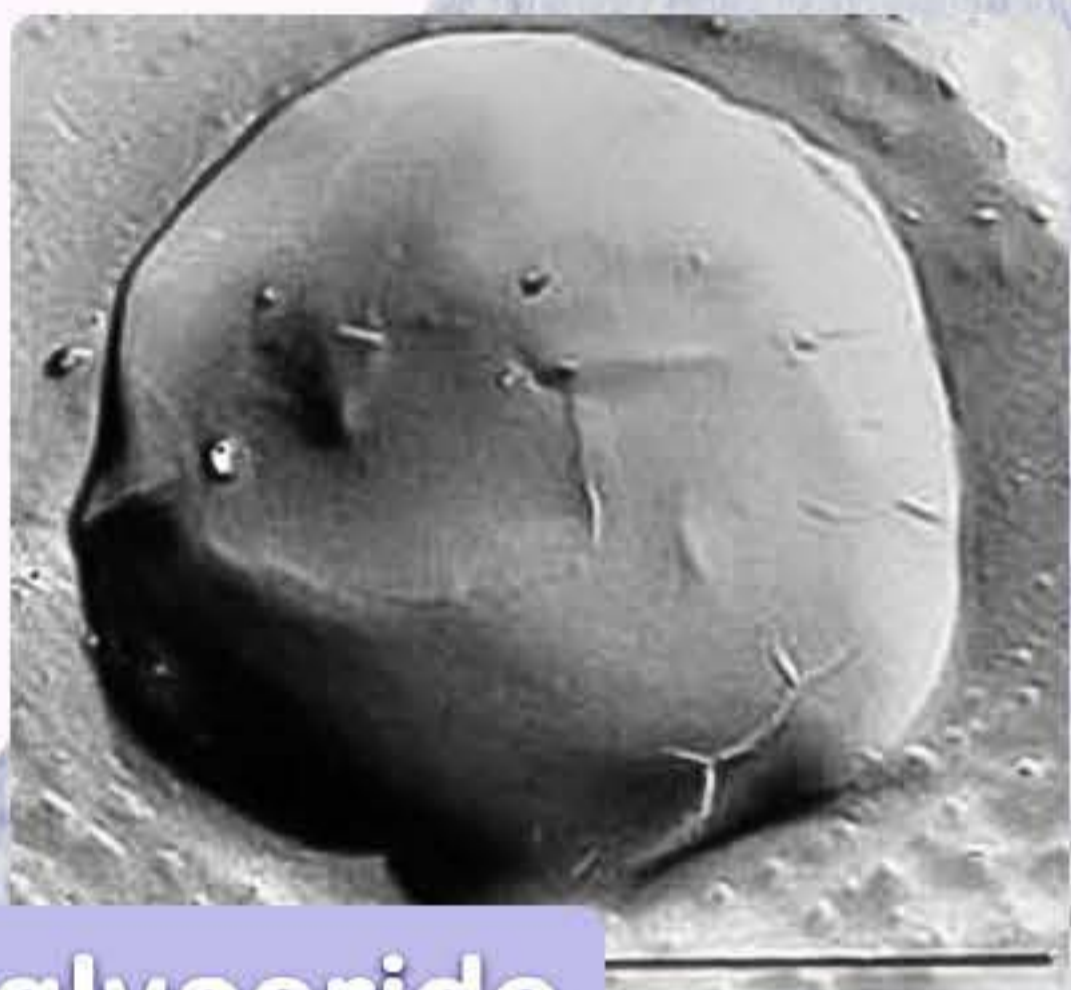
**Before ageing**



**After 4 hours ageing**



**No emulsifier**



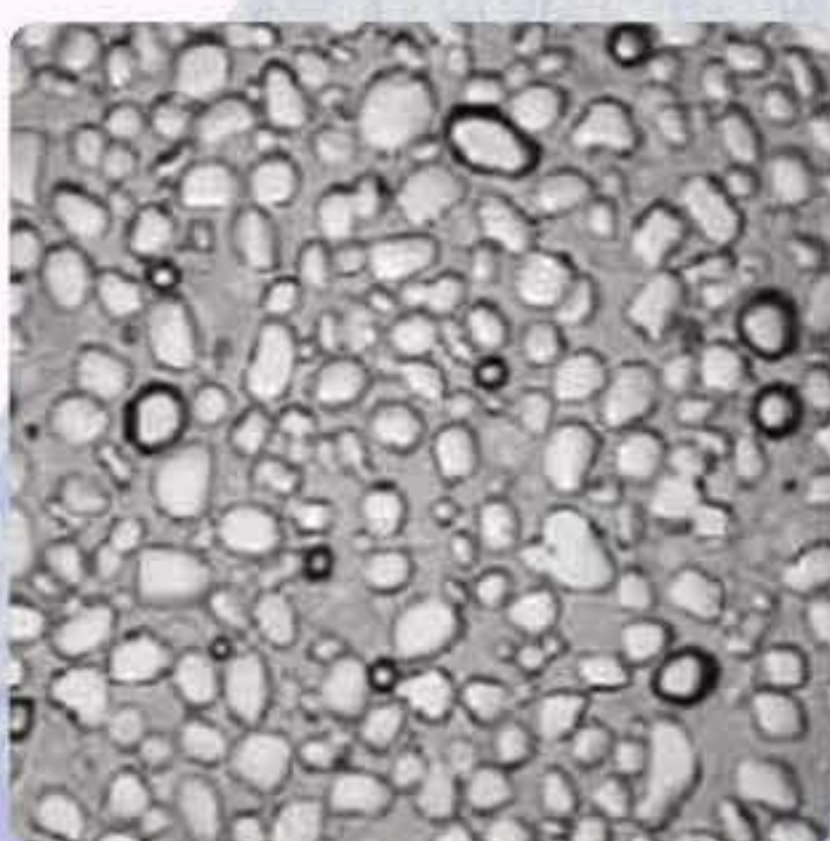
**With monoglyceride**

### C) Freezing

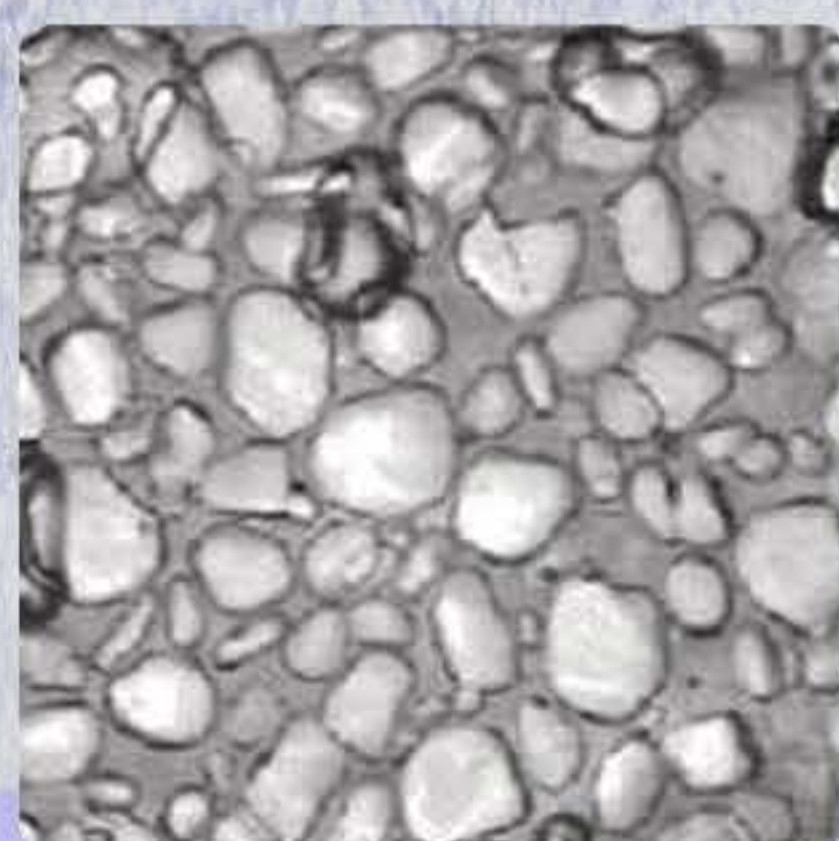
.Due to the reduction of surface tension, it facilitates air absorption.

.It controls the accumulation and integration of

## Ice crystal dispersion for cream exposed to heat shock treatment

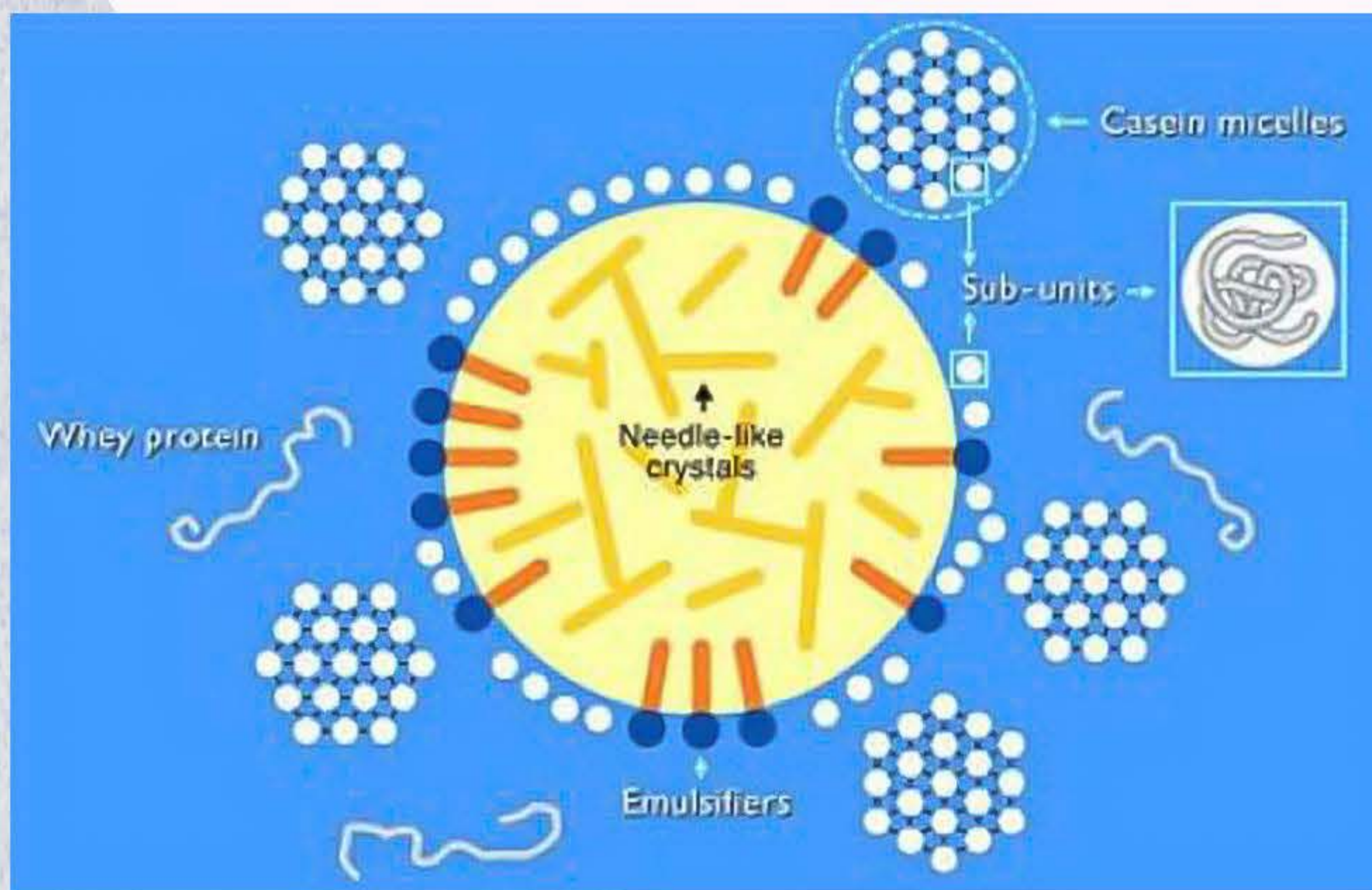


$X_{50.3} = 63\text{pm}$   
with 0.3% mono-diglycerides



$X_{50.3} = 97\text{pm}$   
with out mono-diglycerides

## Fat globule structure in ice cream



E 322 Lecithin	(Polysorbate 20)
E 432 Polyoxyethylene Sorbitan Monolaurate	(Polysorbate 80)
E 433 Polyoxyethylene Sorbitan Monooleate	(Polysorbate 40)
E 434 Polyoxyethylene Sorbitan Monopalmitate	(Polysorbate 60)
E 435 Polyoxyethylene Sorbitan Monostearate	(Polysorbate 65)
E 436 Polyoxyethylene Sorbitan Tristearate	
E 471 Mono-and diglycerides of Fatty Acids	
E 472a Acetic Acid Esters of Mono -and diglycerides of Fatty Acids	
E 472b Lactic Acid Esters of Mono -and diglycerides of Fatty Acids	
E 472c Citric Acid Esters of Mono -and diglycerides of Fatty Acids	
E 472d Tartaric Acid Esters of Mono -and diglycerides of Fatty Acids	
E 472e Mono- and Diacetyl Tartaric Esters of Mono -and diglycerides of Fatty Acids	
E 472f Mixed Acetic and Tartaric Acid Esters of Mono -and diglycerides of Fatty Acids	
E 473 Sucrose Esters of Fatty Acis	
E 474 Sucroglycerides	
E 477 Propylene Glycol Esters of Fatty Acids	
E 491 Sorbitan Monostearate	
E 492 Sorbitan Tristearate	
E 493 Sorbitan Monolaurate	
E 494 Sorbitan Monooleat	
E 495 Sorbitan Monopalmitate	

## 2. Hydrocolloids

### Function of hydrocolloids in ice cream

#### A) During the production process

It increases the viscosity of the mixture

It reduces syneresis

It facilitates air integration

It facilitates the development of air cells

It improves the dryness and firmness of the final texture of the product

#### B) In the final product

It creates structure and texture

It reduces the growth of ice crystals

It improves resistance to melting

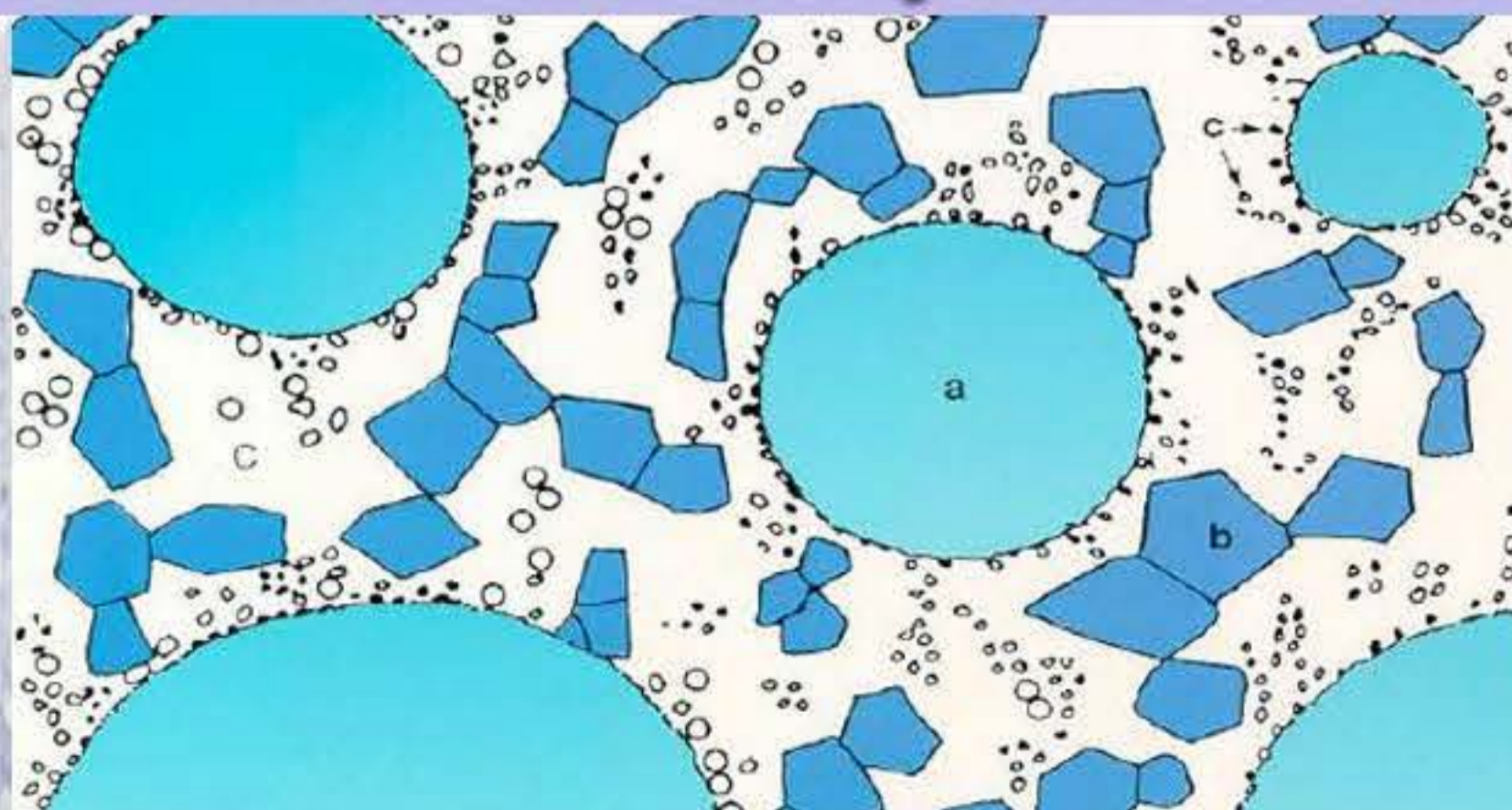
It reduces the rapid melting of the product

It reduces lactose and sugar crystallization

It reduces the feeling of ice crystals and sand texture in the mouth

It increases the shelf life of the product in terms of structure and texture

#### Microstructure of ice cream without hydrocolloids before heat shock

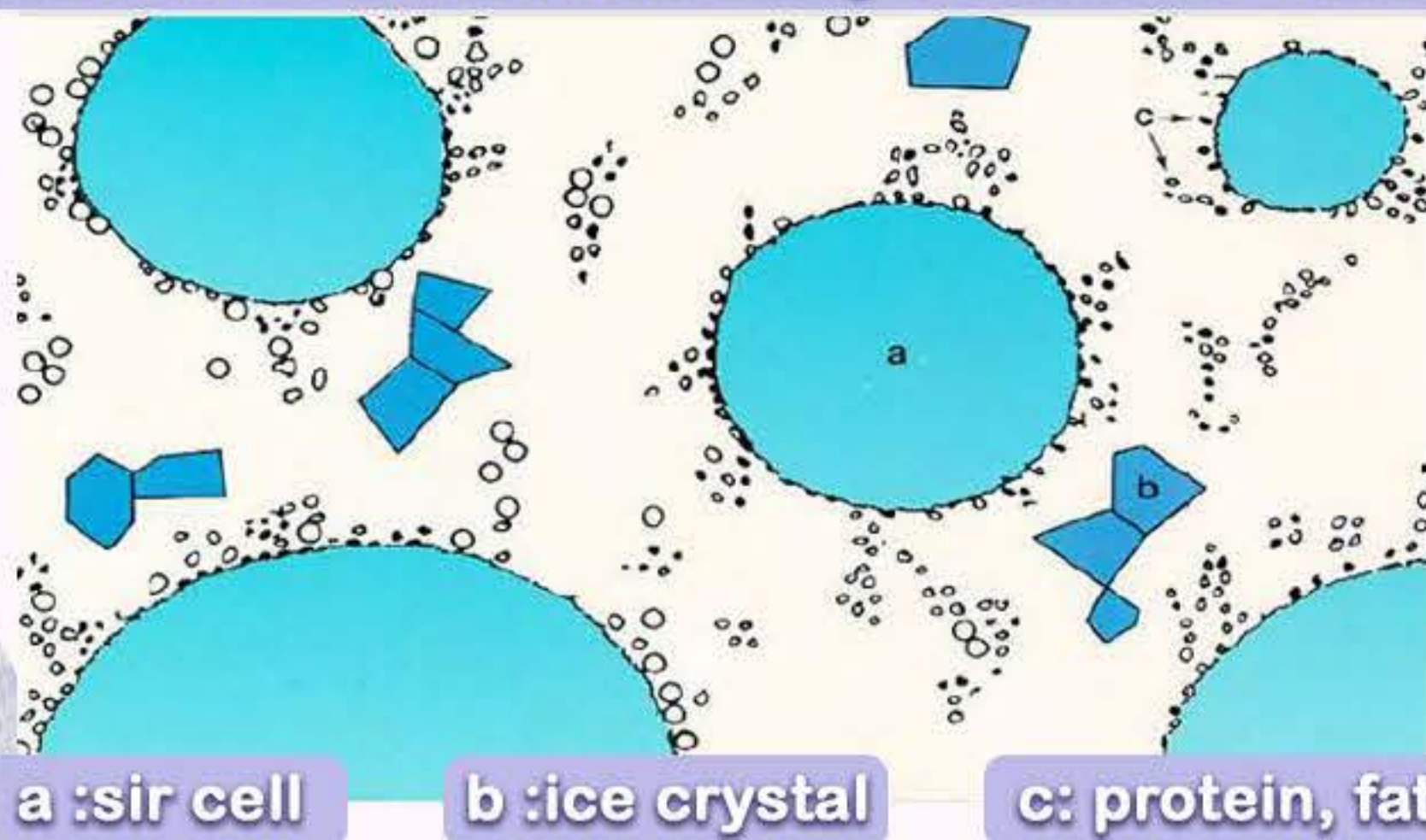


a : air cell

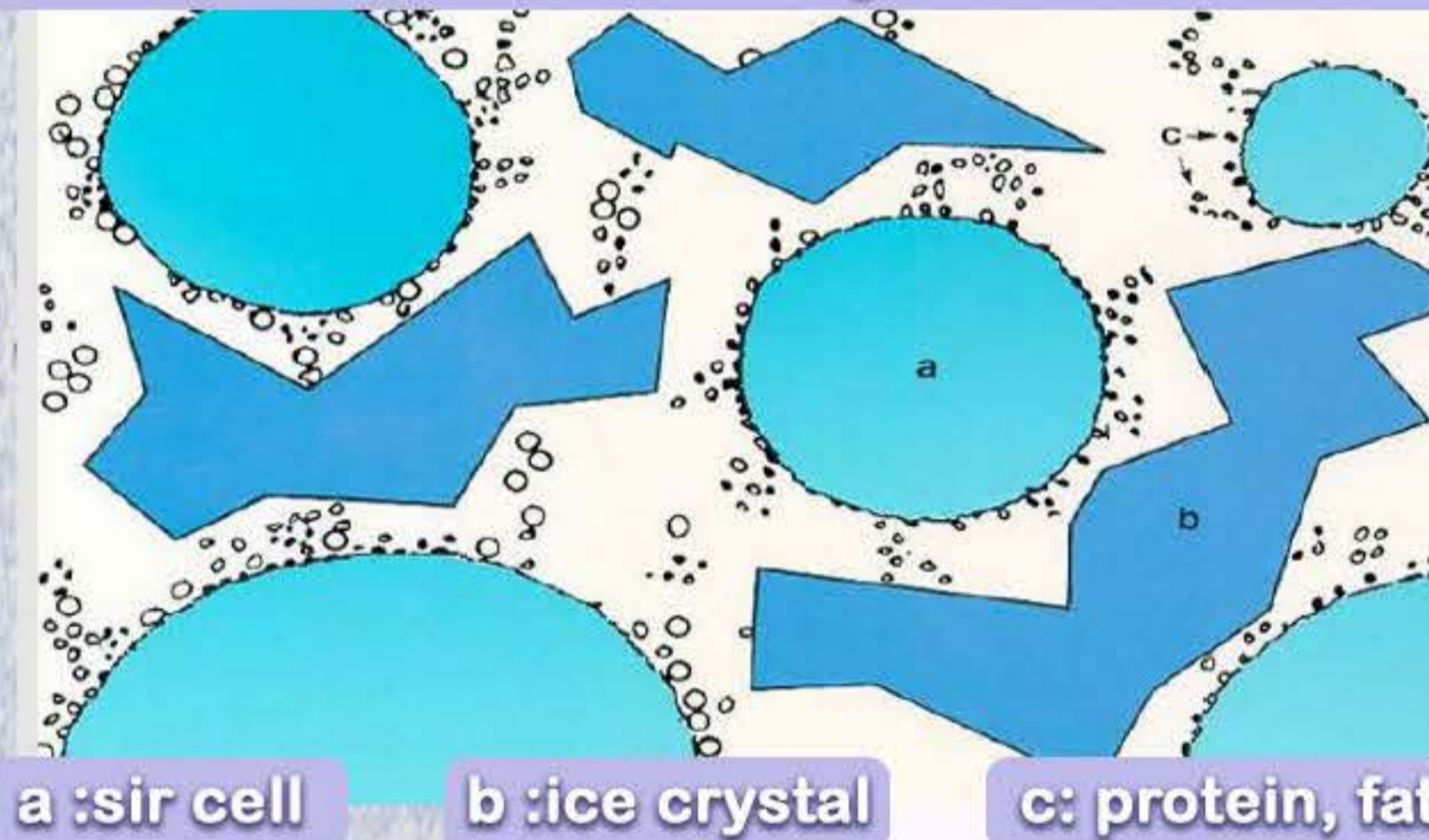
b : ice crystal

c: protein, fat

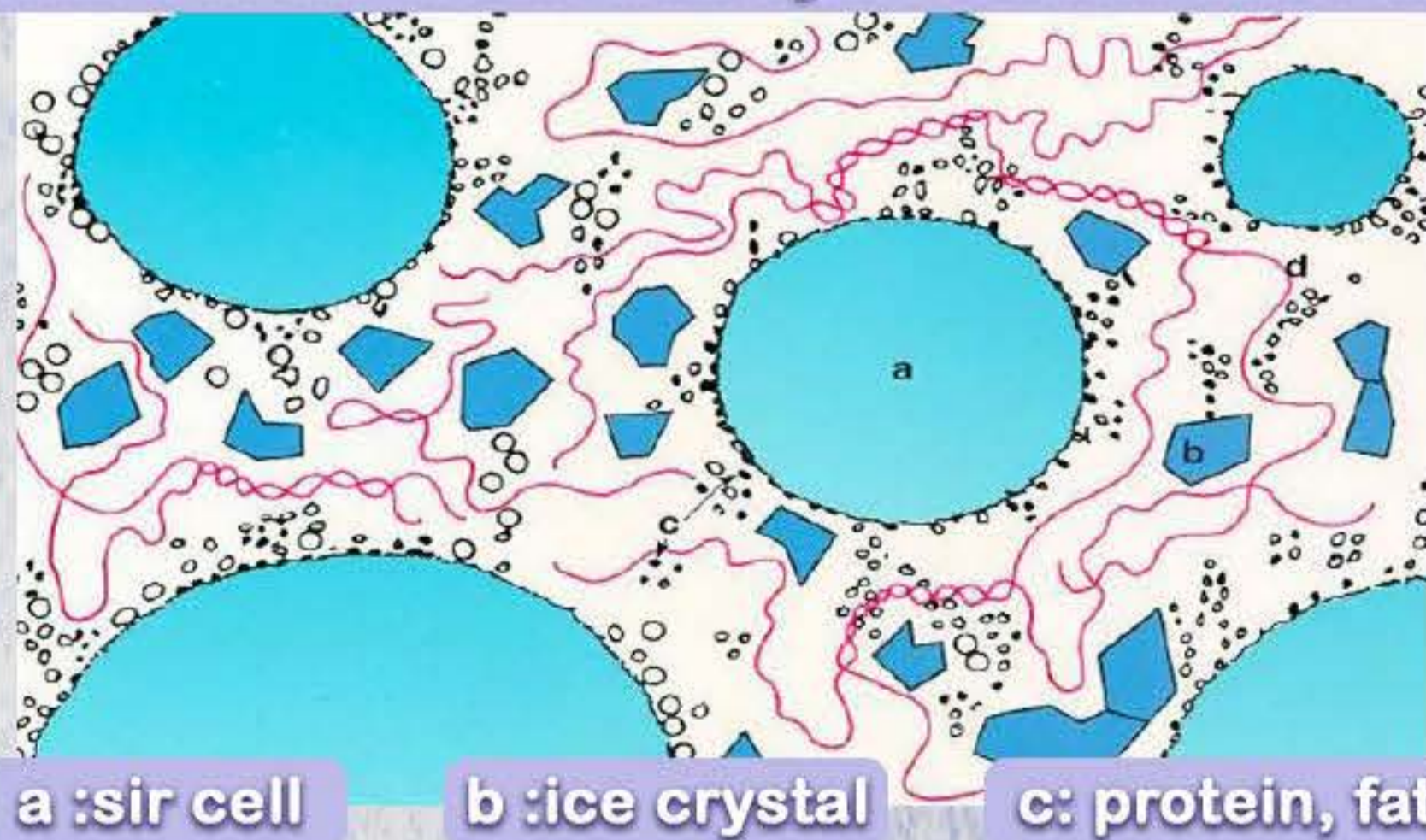
**Microstructure of ice cream without hydrocolloids - heat shock**



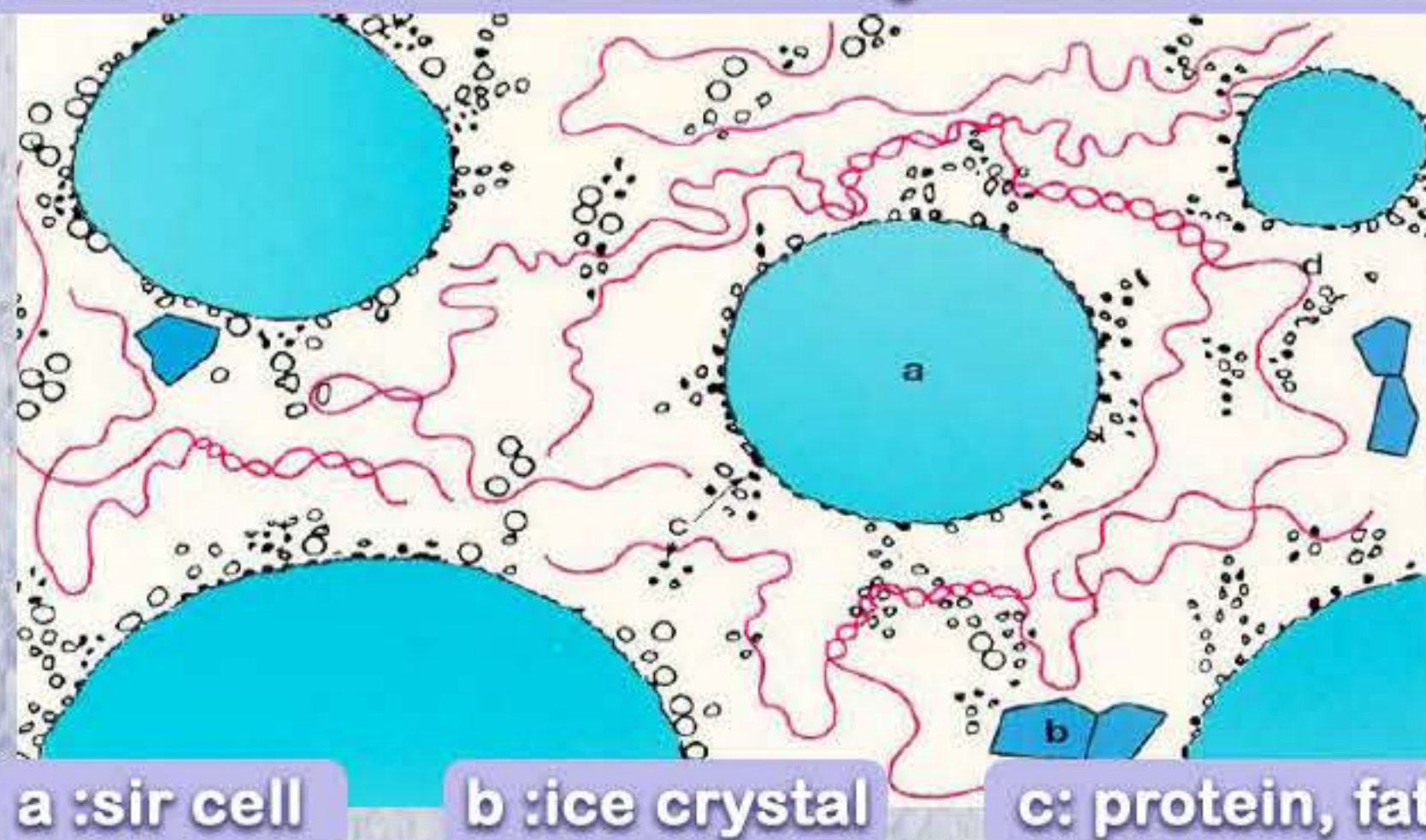
**Microstructure of ice cream without hydrocolloids after heat shock**



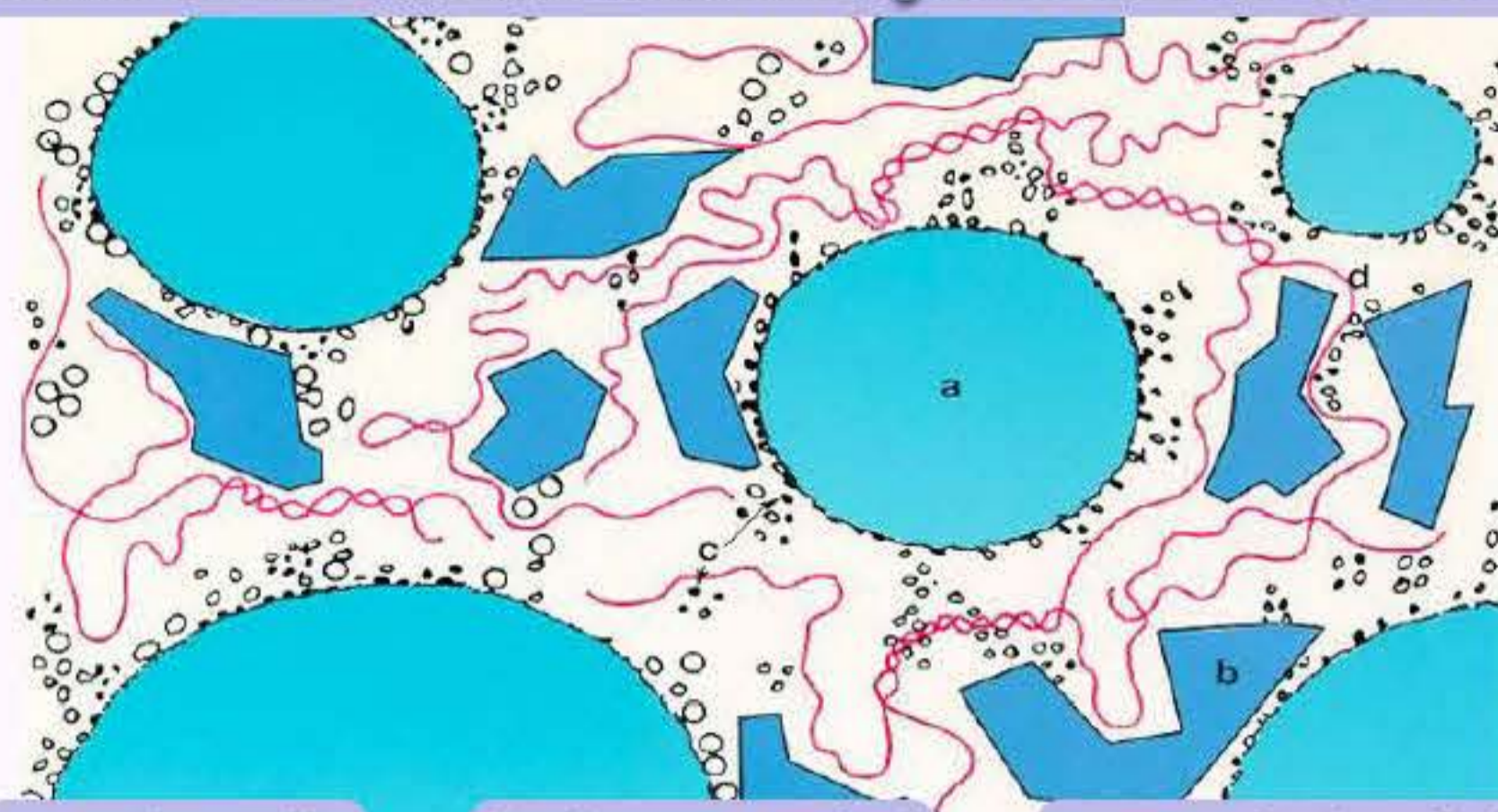
**Microstructure of ice cream with hydrocolloids befor heat shock**



**Microstructure of ice cream with hydrocolloids heat shock**



**Microstructure of ice cream without hydrocolloids before heat shock**



a : air cell

b : ice crystal

c: protein, fat

## Properties of Stabilizers in Ice Cream

	LBG	Tara	Guar	CMC	Carr.	Alginate	Xanthan
Mix viscosity	Medium	High	High	High	Low	Medium	High
Syneresis	Yes	Yes	No	Yes	No	No	No
Body	Smooth	Smooth	Chewy	Smooth	Brittle	Short	Chewy
Mouthfeel	Creamy	Creamy	Medium	Creamy	Cold	Cold	Medium
Melting resistance	Very good	Good	Fair	Fair	Fair	Good	Fair
Heat shock res.	Very good	Good	Bad	Good	Fair	Fair	Good
Flavour release	Very good	Good	Bad	Fair	Good	Good	Fair
Ionic	No	No	No	Yes	Yes	Yes	Yes
Synergy	Yes	Yes	Yes	No	Yes	Yes	Yes

### Requirements of a suitable stabilizer

#### A stabilizer is suitable if it

Can be easily solved

Does not create unpleasant flavor

Does not cause the mixture/whey to separate

Increases the viscosity of the mixture during the aging period, without gel formation

Does not cause a problem in pumping in the production line

Controls the growth of ice crystals in the warehouse



- Controls the growth of sugar crystals in the refrigerating room and during storage period
- Creates a suitable and favorable melting point
- Produces suitable-structure ice cream
- Helps the production process and improves overrun
- s affordable and available



Based on the knowledge of the mentioned cases and the tests carried out in the research and development unit on various types of ice cream, the Production Complex of Schwan Group Parseh company designs and produces various stabilizers with different compositions, which are as follows.

## MILK-BASED ICE CREAM

(MILK ICE CREAM OR VEGETABLE FAT-MIXED ICE CREAM)

Code	Dosage	Ingredients
<b>Ice 100</b> (ECO)	<b>0.5%</b>	<b>E 415/ E 466/ E 407/ E 471/ E401 Maltodextrin</b>
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Maintaining the shape, controlling the melting process, and preventing the separation of solid-liquid phase</li> <li>• Postponing or reducing the growth of lactose and ice crystals during shelf life</li> <li>• Increasing the stability during shelf life against thermal shock</li> <li>• Proper aeration power</li> <li>• Improving the quality and mouthfeel and not creating an unpleasant aftertaste</li> <li>• Increasing the viscosity of the mixture without making a gel</li> </ul>	
<b>Ice 200</b>	<b>0.5%</b>	<b>E 415/ E 407/ E 471/ E 412/ E401 Maltodextrin</b>
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Maintaining the shape, controlling the melting process, and preventing the separation of solid-liquid phase</li> <li>• Postponing or reducing the growth of lactose and ice crystals during shelf life</li> <li>• Increasing the stability during shelf life against thermal shock</li> <li>• Proper aeration power</li> <li>• Improving the quality and mouthfeel and not creating an unpleasant aftertaste</li> <li>• Increasing the viscosity of the mixture without making a gel</li> </ul>	
<b>Ice 500</b>	<b>0.5%</b>	<b>E 410/ E 407/ E 471/ E 412/ E401 Maltodextrin</b>
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Maintaining the shape, controlling the melting process, and preventing the separation of solid-liquid phase</li> <li>• Postponing or reducing the growth of lactose and ice crystals during shelf life</li> <li>• Increasing the stability during shelf life against thermal shock</li> <li>• Proper aeration power</li> <li>• Improving the quality and mouthfeel and not creating an unpleasant aftertaste</li> <li>• Increasing the viscosity of the mixture without making a gel</li> </ul>	



# TRADITIONAL ICE CREAM

Code	Dosage	Ingredients
<b>Ice 300</b>	<b>0.6%</b>	<b>E 412/ E 471/ E 461/ E410/ E466 Dextrose</b>
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Improving the quality and mouthfeel and not creating an unpleasant aftertaste</li> <li>• Increasing ice cream viscosity and elasticity</li> <li>• Maintaining the shape, controlling the melting process, and preventing the separation of solid-liquid phase</li> <li>• Postponing or reducing the growth of lactose and ice crystals during shelf life</li> <li>• Increasing the stability during shelf life against thermal shock</li> </ul>	





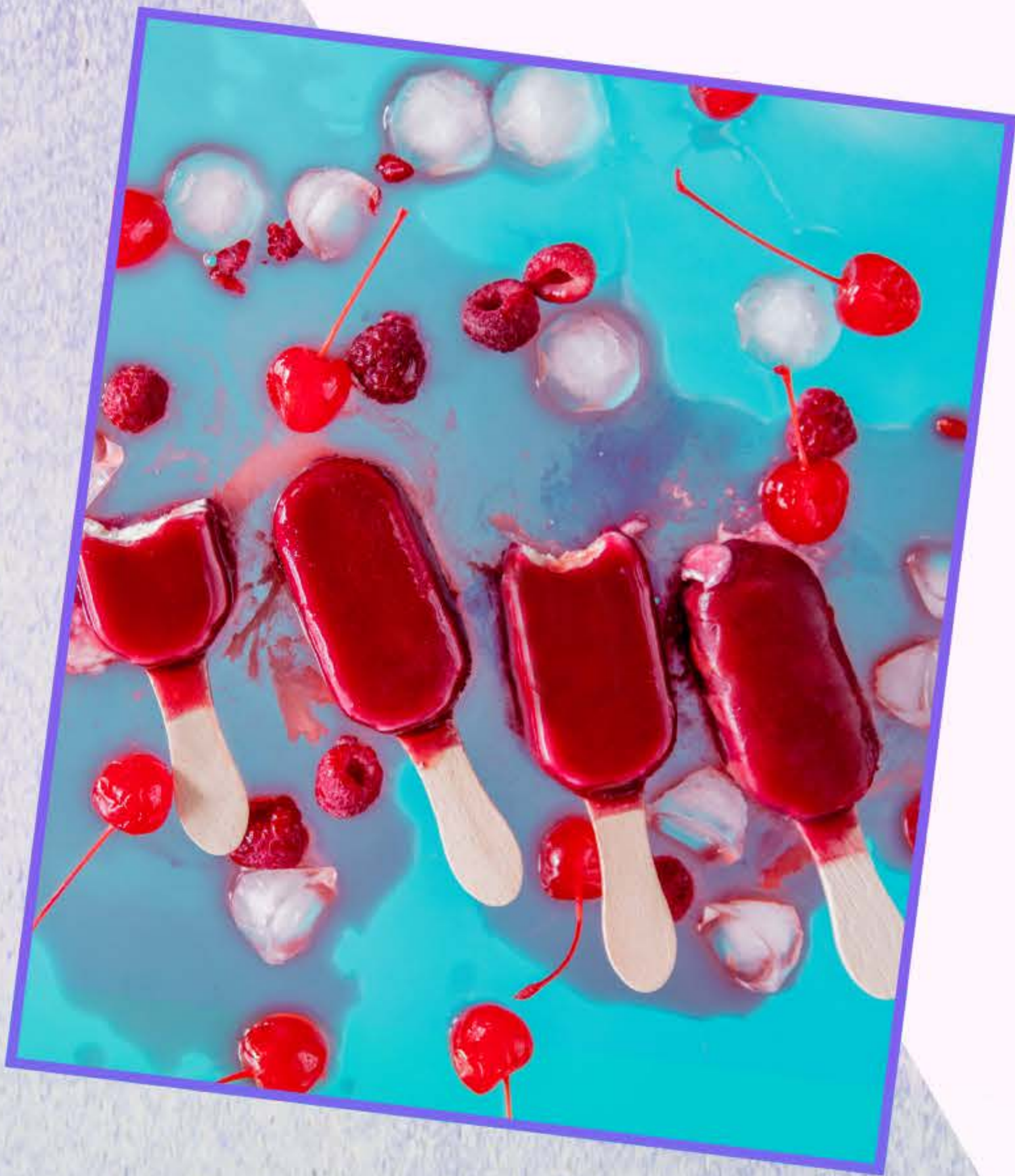
# ICE LOLLY

Code	Dosage	Ingredients
<b>W ice 100</b>	<b>0.3-0.4%</b>	<b>E 412/ E 401/ E 466/ Dextrose</b>
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Improving the quality and mouthfeel and not creating an unpleasant aftertaste</li> <li>• Increasing ice cream viscosity and elasticity</li> <li>• Maintaining the shape, controlling the melting process, and preventing the separation of solid-liquid phase</li> <li>• Postponing or reducing the growth of lactose and ice crystals during shelf life</li> <li>• Increasing the stability during shelf life against thermal shock</li> </ul>	



# FRUITY COATING

Code	Dosage	Ingredients
<b>W ice 100</b>	<b>0.3-0.4%</b>	<b>E 412/ E 401/ E 466/ Dextrose</b>
<b>Properties</b>	<ul style="list-style-type: none"> <li>• Improving the quality and mouthfeel and not creating an unpleasant aftertaste</li> <li>• Increasing ice cream viscosity</li> <li>• Maintaining the shape and controlling the melting process,</li> </ul>	



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