



**Winner of
Frost & Sullivan's
2018 Best Practices Award
Food Ingredients Company of the Year**



**Winner of
Frost & Sullivan's
2016 Best Practices Award
Entrepreneurial Company of the Year**

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EKÖMUL & EKÖLITE EMULSIFIERS

FUTURA
ingredients
designed by nature

PRODUCT RANGE



EKÖMUL™

Distilled Monoglycerides & Mono and Di-glycerides MG-Series

Manufactured from natural vegetable-based oils and fats. Functions as a starch complexing agent (e.g. in bread, pasta, and potato powder), water-in-oil stabiliser and emulsifier (e.g. in table margarine) and aerating agent (e.g. in ice cream, imitation cream and bakery gel formulations). This series of products can also reduce the stickiness in chewing gums and improve texture and structure of extruded products, such as extruded snacks or cereal. RSPO certified and non-palm products available.

- Ekömul MG 95 HP
- Ekömul MG 95 HO
- Ekömul MG 90 HO - FLOW 3FP
- Ekömul MG 95 PS
- Ekömul MG 60 HP
- Ekömul MG 45 HP
- Ekömul MG 95 HV
- Ekömul MG 45 HO
- Ekömul MG 95 HVX
- Ekömul MG 90 HVX - FLOW 3FP
- Ekömul MG 95 HR
- Ekömul MG 95 HRX
- Ekömul MG 90 S
- Ekömul MG 90 SX
- Ekömul MG 90 SP

Distilled Monoglycerides XTND-Series

Manufactured from natural vegetable-based oils and fats. Functions as an excellent starch complexing agent (e.g. in bread, pasta and potato powder) with good dispersibility properties and aerating agent (e.g. in ice cream and imitation cream). RSPO certified and non-palm products available.

- Ekömul XTND 95 P
- Ekömul XTND 90 Q
- Ekömul XTND 95 D
- Ekömul XTND 90 R

Self-Emulsifying Mono and Di-glycerides FASE-Series

Manufactured from natural vegetable-based oils and fats with a co-emulsifier to enhance emulsification properties. Functions as a quick forming emulsifier and improves emulsification properties, especially in dairy beverages and non-dairy applications. It is also used in personal care applications. RSPO certified and non-palm products available.

- Ekömul FASE 30 HP
- Ekömul FASE 45 HP
- Ekömul FASE 80 HP
- Ekömul FASE 80 HPX

Emulsifier Blends MYXT-Series

Co-generated emulsifier blends from natural vegetable-based triglycerides and organic fatty acids. Designed for a diverse range of functionalities including dairy and non-dairy applications such as ice creams and UHT recombined milk, water-in-oil stabiliser and crystalliser in margarines and spreads. RSPO certified products available.

- Ekömul MYXT 272 XT1
- Ekömul MYXT 370 XT1
- Ekömul MYXT 220 KRI
- Ekömul MYXT 250 MGI
- Ekömul MYXT 373 PGI FLOW
- Ekömul MYXT 260 PE
- Ekömul MYXT 280 LCI
- Ekömul MYXT 245 LCI
- Ekömul MYXT 230 PE
- Ekömul MYXT 101 PEI

EKÖLITE™

Polyglycerol Poyricinoleate PGPR Series

Manufactured from fatty acids of castor oils. Functions as yield modifier in Chocolate and Compound Chocolate. Functions as emulsion stabilizer and fat reduction in reduced fat spread.

- Ekölite PGPR 90

Sorbitan Esters SE-Series

Manufactured from vegetable-based organic fatty acids. Functions as anti crystallisers in cooking oils and as anti bloom agents in compound chocolate and confectionary fats, including Cocoa Butter Substitutes, Cocoa Butter Replacers and Cocoa Butter Equivalents. Ekölite SE 60 S aids in hydration of Instant Active Dry Yeast. RSPO certified products available.

- Ekölite SE 65 S
- Ekölite SE 65 L
- Ekölite SE 60 S

Fat Crystallisers KRYS-Series

Manufactured from natural vegetable-based oils and fats. Stabilises products with high oil content, provides resistance to oil separation and improves mouthfeel (e.g. peanut butter, wafer creams, savoury pastes and spreads). RSPO certified and non-palm products available.

- Ekölite KRYS 01 S
- Ekölite KRYS 02 S
- Ekölite KRYS 03 S
- Ekölite KRYS 04 V
- Ekölite KRYS 05 R
- Ekölite KRYS 07 M
- Ekölite KRYS 08 M
- Ekölite KRYS 11 S

Lactic Acid Esters LM Series

Manufactured from natural vegetable-based oils and fats and lactic acid. Functions as aerating agent and enhancer in applications such as cake margarine, high ratio shortening, as well as dairy and non-dairy aerated products such as whipping cream and topping powder. RSPO certified products available.

- Ekölite LM 20 P
- Ekölite LM 20 P FLOW

Propylene Glycol Esters PG-Series & Polyglycerol Esters PE-Series

Manufactured from vegetable-based organic fatty acids. Functions as aerating agent (e.g. imitation cream, shortening and whipped topping). Improves plasticity and whipping properties in margarine and shortening. Improves aeration of cake batter and crumb structure in bakery applications. RSPO certified and non-palm products available.

- Ekölite PG 95 P
- Ekölite PG 95 S
- Ekölite PG 95 R
- Ekölite PE 80 O
- Ekölite PE 05 P
- Ekölite PE 04 P
- Ekölite PE 03 P
- Ekölite PE 02 P

Sodium Stearoyl Lactylates SL-Series & Calcium Stearoyl Lactylates CL-Series

Manufactured from vegetable-based organic fatty acids and lactic acid. Functions as a strengthener (e.g. in dough), volume improver and softener/anti-staling (e.g. in bread), aerating agent and foam stabiliser (e.g. in cream and dessert products). Options with anti-caking agents are available. RSPO certified and non-palm products available.

- Ekölite SL 70 S
- Ekölite SL 68 S
- Ekölite SL 70 V
- Ekölite SL 68 V
- Ekölite SL 70 R
- Ekölite SL 68 R
- Ekölite CL 68 S100
- Ekölite CL 72 S100

Citric Acid Esters of Mono- and Diglycerides CM - Series

Manufactured from natural vegetable based oils and fats. Functions as a hydrophilic type of emulsifier in meat applications and Anti-Spattering agent in frying margarines.

- Ekölite CM 12

Crumbs Softener NEXT Series

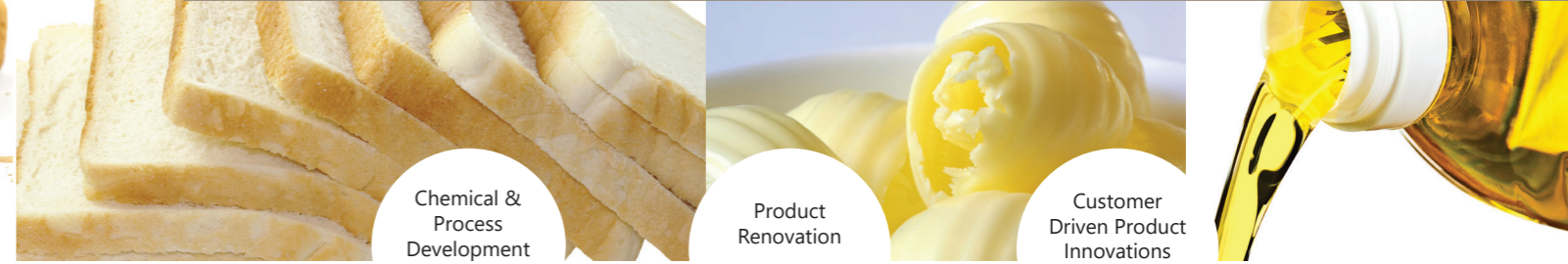
Integrated emulsifier blends derived from natural vegetable based ingredients. Functions as crumb softener in bread. RSPO certified and non-palm products available.

- Ekömul NEXT 01 P
- Ekömul NEXT 01 R

APPLICATION GUIDE



KNOWLEDGE & DISCOVERY APPLICATION CENTRE



Chemical & Process Development

Product Renovation

Customer Driven Product Innovations

Bakery Applications

Application	Function	Solutions
Breads, buns, rolls & improver	Crumb softener, shelf life extender, anti staling, improves crumb structure and texture, aids dough stability and volume	Ekömul™ MG series Ekömul™ XTND series Ekömul™ NEXT series Ekölite™ SL series Ekölite™ CL series
Cakes & cakes mixes	Improve cake batter performance, crumb structure, aeration stability, extends shelf life, anti staling	Ekömul™ MG series Ekömul™ XTND series Ekölite™ SL series Ekömul™ MYXT series
Cake emulsifier	Imparts aeration capabilities, batter emulsification, improves cake volume, imparts fine crumb structure	Ekömul™ MG series
	Extends shelf life, improves volume, fine crumb structure	Ekölite™ PG series Ekölite™ PE series Ekölite™ SE series
Biscuits, cookies & crackers	Fat dispersion improver Improves texture (tenderness) Aeration & emulsion stabiliser	Ekömul™ MG series Ekömul™ SL series Ekömul™ XTND series
Instant active dry yeast	Protect yeast cell, aids yeast cell hydration	Ekölite™ SE series
Pasta & noodles	Improves palatability and texture, improves sheeting, firmness and freeze thaw stabiliser, anti-sticking, provides resistance to overcooking	Ekömul™ MG series Ekömul™ XTND series

Dairy Applications

Application	Function	Solutions
Desserts	Improves whipping properties for aerated desserts, texture, taste and shelf life	Ekömul™ MG series Ekömul™ FASE series Ekölite™ PG series Ekölite™ SL series
Creams & Cream Liqueurs	Alcohol-dairy emulsion stabiliser, air incorporation improver, freeze-thaw stabiliser, foam stabiliser, fat emulsion stabiliser	Ekömul™ MG series Ekömul™ FASE series Ekölite™ SL series Ekölite™ LM series
Ice Cream & Soft Serves	Improves aeration (overrun), controls churning, provides melting resistance, improves texture and shelf life	Ekömul™ MG series Ekömul™ MYXT series Ekölite™ LM series
Non Dairy Creamers	Aids emulsion creation and stability during processing, improves powder dispersion and provides a rich and creamy mouthfeel	Ekömul™ MG series Ekömul™ FASE series Ekölite™ SL series
Recombined Milk & Soymilk	Improves emulsion stability, extending shelf life and creating a smooth mouthfeel	Ekömul™ MG series Ekömul™ FASE series

Oils & Fats Applications

Application	Function	Solutions
Cocoa Butter Substitutes	Anti bloom agent and gloss enhancer	Ekölite™ SE series
Fillings & Spreads	Aeration and fat dispersion improver, foam aeration stabiliser, emulsion stabiliser, texture improver, fat reduction and mouthfeel enhancer	Ekömul™ MG series Ekömul™ FASE series Ekölite™ PE series Ekölite™ PG series Ekölite™ PGPR series
	Oiling out resistance	Ekölite™ KRYs series
Margarines & Shortening	Improves whipping properties, improves plasticity, facilitates emulsification, facilitates ideal rate of crystallisation	Ekömul™ MG series Ekömul™ MYXT series Ekölite™ PE series Ekölite™ PG series Ekölite™ KRYs series Ekölite™ LM series
	Reduces spattering	Ekölite™ CM series
	Reduce sandiness in margarine	Ekölite™ SE series
Cooking Oil	Prevents clouding and crystallisation in palm olein cooking oils	Ekölite™ SE series

Confectionery Applications

Application	Function	Solutions
Caramel	Anti sticking and fat dispersant improver	Ekömul™ MG series
Chocolates	Anti bloom agent and gloss enhancer Yield modifier	Ekölite™ SE series Ekölite™ PGPR series
Compound coatings	Gloss retention and fat dispersion improver, fat crystallisation improver	Ekömul™ MG series Ekölite™ SE series Ekölite™ KRYs series
Gums & chewing gums	Softener of gum base, promotes lubricity and anti sticking	Ekömul™ MG series

Nutritional Applications

Application	Function	Solutions
Infant nutrition	Provides body, dispersion and emulsion stabilisation	Ekömul™ MG series
Sports nutrition	Flavour dispersant and stabiliser, vitamin oil solubility improver, clouding agent	Ekömul™ MG series Ekömul™ FASE series

Flour Applications

Application	Function	Solutions
Flour Premixes	Improves crumb structure and texture, extends shelf life (anti-staling) and increase volume	Ekömul™ MG series Ekömul™ XTND series Ekölite™ SL series Ekölite™ CL series

KNOWLEDGE & DISCOVERY APPLICATION CENTRE

Technology Enablement Esterification Pilot Plant & Bakery, Oils & Fats and Confectionery Laboratorium

Located in Westport Klang, Malaysia, our Esterification Pilot Plant & K&D Application Centre supports development of functional, cost effective emulsifiers in a variety of food applications.

We support customers in designing ideal solutions to their formulation challenges, with analytical measurements and unveiling new product ideas.

Application Support



SPIRAL MIXER PLANETARY MIXERS DOUGH MOULDER DOUGH SHEETER ELECTRICAL PROOFER OVEN WATER BATH HIGH SHEAR MIXER INCUBATORS

Analytical Capabilities

Our analytical equipment allows better understanding of product texture particle dispersion, emulsion stabilisation, measurement & observation of fat globule distribution and viscosity of emulsion systems in both intermediate and end products.



MICROSCOPE : PHASE CONTRAST & POLARISED LIGHT VISCOMETER : BROOKFIELD LASER DIFFRACTION PARTICLE SIZE ANALYSER: MALVERN MASTERSIZER 3000 TEXTURE ANALYSER: TA.XT PLUS

How we can support you

	Bakery	Oils & Fats	Confectionery
Application QC	Product evaluation & benchmarking		
Application Support	Application formulation/Recipe development		
Analytical Capability	Texture analysis measurements	Emulsion strength measurement	Viscosity measurements
	Volume measurements	Hardness	Bloom evaluation
	Crumb structure evaluation	Crystallisation evaluation	Oxidation stability analysis
	Dough development	Aeration performance	Solid fat content analysis
	Dough tolerance	Spreadability	
	Aeration performance	pH measurements	
Viscosity measurements			
pH measurements			

APPLICATIONS Bakery

- Breads & Buns
- Cakes & Muffins
- Biscuits & Crackers
- Creams & Fillings
- Pastry & Doughnuts

Oils & Fats

- Margarines & Spreads
- Shortening
- Cocoa Butter Substitutes
- Pan Release Agents

Confectionery

- Chocolate & Compounds
- Chewy Candy

PRODUCT SPECIFICATIONS - EKÖLITE SERIES

Brand Name	Product Name	Monoester	Iodine Value	Melting Point, approx.	RSPO Certified		Fat Source	Applications														
					MB	SG		Oils & Fats						Dairy					Confectionery			
								Biscuits, Cookies & Crackers	Breads, Buns, Rolls & Improvers	Cakes & Cake Mixes	Flour Premixes	Instant Active Dry Yeast	Cocoa Butter Substitutes & Replacers	Fillings & Spreads	Margarines & Shortenings	Cooking Oil	Aerated Whipped Toppings	Cream & Cream Liquers	Ice Cream & Soft Servs	Non Dairy Creamers	Recombined Milk & SoyMilk	Chocolates
EKÖLITE	Propylene Glycol Esters PG - Series																					
	PG 95 P	Min. 95%	Max. 3	44°C	●		Palm															
	PG 95 S	Min. 95%	Max. 3	44°C	●		Palm						●	●		●			●			
	PG 95 R	Min. 95%	Max. 3	44°C		Non Palm	Rapeseed															
		Saponification Value	Iodine Value	Melting Point, approx.			Fat Source															
	Polyglycerol Esters PE - Series																					
	PE 80 O	135-165	App. 80	-		●		Proprietary Blend							●	●						
	PE 03 P	130-160	Max. 3	58°C		●		Palm			●				●	●		●				
	PE 02 P	125-145	Max. 3	58°C		●		Palm			●				●	●		●				
	PE 04 P	135-160	Max. 3	58°C		●		Palm			●				●	●		●				
	PE 05 P	140-160	Max. 3	58°C		●		Palm			●				●	●		●				
		Hydroxyl Value	Acid Value	Melting Point, approx.			Fat Source															
	Sorbitan Esters SE - Series																					
	SE 65 S	66-80	Max. 7	56°C		●		Palm								●	●					
	SE 65 L	66-80	Max. 1	56°C		●		Palm					●			●						
	SE 60 S	235-260	Max. 10	58°C		●		Palm						●								
		Lactic Acid Content	Sodium Content	Ester Value			Fat Source															
	Sodium Stearoyl Lactylates SL-Series																					
	SL 70 S	App. 32%	3.5-5.0	150-190		●	●	Palm	●	●	●	●			●	●		●	●		●	
	SL 68 S	App. 28%	3.5-5.0	130-160		●	●	Palm	●	●	●	●			●	●		●	●		●	
	SL 70 R	App. 32%	3.5-5.0	150-190			Non Palm	Rapeseed	●	●	●	●			●	●		●	●		●	
	SL 68 R	App. 28%	3.5-5.0	130-160			Non Palm	Rapeseed	●	●	●	●			●	●		●	●		●	
	Calcium Stearoyl Lactylates CL-Series																					
	CL 68 S100	27.5 - 30%	2.5-5%	150-190		●	●	Palm	●	●	●	●			●	●		●	●		●	
	CL 72 S100	32 - 38%	4.2-5.2%	125-164		●	●	Palm														
		Lactic Acid Content	Saponification Value	Anti-Caking Agent			Fat Source															
	Lactic Acid Esters of Mono- and Diglycerides LM - Series																					
	LM 20 P	20 - 25%	265 - 300	0%		●	●	Palm								●		●		●		
	LM 20 P FLOW	19 - 24%	255 - 290	4%		●	●	Palm								●		●		●		
		Free Fatty Acid	Iodine Value	Melting Point, approx.			Fat Source															
	Citric Acid Esters of Mono- and Diglycerides CM - Series																					
	CM 12	SV (205-255)	Max. 3	59°C		●	●	Palm														
	Fat Crystallisers KRYS - Series																					
	KRYS 01 S	Max. 1%	Max. 2	59°C		●	●	Palm							●	●						
	KRYS 02 S	Max. 0.3%	Max. 21	55°C		●		Palm							●	●						
	KRYS 03 S	Max. 1%	Max. 2	59°C		●	●	Palm							●	●						
	KRYS 04 V	Max. 1%	Max. 2	65°C			Non Palm	Soya							●	●						
	KRYS 05 R	Max. 3 (AV)	Max. 2	65°C			Non Palm	Rapeseed							●	●						
	KRYS 07 M	Max. 1%	Max. 5	61°C		●	●	Proprietary Blend							●	●						
	KRYS 08 M	Max. 3 (AV)	Max. 3	62 - 66°C		●	●	Proprietary Blend							●	●						
	KRYS 11 S	Max. 1%	Max. 21	55°C		●		Palm							●	●						
	Polyglycerol Polyricinoleate PGPR - Series																					
PGPR 90	-	72 - 103	-		-	-	Castor oil fatty acids								●					●	●	



Dairy Pilot Plant

Futura Ingredients formulates new, functional and cost effective Emulsifiers and Texturing Systems for dairy and non-dairy applications, for instance Ice Creams, liquid milk, cream, creamers and acidified milk products.

A fully equipped Dairy Pilot Plant facilitates product development in a variety of dairy and non-dairy applications to fully engage and support customers technical inquiries.

We delight in engaging our customers to develop customised solutions. Come speak to us to find out how we can support your business needs.

APPLICATIONS

Ice Cream

- Hard Pack
- Extruded
- Soft Serve
- Novelties
- Ice Lollies

Liquid Milk

- White Milk
- Soy Milk
- Flavoured Milk
- Chocolate Milk
- Plant Protein Beverages

Creams

- Processed Thick Cream
- Whipping Cream

Acidified Dairy Products

- Acidified Milk Beverage
- Yoghurt

Dairy Technical Support



How we can support you

	ICE CREAM	LIQUID MILK	CREAM & CREAMERS	ACIDIFIED MILK PRODUCTS
Application QC	Product evaluation & benchmarking			
Application Support	Application formulation/Recipe development			
Analytical Capability	Ice cream mix Viscosity	Product shelf stability	Particle size distribution	
	Ice cream mix stability	Emulsion stability	Emulsion stability	
	Ice cream mix fat globule measurement & observation	Fat globule measurement & observation	Product stability	
	Meltdown resistance	Viscosity	Fat globule measurement & observation	
	Shape retention Sensory evaluations	Sensory evaluations	Sensory evaluations	

Delighting Our Customers sums up our service philosophy that starts from product conception & development, right through to product delivery to our customers.

Our business is anchored upon a strategic alignment to key raw materials, manufacturing excellence using the world-class technology, meeting stringent accreditation in food safety and sustainability.

We create and produce high quality, competitive products with proven performance in a wide variety of application fields.

Our service philosophy also extends into Research & Development, where we have the flexibility to design customised solutions to meet our customers' formulation challenges.

Let us delight you and support your sustainable business growth.



Disclaimer

The information and recommendations contained herein are to the best of our knowledge reliable. However, nothing herein is to be construed as a warranty of representation in respect of safety in use, suitability, efficacy or otherwise including freedom from patent infringement. Users should conduct their own tests to determine the suitability of our product for their own specific purposes and the legal status for their intended use of the product.