



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. Fully saturated products are available in a range of particle size distribution.

- | | | |
|------------------------------|---------------------|-------------------------------|
| ■ Ekömul MG 45 HP | ■ Ekömul MG 95 HNPN | ■ Ekömul MG 90 HVX - FLOW 3FP |
| ■ Ekömul MG 45 HO | ■ Ekömul MG 95 HR | ■ Ekömul MG 90 R |
| ■ Ekömul MG 60 HP | ■ Ekömul MG 95 HRX | ■ Ekömul MG 90 SP |
| ■ Ekömul MG 95 HP | ■ Ekömul MG 95 HSXN | ■ Ekömul MG 90 S |
| ■ Ekömul MG 95 HO | ■ Ekömul MG 95 HV | ■ Ekömul MG 90 SX |
| ■ Ekömul MG 90 HO - FLOW 3FP | ■ Ekömul MG 95 HVX | |

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 D | ■ Ekömul XTND 95 P |
|--------------------|--------------------|

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 products available.

- | | |
|---------------------|---------------------|
| ■ Ekömul FASE 30 HP | ■ Ekömul FASE 60 HP |
| ■ Ekömul FASE 45 HP | ■ Ekömul FASE 80 HP |

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 |
|--------------------|--------------------|

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 and non-palm products available.

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



Polyglycerol Poyricinoleate PGPR Series

Manufactured from fatty acids of castor oils. Functions as yield modifier in chocolate and compound chocolate. Functions as emulsion stabiliser 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 60 S
- Ekölite SE 65 L
- Ekölite SE 65 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 03 S
- Ekölite KRYs 04 V
- Ekölite KRYs 05 R
- Ekölite KRYs 07 M
- Ekölite KRYs 11 S
- Ekölite KRYs 12 M
- Ekölite KRYs 13 R

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

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 7020 S Flow
- Ekölite SL 70 R
- Ekölite SL 68 R
- Ekölite CL 68 S 100

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.

- Ekölite CM 12

APPLICATION GUIDE



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 Ekömul™ MYXT series Ekölite™ SL 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 & Soya Milk	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	Ekölite™ SE series
	Yield modifier	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
Sports Nutrition	Flavour dispersant and stabiliser, vitamin oil solubility improver, clouding agent	Ekömul™ MG series Ekömul™ FASE series
	Fibre fortification	Ekölite VITA Fibre
	Protein fortification	Ekölite VITA Protein



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

Chemical &
Process
Development

Product
Renovation

Customer
Driven Product
Innovations



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

Located in Westport Klang, Malaysia, our Technology Enablement Esterification Pilot Plant & Knowledge and Discovery (K&D) Application Centre support 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

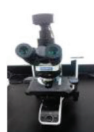
WATER
BATH

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.



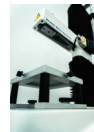
MICROSCOPE : PHASE
CONTRAST & POLARISED LIGHT



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 measurements	Viscosity measurements
	Volume measurements	Hardness	Bloom evaluation
	Crumb structure evaluation	Crystallisation evaluation	Oxidation stability analysis
	Dough development	Aeration performance	
	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 - EKÖMUL SERIES

Product Name	Product Code	Monoester	Iodine Value	Melting Point, approx.	RSPO Certified		Fat Source	Applications		
					MB	SG		Biscuits, Cookies & Crackers	Breads, Buns, Rolls & Improvers	Cakes & Pastry
EKÖMUL	Distilled Monoglycerides & Mono and Di-glycerides MG Series									
	MG 45 HP	Min. 45%	Max. 3	58°C	●	●	Palm			
	MG 45 HO	Min. 45%	Max. 3	58°C	●	●	Palm			
	MG 60 HP	Min. 60%	Max. 3	60°C	●	●	Palm			
	MG 95 HP	Min. 95%	Max. 2	65°C	●	●	Palm	●	●	
	MG 95 HO	Min. 95%	Max. 2	66°C	●	●	Palm	●	●	
	MG 90 HO FLOW - 3FP	Min. 90%	Max. 2	66°C	●	●	Palm	●	●	
	MG 95 HNPN	Min. 95%	Max. 2	69°C	Non Palm		Non Palm	●	●	
	MG 95 HR	Min. 95%	Max. 2	69°C	●		Rapeseed	●	●	
	MG 95 HRX	Min. 95%	Max. 2	69°C	Non Palm		Rapeseed	●	●	
	MG 95 HSXN	Min. 95%	Max. 3	69°C	Non Palm		Sunflower	●	●	
	MG 95 HV	Min. 95%	Max. 2	69°C	●		Soya	●	●	
	MG 95 HVX	Min. 95%	Max. 2	69°C	Non Palm		Soya	●	●	
	MG 90 HVX FLOW - 3FP	Min. 90%	Max. 2	69°C	Non Palm		Soya	●	●	
	MG 90 R	Min. 90%	60-70	57°C	●		Rapeseed	●		
	MG 90 SP	Min. 90%	70-80	51°C	●	●	Proprietary Blend	●		
	MG 90 S	Min. 90%	95-110	40°C	●		Sunflower	●		
	MG 90 SX	Min. 90%	95-110	40°C	Non Palm		Sunflower	●		
	XTND 95 P	Min. 95%	18-26	60°C	●		Palm	●	●	
	XTND 95 D	Min. 95%	20-27	58°C	●		Palm	●	●	
	Self-Emulsifying Mono and Di-glycerides FASE Series									
	FASE 30 HP	Min. 30%	Max. 3	58°C	●	●	Palm			
	FASE 45 HP	Min. 45%	Max. 3	58°C	●	●	Palm			
	FASE 60 HP	Min. 60%	Max. 3	59°C	●	●	Palm			
	FASE 80 HP	Min. 80%	Max. 2	65°C	●	●	Palm			
	Emulsifier Blends MYXT Series									
	MYXT 272 XTI	Min. 70%	14-21	58°C	●		Palm			
	MYXT 370 XTI	Min. 70%	10-17	58°C	●		Palm			
	MYXT 250 MGI	Min. 50%	Max. 6	60°C			Palm & Corn			
	MYXT 245 LCI	Min. 45%	-	54 - 58°C	●	●	Vegetable			
	MYXT 280 LCI	Min. 80%	-	63 - 69°C	●	●	Vegetable			
	MYXT 220 KRI	Min. 20%	Max. 3	58°C	●	●	Palm			
	MYXT 101 PEI	-	-	Liquid	●		Sunflower			
	MYXT 230 PE	Min. 30%	Max. 3	54 - 58°C	●		Palm			
	MYXT 260 PEI	Min. 60%	Max. 3	60°C	●		Palm			
	MYXT 373 PGI FLOW	Min. 70%	Max. 3	-	●		Palm			
	Crumb Softener NEXT Series									
		Saponification Value	Acid Value	Melting Point, approx.			Fat Source			
	NEXT 01 P	135-185	Max.25	62 - 66°C	●	●	Palm		●	
	NEXT 01 R	135-185	Max.25	62 - 66°C	Non Palm		Rapeseed		●	

PRODUCT SPECIFICATIONS - EKÖLITE SERIES

Product Name	Product Code	Monoester	Iodine Value	Melting Point, approx.	RSPO Certified		Fat Source	
					MB	SG		
EKÖLITE	Propylene Glycol Esters PG Series							
		Monoester Value	Iodine Value	Melting Point, approx.			Fat Source	
	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	
	Polyglycerol Esters PE Series							
		Saponification Value	Iodine Value	Melting Point, approx.			Fat Source	
	PE 02 P	125-145	Max. 3	58°C	●		Palm	
	PE 03 P	130-160	Max. 3	58°C	●		Palm	
	PE 04 P	130-160	Max. 3	58°C	●		Palm	
	PE 80 O	135-165	App. 80	-	●		Proprietary Blend	
	Sorbitan Esters SE Series							
		Hydroxyl Value	Acid Value	Melting Point, approx.			Fat Source	
	SE 60 S	235-260	Max. 10	58°C	●		Palm	
	SE 65 L	66-80	Max. 1	56°C	●		Palm	
	SE 65 S	66-80	Max. 7	56°C	●		Palm	
	Sodium Stearoyl Lactylates SL Series							
		Lactic Acid Content	Sodium Content	Ester Value			Fat Source	
	SL 68 S	App. 28%	3.5-5.0	130-160	●	●	Palm	
	SL 70 S	App. 32%	3.5-5.0	150-190	●	●	Palm	
	SL 68 R	App. 28%	3.5-5.0	130-160	Non Palm		Rapeseed	
	SL 70 R	App. 32%	3.5-5.0	150-190	Non Palm		Rapeseed	
	SL 7020 S FLOW	App. 32%	3.5-5.0	150-190	●	●	Palm	
	Calcium Stearoyl Lactylates CL Series							
		Lactic Acid Content	Calcium Content	Ester Value			Fat Source	
	CL 68 S100	27.5 - 30%	2.5-5%	150-190	●	●	Palm	
	Lactic Acid Esters of Mono- and Diglycerides LM Series							
		Lactic Acid Content	Saponification Value	Anti-Caking Agent			Fat Source	
	LM 20 P	20 - 25%	265 - 300	0%	●	●	Palm	
	LM 20 P FLOW	19 - 24%	255 - 290	4%	●	●	Palm	
	Citric Acid Esters of Mono- and Diglycerides CM Series							
		Saponification Value	Iodine Value	Melting Point, approx.			Fat Source	
	CM 12	205-255	Max. 3	59°C	●	●	Palm	
	Fat Crystallisers KRYs Series							
		Free Fatty Acid	Iodine Value	Melting Point, approx.			Fat Source	
	KRYs 01 S	Max. 1%	Max. 2	59°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 11 S	Max. 1%	Max. 21	55°C	●		Palm	
	Polyglycerol Polyricinoleate PGPR Series							
		Acid Value	Iodine Value	Hydroxyl Value				
	PGPR 90	Max. 6%	72 - 103	80-100	-	-	Castor oil fatty acids	

KNOWLEDGE & DISCOVERY APPLICATION CENTRE



Product Application & Development



Product Evaluation & Benchmarking



Customer Interaction & Engagement

Knowledge Management



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
- Soya Milk
- Flavoured Milk
- Chocolate Milk
- Plant Protein Beverages

Creams

- Processed Thick Cream
- Whipping Cream
- Non-whippable Cream

Dairy Technical Support



PASTEURISED BATH HIGH PRESSURE HOMOGENISER UHT/HTST LINE WITH CLEAN FILL SYSTEM CONTINUOUS ICE CREAM FREEZER BLAST FREEZER



INCUBATOR 37°C INCUBATOR 25°C CHILLER FREEZER AUTOCLAVE CAN SEAMER

How we can support you

	ICE CREAM	LIQUID MILK	CREAM & CREAMERS
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

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.

BRAND ASSURANCE

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 word-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.



BRC Global
Standards
Food Safety
(AIB)



MS 1480 : 2007
HACCP
(Ministry of
Health Malaysia)



Halal
(JAKIM
Malaysia)



Kosher
Pareve
(Circle SK)



GMO-Free
Certification
(MPOB)



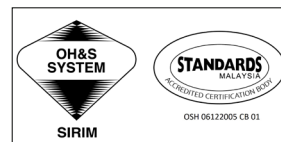
Segregation & Mass
Balance RSPO SCCS
Certification
(SIRIM QAS Int'l)



Health & Free
Sales Certification
(Ministry of Health
Malaysia)



CERTIFIED TO ISO 14001:2015
CERT. NO. : EMS 00707



CERTIFIED TO ISO 45001:2018
CERT. NO. : OSH 00588



**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**

Manufacturing Site
Ecolex Sdn Bhd
Lot 11 Section 5 Fasa 2B, Jalan Sungai Pinang 4/2
Pulau Indah Industrial Park, Pulau Indah 42920
Selangor, Malaysia
o +603 3258 3000 f +603 3258 3160
w futuraingredients.com