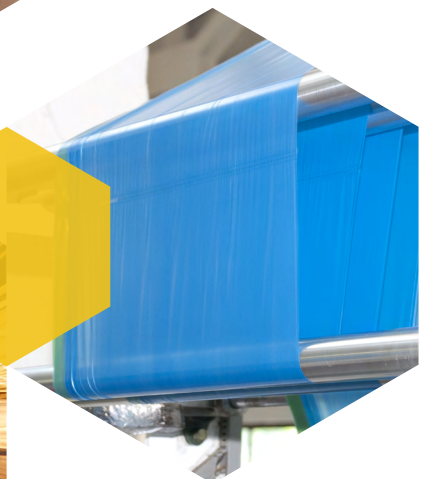




MASESTER™

Functional Products
for Personal Care and
Industrial Applications



ABOUT MUSIM MAS

Musim Mas Group is one of the world's biggest players in the palm oil industry with its headquarters in Singapore. We have a global operational presence in 13 countries. The Group operates across every aspect of sustainable palm oil supply chain, from upstream oil palm plantations to midstream and downstream operations, to marketing and sale of value-added products globally.

Musim Mas is committed to the development of innovative value-added products that is fully supported by research and development and application centers in Indonesia and Singapore. MASESTER™ Functional Products for Personal Care and Industrial Applications are among the value-added products within Musim Mas portfolio.

MASESTER™ Functional Products include Esters made from: Caprylic/Capric Acid, Synthetic acid, Isopropyl Alcohol, Glycerol, 2-Ethylhexyl Alcohol, Cetyl/Stearyl Alcohol, Trimethylolpropane, and Pentaerythritol. MASESTER™ products function as emulsifiers,

emollients, opacifiers, viscosity modifiers in personal care; as processing aids in polymers and as lubricants in metal working fluids.

MASESTER™ product range is widely used in cosmetic products formulations such as body care, skincare and hair care. In polymers, they are used as antistatic and antifogging aids, as lubricants; in metal working fluids as lubricity improvers and mould release agents. We are developing functional blends suited to the industry or tailor-made blends targeted to customer-specific unique requirements.

Our sales, business development, and application teams are ready to discuss further with you.

MASESTER™ range is marketed and promoted by Inter-Continental Oils and Fats, a member of Musim Mas Group.

SAFETY, QUALITY, SUSTAINABILITY

Musim Mas manufacturing facilities are certified to high international standards of quality and safety to Food Safety System Certification (FSSC 2000). This certification is aligned with the Food Global Safety Initiative (GFSI) guidance, and is recognized by leading international retailers and food manufacturers. Musim Mas facilities are also fully compliant to ISO 9001, the internationally recognized standard for quality management system.

Sustainable palm oil is used to produce MASESTER™, and it is certified against internationally recognized standards of the Roundtable on Sustainable Palm Oil (RSPO) and verified by the Palm Oil Innovation Group (POIG). POIG focuses on environmental responsibilities, partnership with community, corporation and product integrity, finally creating and promoting innovation within palm oil industry.

MASESTER™ Functional Products for Personal Care are: PHO-free (Partially Hydrogenated Oil), non-GMO and non-allergenic derived from sustainable palm oil grown within Musim Mas plantations.

All products are HALAL and KOSHER certified.



EMOLLIENTS AND SKIN CONDITIONERS IN PERSONAL CARE

Emollients and skin conditioners help the skin to stay soft and smooth. They also reduce irritation and drying by lowering the skin barriers. Emollients are therefore refatting agents that provide skin with the necessary oil to keep it soft.

These properties are found in applications such as:

- Body care
- Facial care
- Hair care
- Lip care
- Skin care

INCI Name	Tradename	Physical Form at 25 °C	Spreadability	Polarity	Emolliency/Skin Conditioning	Binding Effect	Hair Conditioning	Masking	Perfuming	Solvent	Viscosity Modifying	Emulsifying/Emulsion Stability
Caprylic/Capric Triglyceride	MASESTER™ E6000	Liquid	Medium	Strong	•			•	•	•	•	
Caprylic/Capric Triglyceride	MASESTER™ E7000	Liquid	Medium	Strong	•			•	•	•	•	
Caprylic/Capric Triglyceride	MASESTER™ E6300	Liquid	Medium	Strong	•			•	•	•	•	
Propylene Glycol Dicaprylate/Dicaprate	MASESTER™ E3810	Liquid	Medium	Strong	•						•	
Isopropyl Laurate	MASESTER™ E1120	Liquid	Fast	Strong	•	•	•					
Isopropyl Myristate	MASESTER™ E1140	Liquid	Fast	Medium	•	•			•	•		
Isopropyl Palmitate	MASESTER™ E1160	Liquid	Fast	Medium	•	•			•	•		
Isopropyl Stearate	MASESTER™ E1180	Liquid	Fast	Medium	•	•	•					
Isopropyl Oleate	MASESTER™ E1181	Liquid	Medium	Medium	•	•	•					
Ethylhexyl Palmitate	MASESTER™ E1260	Liquid	Medium	Medium	•				•			
Ethylhexyl Stearate	MASESTER™ E1280	Liquid	Medium	Medium	•							
Ethylhexyl Cocoate	MASESTER™ E1232	Liquid	Medium	Medium	•							
Decyl Oleate	MASESTER™ E1081	Liquid	Medium	Fast	•		•					
Myristyl Myristate	MASESTER™ E1440	Flakes	Slow	Low			•	•				•
Cetearyl Stearate	MASESTER™ E1580	Flakes	Medium	Medium	•						•	
Cetearyl Ethylhexanoate	MASESTER™ E1590	Liquid	Medium	Medium	•							
Cetyl Palmitate	MASESTER™ E1660	Flakes	Medium	Medium	•				•			•
Cetyl Stearate	MASESTER™ E1680	Flakes	Slow	Medium	•				•			•
Cetyl Ethylhexanoate	MASESTER™ E1690	Liquid	Fast	Medium	•							
Triethylhexanoin	MASESTER™ E2590	Liquid	Fast	Medium		•						



EMULSIFIERS AND EMULSION STABILISERS IN PERSONAL CARE

An emulsifier is a substance that combines two immiscible liquids such as oil and water by reducing the inter-facial surface tension. In cosmetic emulsions such as creams and lotions, the selection of the right kind of emulsifier with the correct hydrophilic-lipophilic value is important to maintain the stability of the emulsions. This ensures the formation of finely dispersed mixtures and improves the shelf-life of the cosmetic product.

We supply the right kind of emulsifier for practically all types of formulations in applications such as:

- Body care
- Facial care
- Hair care
- Lip care
- Skin care
- Sun care

INCI Name	Tradename	Physical Form at 25 °C	Emolliency/Skin Conditioning	Opacifying	Dispersant	Viscosity Modifying	Emulsifying/Emulsion Stability
Glycol Distearate	MASESTER™ E2380	Flakes	•	•		•	
Glycol Stearate	MASESTER™ E2382	Flakes	•	•		•	•
Glyceryl Stearate	MASESTER™ GMS 95	Flakes					•
Glyceryl Stearate	MASESTER™ GMS 40-NSE	Flakes	•				•
Glyceryl Stearate	MASESTER™ GMS 45	Flakes					•
Glyceryl Stearate SE	MASESTER™ GMS 40-SE	Flakes	•				•
Glyceryl Oleate	MASESTER™ GMO 40	Paste					•
Glyceryl Oleate	MASESTER™ GMO 50	Liquid					•
Polysorbate 80	MASESTER™ E9680	Liquid			•	•	•
Sorbitan Laurate	MASESTER™ SML 20	Liquid	•				•
Sorbitan Oleate	MASESTER™ SMO 80	Liquid	•				•
Sorbitan Stearate	MASESTER™ SMS 60	Solid	•				•
Sorbitan Trioleate	MASESTER™ STO 85	Liquid	•				•
Polyglyceryl-3 Oleate	MASESTER™ PGE30	Liquid					•



OPACIFIERS IN PERSONAL CARE

An opacifier is a substance that adds transparency or translucency to a cosmetic formulation. The purpose of opacifying a cosmetic product is to make it impervious to light.

Opacifiers also contribute to the creamy and rich appearance to the products such as:

- Body care
- Facial care
- Hair care
- Hair rinses
- Shampoos

INCI Name	Tradename	Physical Form at 25 °C	HLB value, approx.	Emolliency/Skin Conditioning	Opacifying	Viscosity Modifying	Emulsifying/Emulsion Stability
Glycol Distearate	MASESTER™ E2380	Flakes	2.9	•	•		•
Glycol Stearate	MASESTER™ E2382	Flakes	1	•	•	•	•
Cetyl Palmitate	MASESTER™ E1660	Flakes	10	•	•		
Cetyl Stearate	MASESTER™ E1680	Flakes	10	•	•		
Myristyl Myristate	MASESTER™ E1440	Flakes	8.5	•	•		

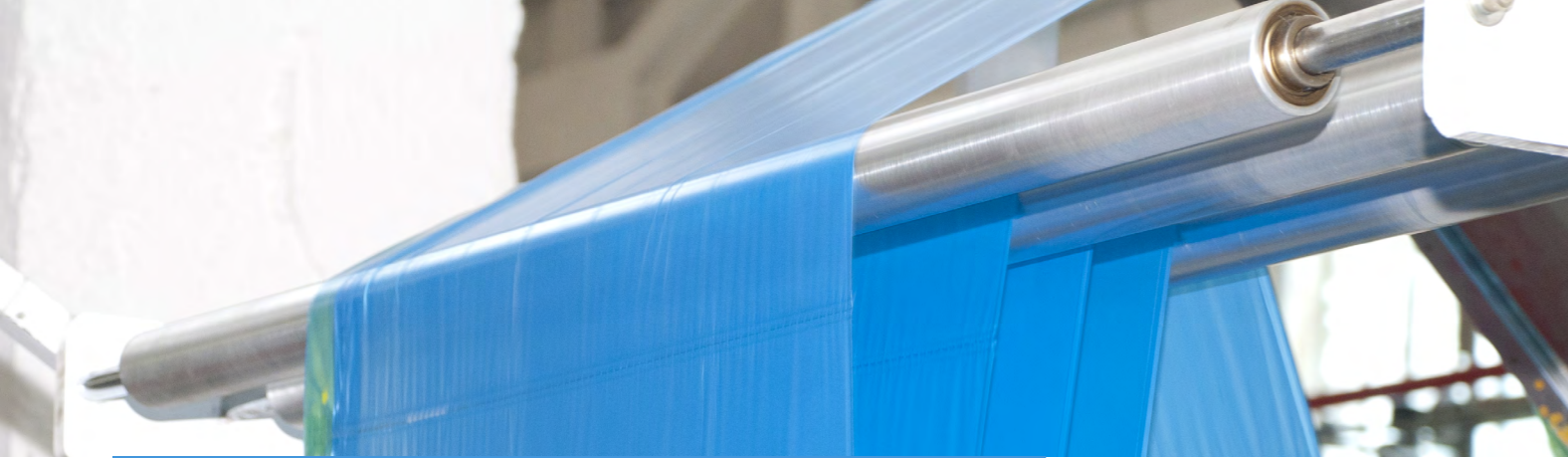
VISCOSITY MODIFIERS IN PERSONAL CARE

Viscosity modifiers contribute to the right consistency of a cosmetic formulation and thereby enhancing the quality of the end-product. A cosmetic product should have viscosity that is neither too low nor too high. For example, a body lotion should e of the correct consistency.

Viscosity modifiers are used widely in many applications such as:

- Aerosols and sprays
- Body care
- Facial care
- Hair rinses and masks
- Massage oil

INCI Name	Tradename	Physical Form at 25 °C	Emolliency/Skin Conditioning	Binding	Hair Conditioning	Opacifying	Foam Boosting	Viscosity Modifying	Emulsifying/Emulsion Stability
Caprylic/Capric Triglyceride	MASESTER™ E6000	Liquid	•	•	•			•	•
Caprylic/Capric Triglyceride	MASESTER™ E7000	Liquid	•	•	•			•	•
Caprylic/Capric Triglyceride	MASESTER™ E6300	Liquid	•	•	•			•	•
Propylene Glycol Dicaprylate/Dicaprate	MASESTER™ E3810	Liquid	•			•	•	•	•



PROCESSING AIDS FOR POLYMERS

Processing aids are used in plastics and other applications such as:

- Anti-statics (AS)
- Anti-fogs (AF)
- External Lubricant (ELB)
- Mould release (MR)
- Foam Stabilisation (FS)
- Plasticisers (PL)
- Viscosity Regulators (VR)

Chemical Name	Tradename	Physical Form at 25 °C	Melting/Cloud point, °C, approx.	Specific Gravity @ 25°C	Specific Gravity @ 100°C	Viscosity @ 40°C	Viscosity @ 100°C	Flash Point °C	Pour Point °C	Type of Polymer	Functionality
Glycerol Monostearate	MASESTER™ GMS 95	Pastilles	About 63		0.89		15	>200		PE Foam; PE & PP Films	FS, AS
Glycerol Monostearate	MASESTER™ GMS 95 H	Pastilles	65 - 70		0.90		15	>200		PE Foam; PE & PP Films	FS, AS
Glycerol Monostearate	MASESTER™ GMS 45	Pastilles	About 57		0.88		11	>200		Rigid PVC	LB
Glycerol Monooleate	MASESTER™ GMO 40	Paste		0.94	0.88	64	9	>200	3	Flexible PVC	AF
Acetylated Monoglycerides	MASESTER™ AMG 92	Liquid	26		0.91	22	4	245	26	Flexible PVC	PL
Polysorbate 80	MASESTER™ PS 80	Liquid	-14	1.06	1.01	186	25	300	-23	Flexible PVC, PE, PP films	AF
Sorbitan Laurate	MASESTER™ SML 20	Liquid	22	1.05	0.99	914	28	222	14	PP Films, PVC	AF
Polyglyceryl Stearate	MASESTER™ PGE 57	Beads	57		0.93		56	280		LDPE, LDPE/EVA films & Foams	AS, AF
N-Butyl Stearate	MASESTER™ E1380	Liquid	21	0.86	0.80	6	2	208	21	PVC	ELB
2-Ethylhexyl Laurate	MASESTER™ E1220	Liquid	-36	0.86	0.80	5	2	200	-36	PVC	VR
2-Ethylhexyl Stearate	MASESTER™ E1280	Liquid	4	0.86	0.80	9	3	206	2	Polystyrene	ELB
2-Ethylhexyl Oleate	MASESTER™ E1281	Liquid	-31	0.87	0.80	8	3	202	-40	PVC	VR
Cetyl Palmitate	MASESTER™ E1660	Flakes	52		0.80		5	268		PVC	MR, LB
Cetyl Stearate	MASESTER™ E1680	Flakes	53				5	272		PVC	MR, LB

LUBRICANTS FOR METAL WORKING

The metal working industry is constantly undergoing change, driven by the demand for superior performance products to provide improved productivity at lower cost and by legislation.

There are many different metalworking processes including:

Metal Forming processes such as • Wire drawing • Tube drawing • Stamping • Can drawing • Blanking

Metal Removal processes such as • Grinding • Machining (surface metal) - Turning, milling, gear shaping, broaching

• Machining (internal metal) - Drilling, reaming, tapping

Esters are used in Metal Working processes as Lubricity Improvers (LI), External Lubricants (ELB), Solvent (SV), Plasticizers (PL), Lubricant Base Oil (LBO) for steel, copper and aluminium rolling and they are widely used in neat oils and in emulsions for cutting, grinding and drilling operations.

Chemical Name	Tradename	Physical Form at 25 °C	Viscosity @ 40 °C, cSt	Viscosity @ 100 °C, cSt	Viscosity Index	Flash Point °C	Pour Point °C	Type of Metal Working Fluid	Functionality
2-Ethylhexyl Cocoate	MASESTER™ E1232	Liquid	6	2	171	199	-29	Steel, copper and aluminum rolling in cutting & grinding operations for boundary lubrication	LI
2-Ethylhexyl Laurate	MASESTER™ E1220	Liquid	5	2		200	-36	Steel, copper and aluminum rolling in cutting & grinding operations	LI
2-Ethylhexyl Oleate	MASESTER™ E1281	Liquid	8	3	191	202	-40	Drilling, cutting, stamping, rolling oils	LI
2-Ethylhexyl Palmitate	MASESTER™ E1260	Liquid	8	3	188	206	-3	Spinning Oils	LI
2-Ethylhexyl Stearate	MASESTER™ E1280	Liquid	9	3	171	206	2	Drilling, cutting, stamping, rolling oils	LI
Glycerol Monooleate	MASESTER™ GMO 50	Paste	77	10	104	257	4	Precision oils	MR
Isopropyl Oleate	MASESTER™ E1181	Paste	5	2		196	-25	Cutting Oils	LI
N-Butyl Stearate	MASESTER™ E1380	Liquid	6	2	182	208	21	Rolling oils lubricating component	PL, ELB
Pentaerythritol Tetraoleate	MASESTER™ E2281	Liquid	65	12	188	332	-27	High temperature metal working fluids	ELB
Pentaerythritol Tetrastearate	MASESTER™ E2284	Flakes		14		316		Cutting oils	ELB
Pentaerythritol Tetraethylhexanoate	MASESTER™ E2290	Liquid	45	6	87	190	-9	4-stroke engine oil	SV
Trimethylolpropane Tricaprylate-Caprates	MASESTER™ E2110	Liquid	20	4	136	264	-50	Automotive, engine oils & industrial air compressor	LBO
Trimethylolpropane TriPalm Kernelate	MASESTER™ E2130	Liquid	36	7	159	302	-2	In metal working, as rolling fluids and textile lubricants	LBO
Trimethylolpropane Tri-Cocoate	MASESTER™ E2132	Liquid	37	7	165	282	-1	In metal working, as rolling fluids and textile lubricants	LBO
Trimethylolpropane Trioate	MASESTER™ E2181	Liquid	47	10	195	317	-45	Fire resistant hydraulic fluids	LBO



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