



Gp

Green Polymer
Additives

Additives for PVC Processing

– Injection Moulding –

CREATING VALUE for tomorrow, through all that we do today

From basics to semi-specialty and specialty chemicals, Emery Oleochemicals is dedicated to providing customers with best-in-class solutions through continuous product development and stringent quality standards. Derived from renewable resources, our products are predominantly made from natural oils and fats such as palm kernel oil and tallow. We pride ourselves on having a diverse portfolio of oleochemical products suited for a broad range of applications.

Our portfolio includes renewable solutions for the Agro Green, Bio-Lubricants, Green Polymer Additives, Home and Personal Wellness and OleoBasics markets.

Leading product innovation naturally

We are committed to CREATING VALUE for you with our combined strengths in global manufacturing footprint, research and development, distribution, marketing and technical know-how. Uniquely packaged, our competitive advantage enables us to offer you innovative and competitive solutions designed to meet your needs.

Guided by an inventive spirit that goes beyond providing high-performance solutions, we are able to help your business deal with the challenges of a market that is going greener by the day. This makes us your preferred natural-based chemical solutions partner.



Designing natural-based solutions in polymers for a better tomorrow

For over 60 years, we have been recognized as a leading innovator of a broad range of polymer additives with our high-performance natural-based chemical brands, LOXIOLO® and EDENOL®. For having successfully improved our customers' product performance and processing efficiencies, our solutions today can be found in growth markets such as housing and construction, automotive, packaging and electronics. Our products are also known to enhance the quality of items for everyday life including toys and sporting equipment.

As your preferred partner with leading technical expertise, we offer customized solutions based on product groups such as lubricants, plasticizer and viscosity depressants, anti-static and anti-fogging agents, release agents, surfactants, green polyols and specialty fatty acids.

We remain committed to delivering the highest in quality standards and innovative solutions while building a sustainable tomorrow in polymers.



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■ FITTINGS

Product	Function	Chemistry	Delivery Form	Melting Range (°C)	Dosage (phr)	Transparent Application
LOXIOLO® G 12-40	Lubricant, internal	Glycerol partial ester	solid	55-61	0.5-1.5	yes
LOXIOLO® G 59	Lubricant, internal	Ester wax	solid	68-72	0.5-3.0	yes
LOXIOLO® G 60	Lubricant, internal	Dicarboxylic acid ester	solid	44-47	0.5-3.0	yes
LOXIOLO® G 62	Lubricant, internal	Fatty acid ester	solid	50-55	0.5-1.5	yes
LOXIOLO® G 63	Lubricant, internal	Fatty acid ester	solid	50-55	0.5-1.5	yes
LOXIOLO® P 728	Lubricant, internal	Polyol partial ester	solid	49-52	0.5-1.5	yes
LOXIOLO® G 72	Lubricant, internal	High molecular weight poly ester	solid	43-47	0.3-1.0	yes
LOXIOLO® GH 4	Lubricant, internal	Combination lubricant	solid	76-81	0.8-1.5	yes
LOXIOLO® EP 3500	Lubricant, internal + external	Ca-stearate	solid	150-170	0.2-0.5	yes
LOXIOLO® G 32	Lubricant, internal + external	Wax ester	solid	52-56	0.5-1.5	no
LOXIOLO® G 34 R	Lubricant, internal + external	Ester wax	solid	53-58	0.5-1.5	no
LOXIOLO® 2899	Lubricant, external	Polyol ester	solid	70-80	0.3-0.8	no
LOXIOLO® VPG 2571	Lubricant, external	Fatty ester ester of polyol	solid	75-80	0.3-0.8	no
LOXIOLO® VPN 960	Lubricant, external	Fatty ester ester of polyol	solid	62-68	0.2-1.0	no
LOXIOLO® VPN 963	Lubricant, external	Combination lubricant	solid	80-90	0.1-0.5	no
LOXIOLO® G 24	Lubricant, external	Polyol ester	solid	50-55	0.3-0.8	no
LOXIOLO® G 20	Lubricant, external	Fatty acid	solid	54-56	0.1-0.5	yes
LOXIOLO® G 21 H	Lubricant, external	Fatty acid	solid	71-80	0.1-0.5	no
LOXIOLO® G 47	Lubricant, external	Wax ester	solid	60-64	0.3-1.0	no
LOXIOLO® G 70 S	Lubricant, external	High molecular weight poly ester	solid	55-58	0.2-0.8	yes
LOXIOLO® P 1508	Lubricant, external	PE wax	solid	90-140	0.05-0.2	no
LOXIOLO® G 70 S	Release Agent	High molecular weight poly ester	solid	55-58	0.2-0.8	yes
LOXIOLO® G 72	Release Agent	High molecular weight poly ester	solid	43-47	0.3-1.0	yes
LOXIOLO® 80 X	Antistatic Agent	Mixture of anionic and non-ionic compounds	liquid	-	0.2-2.0	no
LOXIOLO® VPA 1726	Antistatic Agent	Polyol partial ester	liquid	-	0.5-3.0	yes
LOXIOLO® 93 P	Antistatic Agent	Anionic compound	solid	-	0.2-1.0	no

GUIDE FORMULATIONS

Fittings for Sewer Pipe	
Formulation: Organic stabilized	Dosage (phr)
S-PVC, k-value 58	100
Flow Modifier	0.5-1.0
CaCO3	0-3
Inorganic costabilizer	1.0-1.2
Organic costabilizer	0.6-1.0
LOXIOLO® 2899 / G 24	0.2-0.5
LOXIOLO® G 70 S	0.4-0.6
LOXIOLO® G 60 / G 62 / G 63	0.4
LOXIOLO® G 20	0.1
LOXIOLO® EP 3500	0.3
Pigment (e.g. acc. to RAL 8023)	X

Fittings for Rain Water Goods	
Formulation: Organic stabilized	Dosage (phr)
S-PVC, k-value 58	100
Impact Modifier	0-3
Flow Modifier	0.5-1.0
CaCO3	2.0-5.0
Inorganic costabilizer	1.0-1.2
Organic costabilizer	0.6-1.0
LOXIOLO® 2899 / G 24	0.2-0.5
LOXIOLO® G 70 S	0.4-0.6
LOXIOLO® G 60 / G 62 / G 63	0.4
LOXIOLO® G 20	0.1
LOXIOLO® EP 3500	0.3
Pigment	X

Fittings for Waste Water Pipe	
Formulation: Pb stabilized	Dosage (phr)
S-PVC, k-value 58-65	100
Tribasic Pb-sulfate	3.0
Dibasic Pb-stearate	0.2-0.3
LOXIOLO® EP 3500	0.2-0.3
LOXIOLO® G 60 / G 62 / G 63	0.4-0.8
LOXIOLO® G 70 S	0.4-0.8
Flow modifier	0.5-1.0
Pigment	X

Fittings for Thick-Walled Pressure Pipes	
Formulation: Pb stabilized	Dosage (phr)
S-PVC, k-value 58-60	100
Tribasic Pb-sulfate	3
Dibasic Pb-stearate	0.2-0.3
LOXIOLO® EP 3500	0.4
LOXIOLO® G 60 / G 62 / G 63	0.3-0.6
LOXIOLO® G 32 / G 34 R	0.3-0.6
Flow Modifier	0.5-1.0
Pigment	X
Formulation: Sn stabilized	Dosage (phr)
S-PVC, k-value 58	100
Tin stabilizer	2-3
LOXIOLO® EP 3500	0.2-0.3
LOXIOLO® GH 4	0.5-0.7
LOXIOLO® G 70 S	0.8
CaCO3	0.5-1.0
Flow Modifier	0-1.5
Pigment	X

Crystal-clear rigid PVC Injection Moulded Parts	
Technical application Formulation: Sn stabilized	Dosage (phr)
S-PVC, k-value 58	100
High impact modifier	0-10
Flow modifier	0-1
Octyl tin	2.0-2.5
LOXIOLO® GH 4	1.5-2.0
LOXIOLO® G 72	0.3
LOXIOLO® EP 3500	0.1
Food Grade Quality Formulation: Sn stabilized	Dosage (phr)
S-PVC, k-value 58	100
Flow modifier	0-1
Octyl tin	1.5
LOXIOLO® GH 4	1.3
LOXIOLO® G 72	0.2-0.3
LOXIOLO® EP 3500	0.1

Impact Resistant Technical Injection Moulded Articles	
Formulation: Pb stabilized	Dosage (phr)
S-PVC, k-value 58	100
EVA co-polymer	40
Flow modifier	0.5-1.0
Tribasic Pb-sulfate	3.0
Dibasic Pb-stearate	0.2-0.3
LOXIOLO® EP 3500	0.2-0.3
LOXIOLO® G 60 / G 62 / G 63	0.3-0.6
LOXIOLO® G 32 / G 34 R	0.3-0.6
Pigment	X

■ TECHNICAL APPLICATION, SHOES, TOYS, GENERAL PURPOSE

Product	Function	Chemistry	Delivery Form	Melting Range (°C)	Dosage (phr)
LOXIOL® G 40	Lubricant, internal	Wax ester	liquid	<7*	0.2-1.5
LOXIOL® G 71 S	Lubricant, external	High molecular weight poly ester	liquid	<-20*	0.2-1.0
LOXIOL® G 20	Lubricant, external	Fatty acid	solid	54-56	0.1-0.5
LOXIOL® G 21 H	Lubricant, external	Fatty acid	solid	71-80	0.1-0.5
LOXIOL® G 71 S	Release Agent	High molecular weight poly ester	liquid	<-20*	0.2-1.0
EDENOL® 888	Plasticizer, low temperature	Sebacate ester	liquid	-	max. 50
EDENOL® DOZ	Plasticizer, low temperature	Azelaic ester	liquid	-	max. 45
EDENOL® DIDA	Plasticizer, low temperature	Adipate ester	liquid	-	max. 50
EDENOL® 196	Plasticizer, high temperature	Diester	liquid	-	30-80
EDENOL® D 81	Plasticizer, stabilising properties	Epoxidised soya bean oil	liquid	-	1.0-1.5
EDENOL® T810T STAB	Plasticizer, high temperature	Trimellitate ester	liquid	-	30 – 80
EDENOL® TOTM	Plasticizer, high temperature	Trimellitate ester	liquid	-	30 – 80
EDENOL® 888	Plasticizer, low temperature	Sebacate ester	liquid	-	max. 50
EDENOL® DBS	Plasticizer, low temperature	Sebacate ester	liquid	-	max. 50
EDENOL® DIDA	Plasticizer, low temperature	Adipate ester	liquid	-	max. 50
EDENOL® 1200	Plasticizer, oil & solvent resistant	Polymeric plasticizer based on adipic acid	liquid	-	30 – 80
EDENOL® 1215	Plasticizer, oil & solvent resistant	Polymeric plasticizer based on adipic acid	liquid	-	30 – 80
EDENOL® 1234	Plasticizer, oil & solvent resistant	Polymeric plasticizer based on adipic acid	liquid	-	30 – 80
EDENOL® B 316 SPEZIAL	Plasticizer, stabilising properties	Epoxidised linseed oil	liquid	-	-
EDENOL® D 81	Plasticizer, stabilising properties	Epoxidised soya bean oil	liquid	-	-
EDENOL® D 82 S	Plasticizer, stabilising properties	Epoxidised soya bean oil	liquid	-	-

* pour point

GUIDE FORMULATIONS

Technical application	
Formulation: transparent articles	Dosage (phr)
S-PVC, k-value 70	100
DOA or DOP, DINP	55
EDENOL® D 81	3
CaZn or BaZn stabilizer	2
LOXIOL® G 71 S	0.1-0.3
Pigment, blue	0.002

Shoes, Toys, General Purpose	
Formulation: non foamed articles	Dosage (phr)
S-PVC, k-value 65-70	100
Plasticizer (DOA, DOP, DINP or other)	40-90
EDENOL® D 81	3
CaZn stabilizer	2-3
Org. phosphite	0-1
Filler (chalk)	20
Pigment	X
Formulation: foamed articles	Dosage (phr)
S-PVC, k-value 65-70	100
Plasticizer (DOP / DINP or other)	40-90
EDENOL® D 81	3
CaZn stabilizer	2-3
Org. phosphite	0-1
Blowing Agent	appr. 1
Filler (chalk)	X
Pigment	X

Shoes	
Formulation: transparent articles	Dosage (phr)
S-PVC, k-value 65-70	100
Plasticizer (DOP / DINP or other)	40-90
EDENOL® D 81	3
CaZn stabilizer	2-3

Toys	
Formulation: transparent articles	Dosage (phr)
S-PVC, k-value 65	100
Plasticizer (DOP / DINP or other)	20-80
EDENOL® D 81	5-6
CaZn stabilizer	1.8

■ OVERVIEW: INTERNAL & EXTERNAL LUBRICATING EFFECT

LOXIOL®	Internal	External	Transparent Article	Melting Range (°C)	Dosage (%)	Chemistry
G 20		■ ■	●	54-56	0.1-0.5	Fatty acid
G 21 H		■	●	71-80	0.1-0.5	
2050		■ ■ ■ ■ ■ ■ ■ ■		104-110	0.1-0.5	Paraffin wax
P 1508		■ ■ ■ ■ ■ ■		90-140	0.05-0.2	PE wax
G 40	■ ■ ■ ■ ■ ■ ■ ■		●	< 7 *	0.2-1.5	Wax ester
G 41	■ ■ ■ ■ ■ ■	■		69-77	0.5-1.5	
G 30	■ ■ ■ ■ ■ ■	■ ■		46-49	0.5-1.5	
G 32	■ ■ ■ ■ ■ ■	■ ■ ■ ■		52-56	0.5-1.5	
G 47	■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■		60-64	0.3-1.0	
G 60	■ ■ ■ ■ ■ ■ ■ ■		●	44-47	0.5-3.0	
G 10 V	■ ■ ■ ■ ■ ■ ■ ■		●	< 0 *	0.5-2.5	Polyol ester
G 11	■ ■ ■ ■ ■ ■ ■ ■		●	< -10 *	0.5-1.5	
G 12-40 / G 12-40 V	■ ■ ■ ■ ■ ■ ■ ■			55-62	0.5-1.5	
G 12	■ ■ ■ ■ ■ ■ ■ ■			55-62	0.2-1.5	
EP 55	■ ■ ■ ■ ■ ■ ■ ■			55-62	0.2-1.5	
G 13	■ ■ ■ ■ ■ ■ ■ ■		●	< -10 *	0.5-1.5	
G 15 PULVER	■ ■ ■ ■ ■ ■ ■ ■		●	83-90	0.5-2.5	
G 16	■ ■ ■ ■ ■ ■ ■ ■		●	< 0 *	0.5-1.5	
G 59	■ ■ ■ ■ ■ ■ ■ ■		●	68-72	0.5-3.0	
G 62	■ ■ ■ ■ ■ ■ ■ ■			50-55	0.5-1.5	
G 63	■ ■ ■ ■ ■ ■ ■ ■			50-55	0.5-2.0	
P 1141	■ ■ ■ ■ ■ ■ ■ ■		●	< 0 *	0.5-1.5	
P 1206	■ ■ ■ ■ ■ ■ ■ ■		●	53-56	0.5-1.5	
3366	■ ■ ■ ■ ■ ■ ■ ■		●	< 0 **	0.5-4.0	
A 4	■ ■ ■ ■ ■ ■ ■ ■		●	< 0 **	2.0-4.0	
P 728	■ ■ ■ ■ ■ ■ ■ ■	■	●	49-52	0.5-1.5	
G 24		■ ■ ■ ■ ■ ■ ■ ■		50-55	0.3-0.8	
2899		■ ■ ■ ■ ■ ■ ■ ■		70-80	0.3-0.8	
G 53	■ ■ ■ ■ ■ ■ ■ ■		●	49-54	0.5-1.5	Fatty alcohol

LOXIOL®	Internal	External	Transparent Article	Melting Range (°C)	Dosage (%)	Chemistry
GH 4	■ ■ ■ ■ ■ ■ ■ ■		●	76-81	0.8-1.5	Combination lubricant
3591	■ ■ ■ ■ ■ ■ ■ ■			100-108	0.2-1.5	
1820	■ ■ ■ ■ ■ ■ ■ ■	■ ■		122-126	0.5-1.5	
P 2072	■ ■ ■ ■ ■ ■ ■ ■	■ ■		100-130	0.5-1.5	
VPG 1781	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■		90-100	0.2-1.5	
VPN 963	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■		80-90	0.1-1.5	
GS 891	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■		95-101	1.5-2.0	
EP 3500	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■	●	150-170	0.2-1.0	Ca-stearate
GE 2063	■ ■ ■ ■ ■ ■ ■ ■	■ ■		90-160	1.7-2.5	Lubricant with co-stabilizing effect
G 70 S	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■	●	55-58	0.2-0.8	High molecular weight polyester (metal release effect)
G 71 S	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■	●	< -20 *	0.2-1.0	
3376	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■	●	84-88	0.2-0.8	
G 72	■ ■ ■ ■ ■ ■ ■ ■	■ ■	●	43-47	0.3-1.0	
G 78	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■	●	105-115	0.3-1.2	
G 78 V	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■	●	100-110	0.3-1.2	
P 621	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■	●	82-85	0.2-0.8	
1732	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■	●	100-115	0.3-1.2	

EDENOL® & LOXIOL®

LOXIOL® and EDENOL® are the plastics additives brand names of Emery Oleochemicals. Our products are based on natural resources for the processing of plastics materials. The main product groups and functions we offer are:

Lubricants – Optimise the processing characteristics of plastics materials. Our lubricants improve the rheology of the polymer melt by reducing friction and resistance to flow within the melt. >>> Positive influence on the mechanical properties, machinery output and surface finish of the final product.

Release Agents – Aid in the separation of a component from its mould. >>> Positive effect on cycle time and surface finish.

Special Plasticizers – Improve processability and performance of plastics and synthetic rubbers. >>> Positive influence on flexibility and durability of the final article.

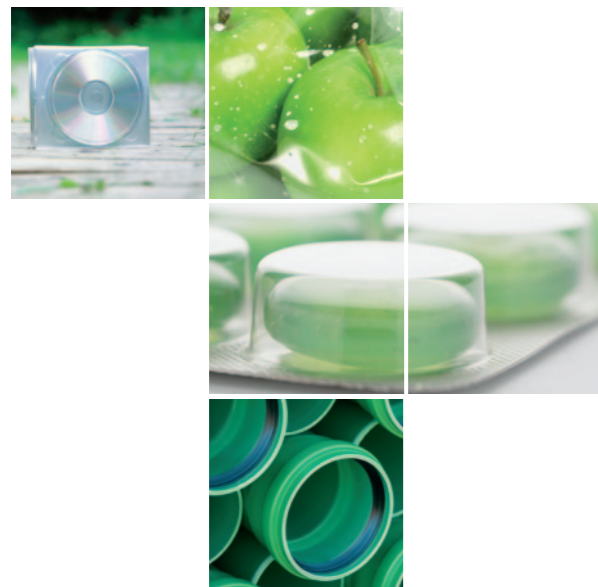


Viscosity Regulators – Improve the flow of PVC paste formulations. >>> Positive influence on processing temperature and processability.

Antistatic Agents – Eliminate the build-up of a static charge in the finished article. >>> Positive effects including avoidance of dust pick-up, handling problems as well as the risks associated with static discharges.

Antifogging Agents – Prevent the formation of water droplets on plastics film surfaces. >>> Positive effect on visibility, quality and attractiveness of packed products and avoidance of damage to plants in growing tunnels.

Antiblocking/Slip Agents – Reduce the friction between the polymer to polymer surface or processing equipment. >>> Positive effect on production handling by preventing adhesion.



CREATING VALUE FOR OUR CUSTOMERS, ANYWHERE IN THE WORLD.



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