

Matrilox[®] portfolio for Bio-Lubricants

Move forward
on performance
and sustainability



Matrilox® portfolio for Bio-Lubricants



Matrica is a flagship of oleochemistry thanks to its production plant and research center, both located in Porto Torres (Sassari, Italy).

Matrica leverages on the molecular complexity of the vegetable raw materials to produce chemicals with high added value, through an innovative and proprietary technology with low environmental impact.

The product range is wide and diversified, accounting for fatty acids as azelaic acid, pelargonic acid and carboxylic acids of short-medium chain, entirely derived from renewable sources with a short supply chain, and for fatty acid esters from pelargonic acid and high-boiling point fraction, mainly derived from the same sources.

FATTY ACIDS (100% BIO-BASED)

Product	Description	Trade name	Esters production	Grease application	Corrosion inhibitor
Azelaic acid (C9-dicarboxylic acid)	Standard grade (92%)	LA001T		•	
	Technical grade (98%)	LA001M	•	•	•
	High purity (98%)	PA002M	•		•
Pelargonic acid (C9- monocarboxylic acid)	Standard grade (98%)	AP001M	•		
	Hydrogenated (98%)	IP001M	•		•
	Hydrog. – High purity (98%)	PP001M	•		•
Carboxylic acids	C5-C9 blend	IL001M	•		

Azelaic acid thanks to its chemical properties is widely employed as a thickener in lithium complex greases, in particular for high temperature applications and extreme conditions.

Pelargonic acid, or nonanoic acid, with its two hydrogenated grades IP001M and PP001M, has been optimized to minimize the level of impurities, preserving colour and chemical stability.

Pelargonic and azelaic acid are used as basestocks for the synthesis of a wide range of esters highly suitable for lubricants applications. In addition, they are employed in industrial formulations as corrosion inhibitors.

Carboxylic acids of short-medium chain (C5-C9) apply specifically in the synthesis of esters indicated for low viscosity applications, as light alloys processing.

FATTY ACID ESTERS

Product	Trade name	Viscosity @40°C [mm ² /s] (ASTM D 7042-14)	Pour point [°C] (ASTM D97)	Flash point [°C] (ASTM D93)	Biodegradability (OECD 301B)	Biogenic content (ASTM D6866-22)
TMP Pelargonate (C9)*	LP101M	19 - 22	≤ -39	≥ 240	≥ 70%	82%
TMP Pelargonate (C9)	LP102M	19 - 22	≤ -39	≥ 240	≥ 70%	82%
NPG Pelargonate (C9)	LP201M	7 - 10	≤ -30	≥ 200	> 81%	79%
Glycerol Pelargonate (C9)	LP601M	10 - 20	≤ 0	≥ 200	> 81%	100%
n-butanol esters	PF801E	25 - 60	≤ 15	≥ 180	> 56%	82%
NPG esters	PD204P	30 - 40	≤ -4	≥ 170	-	68%

* From Pelargonic acid grade AP001M



CERTIFICATIONS AND LISTING

Matrilox® Pelargonic Esters (C9-esters) are included in the Lubricant Substance Classification list (LuSC-list), thus they are employed in Environmentally Acceptable Lubricants (EALs) without restrictions according to biodegradation and aquatic toxicity.

Moreover, C9-esters are compliant with the requirements of NSF HX-1 certification, thus they are eligible as ingredients for use in lubricants with incidental food contact.

C9-ESTERS APPLICATION GUIDELINES FOR LUBRICANTS

Product	Trade name	Hydraulic fluids	Chain/gear oils	Engine oils	Aviation and marine lubs	Metal working fluids
TMP Pelargonate	LP101M LP102M	•	•	•	•	•
NPG Pelargonate	LP201M			•	•	•
Glycerol Pelargonate	LP601M	•	•			

Matrilox C9-esters are effectively employed in a broad range of applications thanks to improving properties as thermal resistance and oxidation stability due to their highly saturated structure.

n-butanol esters (PF801E) and NPG esters (PD204P) are the esterified products of the high-boiling temperature stream resulting from Matrìca process.

They present a higher viscosity compared to C9-esters and are largely employed as plasticizers in elastomers and PVC based formulations.





Matrica: the integrated platform for chemistry from renewable sources.

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