

Fuel and Lubricant Solutions

COMPONENTS

for Fuel and Lubricant Solutions

Polyisobutenes
Esters and PAGs
Antioxidants
Viscosity Modifiers
Performance Additives



FORMULATIONS

for Fuel and Lubricant Solutions

Coolants and Brake Fluids
Fuel Performance Packages
Aviation Fuel Additives
Refinery Additives
Lubricants

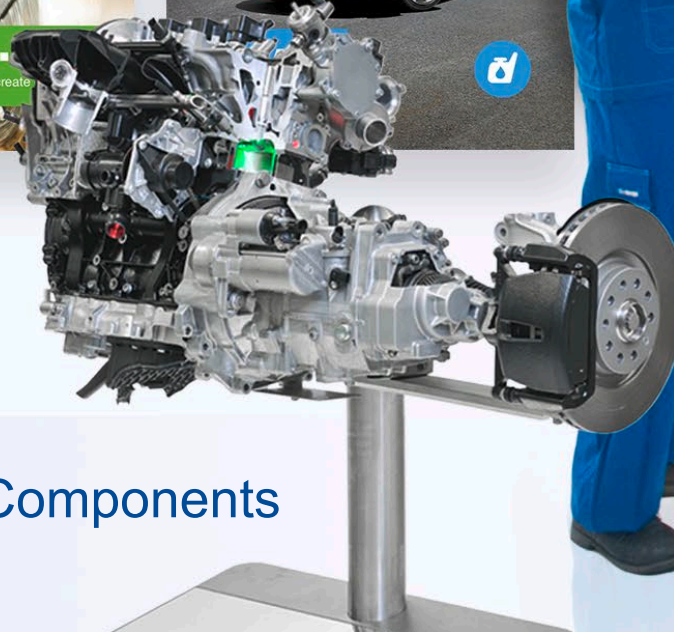


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Components for Environmentally Acceptable Lubricants (EALs)

European Ecolabel (EEL) approved LuSC-List Components

Last Update: April 2021



List of registered Components

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EEL – Introduction

- EEL is components based; single substances can be listed on LuSC list acc. to their eco-tox profile
 - ▶ Depending on components eco-tox profile there are treat rate limitations implemented on LuSC
- EEL focuses on loss and lost lubricants
- EEL lubricant application categories (as of rev. 2019)
 - ▶ Depending on category (TLL/PLL/ALL) there are treat rate limitations implemented on LuSC

Category

	Application
TLL (Total Loss Lubrication)	greases, chainsaw oils, wire rope lubricants, concrete release agents
PLL (Partial Loss Lubrication)	greases, gear oils for open gears, stern tube oils, two-stroke oils, oils for temporary protection against corrosion
ALL (Accidental Loss Lubrication)	greases, hydraulic fluids, metalworking fluids, gear oils for closed gears
TLL (Total Loss Lubrication)	greases, chainsaw oils, wire rope lubricants, concrete release agents

- Lubricants based on LuSC listed products under the given treat rate limits are EEL conform
- For further questions on EEL or other regulations please contact us



EEL –

The Toolbox of Components for your EAL compliant Formulations

EEL Categories and max. allowed treat levels for the components [%]

Aminic Antioxidants

	ALL no grease	ALL only grease	PLL no grease	PLL only grease	TLL no grease	TLL only grease
Irganox® L 06	5.00	15.00	20.00	15.00	5.00	15.00
Irganox® L 57	0.50	0.50	0.50	0.50	0.50	0.50
Irganox® L 64	0.62	0.62	0.62	0.62	0.62	0.62
Irganox® L 67	5.00	15.00	20.00	15.00	5.00	15.00



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Phenolic Antioxidants

	ALL no grease	ALL only grease	PLL no grease	PLL only grease	TLL no grease	TLL only grease
Irganox® L 135	4.00	4.00	4.00	4.00	4.00	4.00
Irganox® L 101	5.00	15.00	20.00	15.00	5.00	15.00
Irganox® L 115	5.00	15.00	20.00	15.00	5.00	15.00
Irganox® L 107	5.00	15.00	20.00	15.00	5.00	15.00
Irganox® L 109	5.00	15.00	20.00	15.00	5.00	15.00



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Antiwear Additives

	ALL no grease	ALL only grease	PLL no grease	PLL only grease	TLL no grease	TLL only grease
Irgafos® 168	5.00	15.00	20.00	15.00	5.00	15.00
Irgalube® 211	2.50	1.00	0.60	0.60	0.40	0.40
Irgalube® 349	2.50	1.00	0.60	0.60	0.40	0.40
Irgalube® 353	1.00	1.00	1.00	1.00	1.00	1.00
Irgalube® 355	1.00	1.00	1.00	1.00	1.00	1.00
Irgalube® TPPT	0.10	0.10	0.10	0.10	0.10	0.10



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Corrosion Inhibitors

Irgacor® L 12

Sarkosyl® O

ALL no grease	ALL only grease	PLL no grease	PLL only grease	TLL no grease	TLL only grease
0.80	0.80	0.80	0.80	0.80	0.80
0.10	0.10	0.10	0.10	0.10	0.10

Metal Deactivators

Irgamet® BTZ

Irgamet® 39

2.50	2.50	2.00	2.50	2.50	2.50
0.10	0.10	0.10	0.10	0.10	0.10



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Viscosity Modifiers

	ALL no grease	ALL only grease	PLL no grease	PLL only grease	TLL no grease	TLL only grease
Irgaflo® 1100 V	7.10	21.00	29.00	21.00	7.10	21.00
Glissopal® 2300	5.30	10.00	10.00	10.00	5.30	10.00
Glissopal® V 1500	5.30	10.00	10.00	10.00	5.30	10.00



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EEL Categories and max. allowed treat levels for the components [%]

Base Stocks

	ALL no grease	ALL only grease	PLL no grease	PLL only grease	TLL no grease	TLL only grease
Synative® ES TMP 05	not limited by biodegradation and aquatic toxicity					
Synative® ES TMP 05/68	not limited by biodegradation and aquatic toxicity					
Synative® ES TMP 05/140	not limited by biodegradation and aquatic toxicity					
Synative® ES TMP 05/320	not limited by biodegradation and aquatic toxicity					
Synative® ES TMP 05/1000	10.00	20.00	25.00	20.00	5.00	20.00



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EEL Categories and max. allowed treat levels for the components [%]

Base Stocks

	ALL no grease	ALL only grease	PLL no grease	PLL only grease	TLL no grease	TLL only grease
Synative® ES EEB 130	5.00	15.00	20.00	15.00	5.00	15.00
Synative® ES 1200	not limited by biodegradation and aquatic toxicity					
Synative® ES 3200	not limited by biodegradation and aquatic toxicity					
Synative® ES 3357	not limited by biodegradation and aquatic toxicity					
Synative® ES 3345	not limited by biodegradation and aquatic toxicity					



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EEL Categories and max. allowed treat levels for the components [%]

Base Stocks

Synative® ES DPHA

Synative® ES EHK

Synative® ES 2813

Synative® ES DITA

Synative® ES 2925

ALL no grease	ALL only grease	PLL no grease	PLL only grease	TLL no grease	TLL only grease
not limited by biodegradation and aquatic toxicity					
not limited by biodegradation and aquatic toxicity					
not limited by biodegradation and aquatic toxicity					
not limited by biodegradation and aquatic toxicity					
not limited by biodegradation and aquatic toxicity					



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EEL Categories and max. allowed treat levels for the components [%]

Base Stocks

	ALL no grease	ALL only grease	PLL no grease	PLL only grease	TLL no grease	TLL only grease
Breox® 50 A 50	not limited by biodegradation and aquatic toxicity					
Breox® 50 A 140	not limited by biodegradation and aquatic toxicity					
Breox® 50 A 150	not limited by biodegradation and aquatic toxicity					
Breox® 60 D 220	not limited by biodegradation and aquatic toxicity					
Breox® 60 D 320	not limited by biodegradation and aquatic toxicity					
Breox® 60 D 460	not limited by biodegradation and aquatic toxicity					
Breox® 60 D 1100	not limited by biodegradation and aquatic toxicity					
Breox® 75 W 55000	10.00	20.00	25.00	20.00	5.00	20.00



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EEL Categories and max. allowed treat levels for the components [%]

Base Stocks

Breox® B 35

not limited by biodegradation and aquatic toxicity

Breox® B 75

not limited by biodegradation and aquatic toxicity

Synative® AC B 33 V

not limited by biodegradation and aquatic toxicity





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