European Ecolabel for lubricants

The broadest range of oleochemical esters for formulating environmentally acceptable lubricants

Cargill®

What is the EU Ecolabel for lubricants?

- There is a strong political and social movement to minimise the impact of human activity on the global environment through the use of renewable and sustainable technologies.
- The European Union promotes the development and use of lubricating products with reduced environmental impact through Ecolabel.
- Products satisfying the requirements must be biodegradable, have low aquatic toxicity, and where palm oil or palm kernel oil is used, must be sustainably sourced.
- In addition, finished lubricant formulations must achieve minimum technical standards.

The EU Ecolabel is a mark of environmental sustainability and performance

We offer the broadest range of oleochemical esters for formulating environmentally acceptable lubricants

Lubricating applications covered by Commission Decision (EU) 2018/1702

Total loss lubricants (TLL)

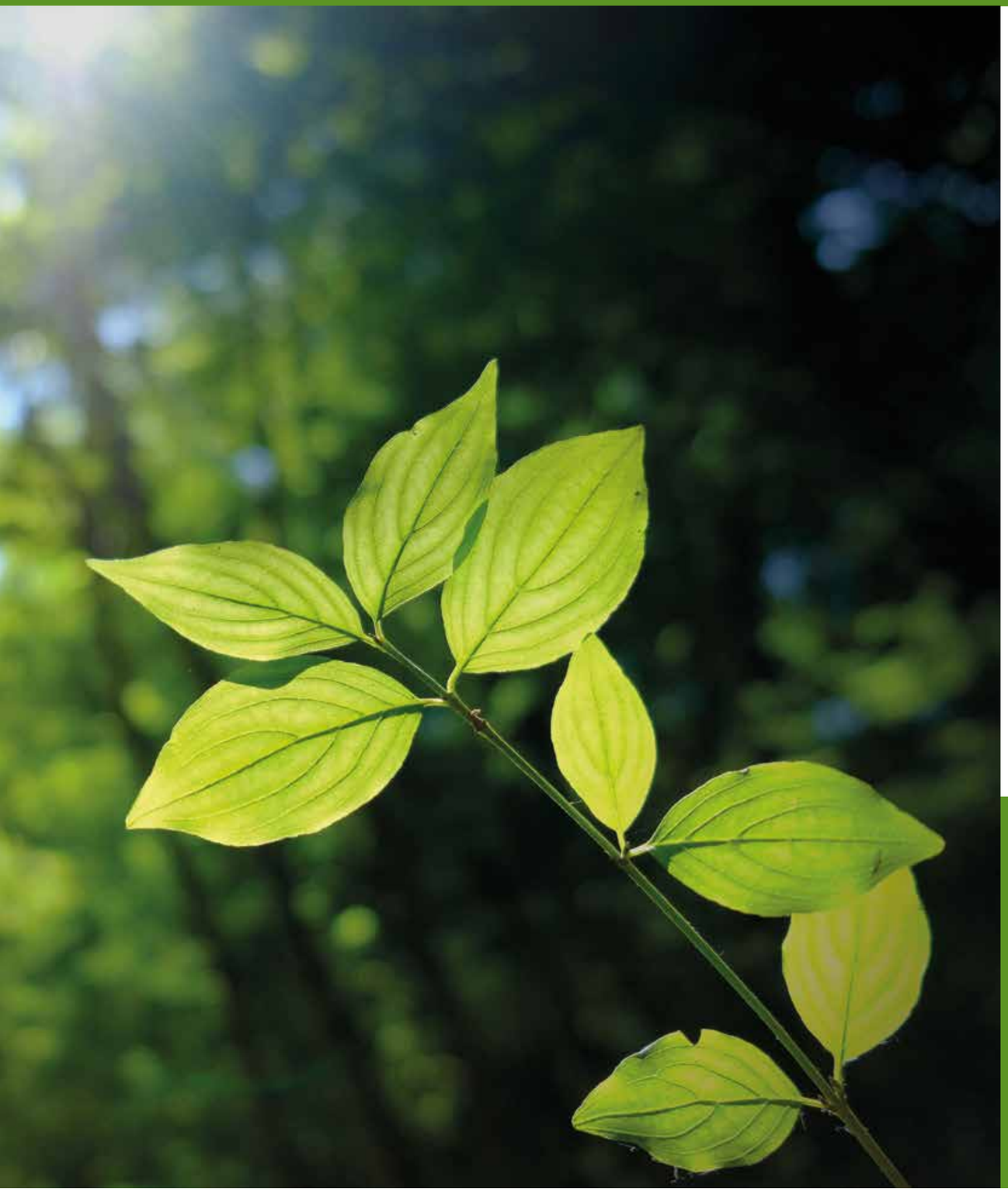
- Chainsaw oils
- Wire rope lubricants
- Concrete release agents
- Total loss greases
- Other total loss lubricants

Partial loss lubricants (PLL)

- Gear oils for use in open gears
- Stern tube oils
- Two-stroke oils
- Temporary protection against corrosion
- Partial loss greases

Accidental loss lubricants (ALL)

- Hydraulic systems
- Metalworking fluids
- Closed gear oils
- Accidental loss greases



Summary of requirements for EU Ecolabel

The formulation criteria

Excluded or limited substances

A restriction on the types and quantity of components that can be used. Substances which are limited include those which pose hazard to human health or to the environment.

Aquatic toxicity

One of two approaches can be taken when formulating the lubricant. The formulating company can either provide toxicity data for the candidate product and all the main components (>5% by weight in the final product) or provide toxicity data for all individual substances used or formed, at or above 0.10% by weight in the candidate product.

Biodegradability

It must be determined on all organic substances, be they added or formed in the lubricant at a level of 0.10% w/w or higher. Depending on the application group (TLL, PLL, ALL or greases), there are limits on how much of the final formulation may not be biodegradable.

Bioaccumulation

This must be considered for all substances. Those which are readily biodegradable are not considered to be bioaccumulating. If the substances and mixtures are on the LuSC list, no additional documents need to be submitted.

Renewable ingredients

There is no absolute requirement for renewable ingredients in any lubricant application group, unless the formulating company wishes to use the term ‘bio-based’, in which case the bio-based carbon content in the final product must be ≥ 25%. If palm oil or palm kernel oil or derivatives are used then 100% of these ingredients must meet the requirements for sustainable production.

Minimum technical performance

Lubricants placed on the market must comply with minimum technical performance requirements. Evidence can be in the form of an approval letter, documents or statements and/or supporting test results

Refer to the EU’s Ecolabel for lubricants user manual for further information

The packaging criteria

Packaging/container requirements

For lubricants sold in plastic, the container must be made of a minimum of 25% of post-consumer plastic. For lubricants sold to private end consumers the packaging/ container should have an appropriate system in order to avoid spillage during use.

Consumer information on use & disposal

In the case of lubricants designed to be sold to private end-consumers, specific information shall be present on the packaging/container.

Information on EU Ecolabel

An optional label with text box may be included with specific text relating to EU Ecolabel.

Our range of EU Ecolabel products

Formulating EU Ecolabel compliant lubricants

We offer the broadest range of oleochemical esters

Whilst lubricants must comply with strict environmental criteria, they must also meet minimum technical performance standards. We have a portfolio of products ranging in viscosity from ISO 22 to ISO 1000, plus thickeners, including both oxidatively stable and highly oxidatively stable esters. We have the base fluid technologies to enable formulations in all three categories to comply with the environmental and technical performance requirements of EU Ecolabel.

We also offer Ecolabel compliant thickeners, friction modifiers and grease complexing agents. Depending on the category, there may be limitations on % inclusion rates. Please refer to the table or contact us for further information.

European Ecolabel for lubricants

Recommendations for ISO 22 – ISO 1000 lubricants

To formulate a lubricant…

With viscosity…	With properties…	Use…
ISO 22	Oxidatively stable	**Priolube™ 3970**
ISO 32	Highly oxidatively stable	**Priolube 3970 MBPO** blended with a higher viscosity ester, such as **Priolube 1973** or **Priolube 1847**
	Oxidatively stable	**Priolube 1446**
ISO 46	Highly oxidatively stable	**Priolube 1973** or **Priolube 3971 MBPO**
	Oxidatively stable	**Priolube 1427** or **Priolube 2065**
	Excellent low temperature performance	**Priolube 2089 MBPO**
ISO 68	Highly oxidatively stable	A blend of **Priolube 1973** and a higher viscosity ester such as **Priolube 1847**
	Oxidatively stable	**Priolube 1445**
ISO 100	Highly oxidatively stable	**Priolube 1973** blended with **Priolube 1847**
	Oxidatively stable	**Priolube 2065** or **Priolube 1445** or **Priolube 2500** blended with **Priolube 2087 MBPO; Priolube 3988**
	Non-sheening	**Emkarox VG 100 NS**
ISO 150	Highly oxidatively stable	**Priolube 3987**
	Oxidatively stable	**Priolube 2065** or **Priolube 1445** blended with **Priolube 2087 MBPO**
	Non-sheening	**Emkarox VG 150 NS**
ISO 220	Highly oxidatively stable	For highly oxidatively stable lubricants, use **Priolube 1973** thickened with **Priolube 1847**
ISO 320	Highly oxidatively stable	A blend of **Priolube 1973** with **Priolube 1847**
	Oxidatively stable	**Priolube 2087 MBPO** or **Priolube 2088 MBPO**
ISO 460 & ISO 680	Highly oxidatively stable	A blend of **Priolube 1973** with **Priolube 1851** or **Priolube 1847**
	Oxidatively stable	**Priolube 2065** or **Priolube 2089 MBPO** thickened with **Priolube 1847** or **Priolube 1851**
ISO 1000	Oxidatively stable	**Priolube 1847**
Thickener	Oxidatively stable	**Priolube 3986** – Limited treat-rate depending on lubricant or grease category. Please refer to the LuSC list for maximum allowable treat-rate for all non-biodegradable, non- bioaccumulating components.
Friction modifier	–	**Perfad™ 3100** – Limited treat-rate depending on lubricant or grease category
	–	**Perfad FM 3336 MBPO** – Not limited by biodegradation and aquatic toxicity
Grease complexing agent	–	**Priacid A95 MBPO** – Can be used up to 10% in grease formulations

SP MBAL = product is manufactured with ingredients containing sustainable palm oil

European Ecolabel for lubricants

Specifications

Product	Viscosity											Foam tests					Total acid number			Environmental profile				
	Kinematic viscosity at 40°C (mm²/s)	Kinematic viscosity at 100°C (mm²/s)	Viscosity index	Kinematic viscosity at -20°C, 72 hrs (mm²/s)	Kinematic viscosity at -30°C, 72 hrs (mm²/s)	Acid value (mgKOH/g)	Cloud point (°C)	Pour point (°C)	Flash point COC (°C)	Iodine value (gI/100g)	TOST test, 2% additive pack (hrs)	seq 1, 24°C (ml)	seq 2, 93°C (ml)	seq 3, 24°C (ml)	Air release (mins)	Demulsification (mins)	Initial TAN (mgKOH/g)	TAN after 5 days (mgKOH/g)	TAN after 15 days (mgKOH/g)	Biodegradability OECD 301B (%)	Renewability (%)	Daphnia (mg/l)	Algae (mg/l)	on LuSC List?
Priolube 3970 MBPO	20	4.4	140	515	-	<0.1	-39	-51	250	0.5	>4000	0/0	0/0	0/0	<1	3	0.1	0.3	0.8	75	81.6	>1000	>1000	YES
Priolube 1446	30	7	207	-	-	1.5	-32	-36	290	81	-	10/0	0/0	10/0	4	>30	0.2	0.5	1.8	85	88.7	>100	>100	YES
Priolube 3971 MBPO	30	5.9	144	-	-	0.05	-10	-3	285	0.5	-	-	-	-	-	-	-	-	-	10	85	-	-	YES
Priolube 2089 MBPO	44	8.7	181	1444	3800	<0.1	-25	-54	315	72	540	5/0	15/0	20/0	1	15	0.1	0.5	2.1	84	88.3	>1000	812	YES
Priolube 1973	46	8	148	2550	9500	<0.1	-27	-44	280	2	>4000	140/0	20/0	140/0	1	10	<0.1	<0.1	0.4	85	87.8	>1000	>1000	YES
Priolube 1427	48	9.5	187	-	-	1	-15	-39	300	84	500	5/0	0/0	5/0	2	>30	1.5	3.3	11	79	89.9	>100	>100	YES
Priolube 2065	48	9.8	196	1600	>16000	1	-15	-39	300	84	500	5/0	0/0	5/0	2	15	0.2	0.4	2.8	79	89.8	>1000	>1000	YES
Priolube 1445	67	12.5	188	-	-	0.5	-25	-30	290	88	-	150/0	0/0	100/0	6	>30	0.6	1.5	8.5	72	92.9	>100	>100	YES
Priolube 2500	90	13	143	-	-	0.5	-	-24	280	3	-	-	-	-	-	-	-	-	-	75	>80	-	-	YES
Priolube 3988	100	13.8	140	-	-	0.1	-	-34	280	3	-	-	-	-	-	>60	-	-	-	73	82	>7.6**	†	YES
Emkarox VG 100 NS	107	17.6	181	-	-	-	-	-42	280	-	-	-	-	-	-	-	-	-	-	‡	N/A	>100	<100	YES
Priolube 3987	145	18.2	140	-	1280	0.1	-21	-33	320	3.5	>4000	400/0	25/0	170/0	6	>30	0.1	0.8	2.4	73	96.7	>100*	>1000	YES
Emkarox VG 150 NS	152	24.9	198	-	-	-	-	-42	280	-	-	-	-	-	-	-	-	-	-	‡	N/A	>100	>100	YES
Priolube 2087 MBPO	320	35	150	-	-	0.5	<-60	-40	260	30	-	10/0	10/0	10/0	16	16	0.5	2.9	16	63	93.9	>100*	>98.7	YES
Priolube 2088 MBPO	320	35	150	-	-	0.2	<-60	-40	260	30	-	10/0	10/0	10/0	16	1	0.5	2.5	15.3	63	93.9	>100	>100	YES
Priolube 1851	495	49	153	-	-	0.1	-34	-36	300	3	>4000	60/0	55/0	40/0	14	1	<0.1	0.3	2.9	65	88.2	<100	>100	YES
Perfad 3100	624	28	55	-	-	2	-14	-15	275	1	-	-	-	-	-	-	-	-	-	>60	100	-	-	YES
Priolube 1847	1040	90	167	-	-	0.1	-50	-24	300	4	>4000	370/30	530/0	210/20	>30	>30	0.1	1.4	2	63	84.9	>1000	>1000	YES
Priolube 3986	47000	2000	278	-	-	0.01	-	6	325	89	-	-	-	-	-	-	-	-	-	14%	85	>100	>100	YES
Perfad FM 3336	-	-	-	-	-	-	12	-25	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	YES
Priacid A95 MBPO	-	-	-	-	-	575	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	YES

* 100mg/l was the highest reportable concentration at the time of testing. The data in this table represents typical properties
**The limit of solubility: No toxic effects up to the limit of water solubility
† No toxic effects up to the limit of water solubility
‡ Blend components are biodegradable

European Ecolabel for lubricants

The LuSC list – Our products

Lubricant Substance Classification List (LuSC List)

	Maximum allowed treat rate [a,c]						If less than 100% see [d] or [e]					
Brand name[b,k,l] Base fluids	ALL (No grease)	ALL (Only grease)	PLL (No grease)	PLL (Only grease)	TLL (No grease)	TLL (Only grease)	EEL Biodegradation[d] A/B/C/X/-[f]	EEL Aquatic Toxicity[e] D/E/F/G(M[g])/-[f]	Biobased fraction[h,i]	Fraction certified renewable ingredients[a,h,j]	CB Assessed	Valid till
Base fluids												
EMKAROX VG 100 NS-LQ-(CQ)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	0%	-	Dutch	31 December 2024
EMKAROX VG 150 NS-LQ-(CQ)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	0%	-	Dutch	31 December 2024
PERFAD FM 3336-LQ-(GD)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	100%	-	Dutch	31 December 2024
PERFAD FM 3336-LQ-(AP)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	100%	-	Dutch	31 December 2024
PRIOLUBE 1427-LQ-(GD)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	92%	-	Dutch	31 December 2024
PRIOLUBE 1445-LQ-(GD)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	96%	-	Dutch	31 December 2024
PRIOLUBE 1446-LQ-(TH)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	90%	-	Dutch	31 December 2024
PRIOLUBE 1446-LQ-(GD)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	90%	-	Dutch	31 December 2024
PRIOLUBE 1847-LQ-(GD)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	81%	-	Dutch	31 December 2024
PRIOLUBE 1847-LQ-(MV)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	81%	-	Dutch	31 December 2024
PRIOLUBE 1851-LQ-(GD)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	95%	-	Dutch	31 December 2024
PRIOLUBE 1851-LQ-(MV)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	95%	-	Dutch	31 December 2024
PRIOLUBE 1973-LQ-(GD)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	87%	-	Dutch	31 December 2024
PRIOLUBE 1973-LQ-(MV)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	87%	-	Dutch	31 December 2024
PRIOLUBE 1973-LQ-(SG)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	87%	-	Dutch	31 December 2024
PRIOLUBE 2065-LQ-(AP)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	92%	-	Dutch	31 December 2024
PRIOLUBE 2065-LQ-(GD)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	92%	-	Dutch	31 December 2024
PRIOLUBE 2500-LQ-(AP)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	92%	-	Dutch	31 December 2024
PRIOLUBE 2500-LQ-(MV)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	92%	-	Dutch	31 December 2024
PRIOLUBE 3986-LQ-(GD)	5.0%	15%	20%	15%	5.0%	15%	100%C	100%D	85%	-	Dutch	31 December 2024
PRIOLUBE 3987-LQ-(GD)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	95%	-	Dutch	31 December 2024
PRIOLUBE 3987-LQ-(MV)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	95%	-	Dutch	31 December 2024
PRIOLUBE 3987-LQ-(SG)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	95%	-	Dutch	31 December 2024
PRIOLUBE 3988-LQ-(GD)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	92%	-	Dutch	31 December 2024
PRIOLUBE 3988-LQ-(MV)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	92%	-	Dutch	31 December 2024
PERFAD FM 3336 MBPO-LQ-(SG)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	100%	57%RSPO		
PRIOLUBE 2087 MBPO-LQ-(GD)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	88%	47%RSPO	Dutch	31 December 2024

European Ecolabel for lubricants

	Maximum allowed treat rate [a,c]						If less than 100% see [d] or [e]					
Brand name[b,k,l] Base fluids	ALL (No grease)	ALL (Only grease)	PLL (No grease)	PLL (Only grease)	TLL (No grease)	TLL (Only grease)	EEL Biodegradation[d] A/B/C/X/-[f]	EEL Aquatic Toxicity[e] D/E/F/G(M[g])/-[f]	Biobased fraction[h,j]	Fraction certified renewable ingredients[a,h,j]	CB Assessed	Valid till
PRIOLUBE 2087 MBPO-LQ-(MV)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	88%	47%RSPO	Dutch	31 December 2024
PRIOLUBE 2088 MBPO-LQ-(GD)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	88%	47%RSPO	Dutch	31 December 2024
PRIOLUBE 2089 MBPO-LQ-(AP)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	92%	9%RSPO	Dutch	31 December 2024
PRIOLUBE 2089 MBPO-LQ-(GD)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	92%	9%RSPO	Dutch	31 December 2024
PRIOLUBE 3970 MBPO-LQ-(AP)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	81%	78%RSPO	Dutch	31 December 2024
PRIOLUBE 3970 MBPO-LQ-(GD)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	81%	78%RSPO	Dutch	31 December 2024
PRIOLUBE 3970 MBPO-LQ-(SG)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	81%	78%RSPO	Dutch	31 December 2024
PRIOLUBE 3971 MBPO-LQ-(GD)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	n.d.	84%RSPO	Dutch	31 December 2024
PRIOLUBE 3971 MBPO-LQ-(MV)	Not limited by biodegradation and aquatic toxicity						100%A	100%D	n.d.	84%RSPO	Dutch	31 December 2024
	Maximum allowed treat rate[a,c]						If less than 100% see [d] or [e]					
Brand name[b,k,l] Additives and Thickeners	ALL (No Grease)	ALL (Only Grease)	PLL (No Grease)	PLL (Only Grease)	TLL (No Grease)	TLL (Only Grease)	EEL Biodegradation[d] A/B/C/X/-[f]	EEL Aquatic Toxicity[e] D/E/F/G(M[g])/-[f]	Remark		CB Assessed	Valid till
Other (specified in the remark field)												
PRIACID A95 MBPO-FL-(SI)		10%		10%		10%	100%A	100%E	Grease complexing agent. Biobased fraction: 100%[h,i] Fraction certified renewable ingredient 100% RSPO[a,h,j]		Dutch	31 December 2024
PERFAD 3100-LQ-(MV)	10%	20%	25%	20%	2%	20%	100%E	100%E	Friction modifier. Biobased fraction: n.d.[h,i]		Dutch	31 December 2024

Notes

European Ecolabel for lubricants

Notes

Who are we?

The Energy Technologies business in Cargill Bioindustrial creates, makes and sells specialty chemicals and additives for the global energy market. Working in close collaboration with our customers, we apply sustainable concepts and deep scientific expertise so that together we can efficiently power the world of tomorrow.

At our core, we are experts in synthetic ester and polyalkylene glycol chemistries, taking products from lab scale through to full manufacturing. Investing in the development of new chemistries allows us to support our customers in meeting new industry challenges.

For those who dare to imagine a brighter future, we establish long lasting relationships and create bespoke industry solutions through our integrated research & development and global manufacturing capabilities. Being both global and local, you have direct access to our network of technical experts. We look forward to talking to you.

Further information

Cargill Bioindustrial sales and distribution are coordinated through an extensive worldwide network of technical and commercial experts. For further information or guidance please contact us:

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