

ILCO Chemikalien GmbH



ILCO LUBE
ILCO MIN
ILCO PHOS
ILCO COS

Product Portfolio



ILCO CHEMIKALIEN

Derivates of Carbon acids

ILCO LUBE

The ILCO Lube product range covers besides esters additives and antifoaming agents. All products are characterised by high performance as well as a good compatibility with additives in formulations. Some Mono- and Diester have outstanding low-temperature characteristics and are therefore suitable for the production of very low-temperature lubricants. Biologically low degradable and hydrolytically stable products with excellent lubrication characteristics are used with great success in water-miscible concentrates for metalworking and are mainly oligomers.

Mono-Esters

Typical Parameters:

	Acid value, max. [mgKOH/g]	Viscosity 40 °C [mm ² /s]	Iodine value, max. [gI ₂ /100g]	Pour Point, max. [°C]
<u>ILCO Lube 2324</u>	0,5	7 - 9	63 - 71	- 30
<u>ILCO Lube 2324 V</u>	1	7 - 9	63 - 71	- 30
<u>ILCO Lube 2325</u>	0.3	5 - 6	5	- 30
<u>ILCO Lube 2423</u>	0.5	5 - 6 (20°C mPa*s)	1	-
<u>ILCO Lube 4820</u>	0.1	5	2	- 75

Di-Esters

Typical Parameters:

	Acid value, max. [mgKOH/g]	Viscosity 40 °C [mm ² /s]	Iodine value, max. [gI ₂ /100g]	Pour Point, max. [°C]
<u>ILCO Lube 4810</u>	1	11 - 16	1	- 50
<u>ILCO Lube 4813</u>	0.1	24 - 28	1	- 54
<u>ILCO Lube 4850</u>	0.2	10.5 - 12.5	0.3	- 70
<u>ILCO Lube 4860</u>	0.1	5.14 - 5.33 (100°C)	1	- 54
<u>ILCO Lube 4876</u>	0.1	105	80	- 30
<u>ILCO Lube 4879</u>	0.1	max. 25	-	- 62
<u>ILCO Lube 4899</u>	0.1	39 - 42	-	- 30

Complex-Esters

Typical Parameters:

	Acid value, max. [mgKOH/g]	Viscosity 40 °C [mm ² /s]	Iodine value, max. [gI ₂ /100g]	Pour Point, max. [°C]
<u>ILCO Lube 3955</u>	1	299 - 353	84 - 96	- 20
<u>ILCO Lube 4146</u>	0.5	41.4 - 50.6	1	- 40
<u>ILCO Lube 4348</u>	0.6	419 - 452	13	-



ILCO CHEMIKALIEN

Tri-Esters

Typical Parameters:

	Acid value, max. [mgKOH/g]	Viscosity 40 °C [mm ² /s]	Iodine value, max. [gI ₂ /100g]	Pour Point, max. [°C]
<u>ILCO Lube 2316</u>	1	76 - 83	76 - 88	-
<u>ILCO Lube 2334</u>	1	125 - 150	83 - 93	- 20
<u>ILCO Lube 2335</u>	2	63 - 78	71 - 92	- 20
<u>ILCO Lube 2336</u>	2	42 - 50	82 - 90	- 40
<u>ILCO Lube 2344</u>	1	37 - 39	85 - 96	-
<u>ILCO Lube 2399</u>	1	33 - 37	10	- 3
<u>ILCO Lube 3974</u>	1	42 - 50	82 - 90	- 40
<u>ILCO Lube 4608</u>	0.5	79 - 95	-	-
<u>ILCO Lube 4610</u>	0.5	115 - 148	-	-
<u>ILCO Lube 4613</u>	0.5	280 - 315	-	-
<u>ILCO Lube 4889</u>	0.2	17 - 21	1,5	- 40
<u>ILCO Lube 4897</u>	0.5	87 - 97	-	- 23
<u>ILCO Lube HFG 46</u>	-	44	-	- 45

Tetra-Esters

Typical Parameters:

	Acid value, max. [mgKOH/g]	Viscosity 40 °C [mm ² /s]	Iodine value, max. [gI ₂ /100g]	Pour Point, max. [°C]
<u>ILCO Lube 2354</u>	1	60 - 69	81 - 94	- 20
<u>ILCO Lube 4880</u>	0.3	27 - 33	1	- 4
<u>ILCO Lube 4896</u>	0.5	16 - 19 (100°C)	1	- 19

Oligomeres

Typical Parameters:

	Acid value, max. [mgKOH/g]	Viscosity 100 °C [mm ² /s]	Flash Point, min. [°C]	Pour Point, max. [°C]
<u>ILCO Lube 5000</u>	60 - 70	1400 - 3200 (40°C)	181 (typical value)	-
<u>ILCO Lube 7030</u>	2	30 - 38	227	- 30
<u>ILCO Lube 7050</u>	2	49 - 55	227	- 22
<u>ILCO Lube 7065</u>	2	55 - 68	227	- 15
<u>ILCO Lube 7280</u>	1	230 - 275	230	- 10
<u>ILCO Lube 7300</u>	2	275 - 305	230	- 10
<u>ILCO Lube 7700</u>	2	660 - 740	230	- 10



ILCO CHEMIKALIEN

Amines

ILCO MIN

Fatty amines are used on one hand as intermediate products for the production of corrosion protection agents on the other hand as corrosion protection - additive as such.

They are used likewise for the production of polyurea - greases.

ILCO MIN are, depending on the chain length, at ambient temperature liquid, solid or pasty and have a typical smell. They are insoluble in water, their derivatives (hydrochlorides, acetates, formates, ethoxilates > 5 EO) however soluble in water.

Technical Production:



Typical Parameters:

Other amines on request, please contact us directly.

	Primary Amine, min. [%]	Secondary Amine, max. [%]	Amine value, min. [mgKOH/g]	Water content, max. [%]	Iodine value, max. [gI ₂ /100g]
<u>ILCO MIN 8010 T</u> Tallowamine, hyd.	95	3	207	0.5	5
<u>ILCO MIN 8010 TD</u> Tallowamine, hyd., dest.	98	1	210	0.5	5
<u>ILCO MIN 8015 C</u> Cocoamine, tech.	94	4	270	0.5	12
<u>ILCO MIN 8015 CD</u> Cocoamine, dest.	98	1	280	0.5	12
<u>ILCO MIN 8020 SD</u> Stearylamine, tech.	95	4	202	0.5	5
<u>ILCO MIN 8020 SDF</u> Stearylamine, tech., dest.	98	2	204	0.3	3
<u>ILCO MIN 8040 T</u> Tallowamine, partly unsaturated	95	3	207	0.5	40
<u>ILCO MIN 8040 TD</u> Tallowamine, partly unsaturated, dest.	98	1	210	0.5	40
<u>ILCO MIN 8080 OD</u> Oleylamine, dest.	98	1	207	0.5	80
<u>ILCO MIN 8085 OD</u> Oleylamine, dest.	98	1	207	0.5	85

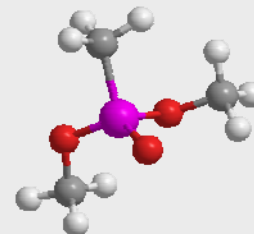


ILCO CHEMIKALIEN

Derivates of Phosphoric acid esters

ILCO PHOS

The broad spectrum of the esterification range from simple methanol (C1) up to longchain alcohols (18) or alcohol ethoxylates in different compositions. Phosphoric acid esters are used as antistatica, lubricant additives, emulsifiers, corrosion inhibitors and flame retardants.



With special customer's requests ask us please.

Mono-Esters

	Alcohol	P-Content [%]	pH-Value	Acid value [mgKOH/g]
<u>ILCO PHOS 100</u>	C1	25.9 - 28.1	~1.5	930 - 1030
<u>ILCO PHOS 101</u>	C16	-	7.0 - 7.5	K - neutralized
<u>ILCO PHOS 102</u>	C13/C15 POE 3	8.2 - 9.4	1 - 2	290 - 350

Mono-/Di-Esters

	Alcohol	P-Content [%]	pH-Value	Acid value[mgKOH/g]
<u>ILCO PHOS 200</u>	C2	22.0 - 23.2	~1.5	670 - 710
<u>ILCO PHOS 201</u>	i - C4	15.8 - 17.0	1 - 2	410 - 470
<u>ILCO PHOS 202</u>	n - C4	16.6 - 17.8	1 - 3	440 - 490
<u>ILCO PHOS 203</u>	2 EH	10.9 - 12.1	1 - 3	280 - 330
<u>ILCO PHOS 204</u>	C8/C10	11.6 - 12.8	<3	270 - 330
<u>ILCO PHOS 205</u>	C12	8.0 - 9.2	1 - 3	210 - 250
<u>ILCO PHOS 206</u>	C16/C18	6.7 - 7.9	1 - 3	180 - 220
<u>ILCO PHOS 207</u>	C18	6.3 - 7.5	1 - 3	185 - 215
<u>ILCO PHOS 208</u>	Oleyl	6.1 - 7.3	0 - 4	170 - 190
<u>ILCO PHOS 209</u>	C10 POE 4	4.2 - 5.4	1 - 3	125 - 145
<u>ILCO PHOS 210</u>	C12 POE 4	4.2 - 5.4	2 - 3	125 - 155
<u>ILCO PHOS 211</u>	i - C13 POE 6	3.6 - 4.8	1.5 - 3.5	100 - 140
<u>ILCO PHOS 212</u>	i - C13 POE 8	3.2 - 3.8	2 - 3	95 - 115
<u>ILCO PHOS 213</u>	C13/C15 POE 7	3.2 - 4.0	0 - 3	62 - 70 (pH 5.2)
<u>ILCO PHOS 214</u>	C16/C18 POE 11	1.8 - 3.0	1 - 3	66 - 76
<u>ILCO PHOS 215</u>	Oleyl /POE 5	3.6 - 4.2	1.5 - 3.5	100 - 125
<u>ILCO PHOS 216</u>	NP POE 9	3.3 - 4.5	2 - 2.5	110 - 130

Tri-Esters

	Alcohol	P-Content [%]	pH-Value	Acid value [mg KOH/g]
<u>ILCO PHOS 300</u>	C12/C14 POE 4	-	6.5 - 7.5	Na - neutralized
<u>ILCO Phos 302</u>	2 EH	~ 8	6,5 - 7,5	< 0.1



ILCO CHEMIKALIEN

Surfactants

ILCO COS

Glutamates and Sarcosinates are used in Cosmetics as mild surfactants.

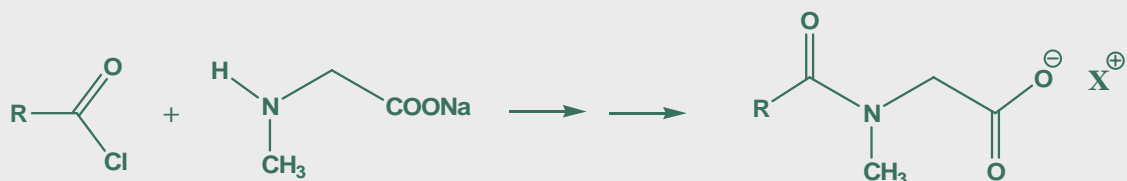
Sarcosinates are available also as free acids. In Cosmetics the main fields of applications are: skin -, hair - and mouth care products, as well as in the soap production. Further areas of application are in sun protective agents and creams.

Further applications are household and I&I products.

Within the industrial application they are used in metalworking fluids and textile finishing.

Syntheses:

R = Lauryl, Cocoyl C₈-C₁₈, Myristyl, Stearyl, Oleyl, etc.
X = H (Sarcosin acid); Na, K, TEA etc. (Sarcosinate-Salt)



Fatty Acid Chloride Sarcosinate, Na-Salt

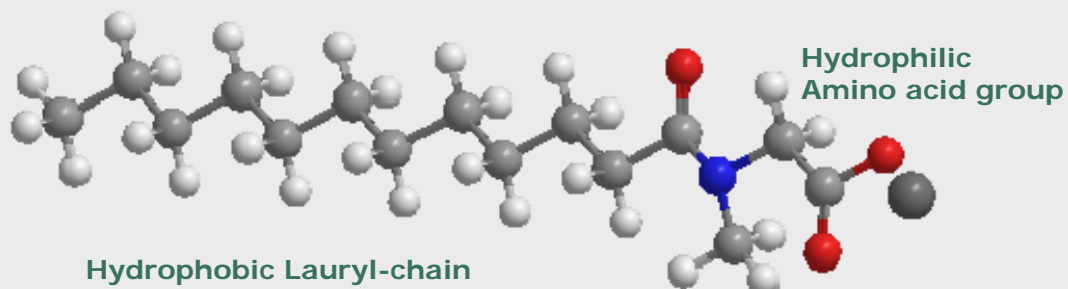
Na-Salt of Aminoacid
N-Methyl Glycine

N-Acyl Sarcosine
N-Acyl Sarcosinate

Glutamate

Typical Parameters:

	Active agent [%]	pH-Value, 10% solvens	Sodiumsoap, max. [%]	Colour Hazen
<u>ILCO COS 704</u> Sodium N-Cocoyl L-Glutamate	22.5 - 24.0	7.4 - 9.6	2.5	< 100
<u>ILCO COS 705</u> Disodium-N-Cocoyl L-Glutamate	32.6 - 38.0	9.5 - 10.5	2.5	< 100
<u>ILCO COS 706</u> Sodium N-Lauroyl L-Glutamate	22.5 - 24.0	7.4 - 9.6	2.5	< 100





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Sarcosinate Salts

Typical Parameters:

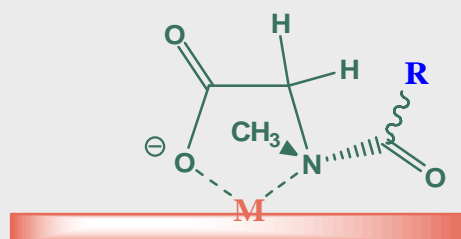
	Active agent [%]	pH-Value	Colour, max.
<u>ILCO COS 501</u> Sodium Lauroyl Sarcosinate	28 - 32	7.9 - 9.4 (10% sol.)	60 APHA
<u>ILCO COS 502</u> Sodium Cocoyl Sarcosinate	28 - 32	7.9 - 9.4 (10% sol.)	200 APHA
<u>ILCO COS 503</u> Sodium Myristoyl Sarcosinate	29 - 31	7.9 - 9.4 (10% sol.)	200 APHA
<u>ILCO COS 506</u> Lauroyl Sarcosinate, Ammonia salt	29 - 32	7.4 - 8.6 (10% sol.)	200 APHA
<u>ILCO COS ON 60</u> Sodium Oleoyl Sarcosinate	57 - 63	7.0 - 9.0 (1% sol.)	-
<u>ILCO COS SCG 35</u> Disodium Cocoyl Glutamate	32.5 - 38.1	9.5 - 10.5	-
<u>ILCO COS SCG 50</u> Disodium Cocoyl Glutamate	48.9 - 51.1	9.5 - 10.5	-

Sarcosine Acids

Typical Parameters:

	Active agent, min. [%]	Acid value [mgKOH/g]	Colour Gardner max.
<u>ILCO COS 601</u> Lauroyl Sarcosine	94	189 - 221	2
<u>ILCO COS 602</u> Cocoyl Sarcosine	94	179 - 211	4
<u>ILCO COS 603</u> Oleoyl Sarcosine	90	152 - 164	8
<u>ILCO COS M</u> Myristoyl Sarcosine	94	169 - 200	4 (60°C)
<u>ILCO COS MS</u> Myristoyl-/stearoylsarcosine	90	159 - 176	5
<u>ILCO COS SCV</u> Stearoylsarcosine	90	154 - 171	5

Effect of a corrosion inhibitor



- Strong adsorption due to the coordination of the five member ring
- Chain of the Fatty acid is almost upright to the metall surface



ILCO CHEMIKALIEN

Since its foundation in 1991 ILCO Chemikalien GmbH consequently works according the following goals:

- ◆ consultancy in applicational & legal questions
- ◆ highly competitive prices
- ◆ shortest delivery times of the products
- ◆ strict cost control in all areas
- ◆ own warehouse for all packed goods
- ◆ steadily improving the product portfolio

ILCO has an own product development to improve the existing products used as synthetic base fluids and additives.

We do this - but not only - to be in accordance with the expectations of our customers and legal requirements or be in front of both.



Storage

- Distribution from own storehouse
- Storage capacities up to 200 t in drums or IBC
- Supply ex-stock in max. 5 working days starting from order confirmation
- Polymer ester from own production in bulk or packed available



Consultation: Amendement to the legislation

- | | |
|---------|------------------------|
| • PBT | • WGK |
| • TRGS | • European legislation |
| • REACH | |



Consultation: Product development

- | | |
|-----------------------------------|--------------------------------------------------|
| • Selction of base oil | • Trends of Requirement |
| • Additives | • Shortage of raw material & chemical substitute |
| • Ecological/Enviromental Aspects | |



Application Area

- | | |
|------------------|-----------------------|
| • Metal Working | • Grease |
| • Industrial Oil | • Textile auxillaries |
| • Bio Hydraulic | • Cosmetic |

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