Lubricants and Metalworking Fluid Additives

Vantage

Ingredients for Metalworking Fluids and Industrial Lubricants

Vantage Performance Materials is a Midwest manufacturer of high-quality, naturally-derived specialty chemicals. Utilizing our core strengths in esterification and alkoxylation technology, we service a broad range of industrial applications with base stocks, surfactants, emulsifiers, performance additives, and other specialty blends. Vantage is also proud to offer custom product development & toll manufacturing options for intermediate and finished products.

Our extensive list of offerings assist in the formulation of the following lubricant applications:

- Food-grade Lubricants
- Marine Lubricants
- Compressor/Refrigeration Fluids
- Textile Lubricants
- Metalworking Fluids
- Metal Cleaning Fluids
- Drawing and Cutting Fluids
- Wire Drawing Fluids
- Gear Oils
- Fire Resistant Hydraulic Fluids
- Mold Releases

Vantage's multi-functional manufacturing facility, complete with state-of-the-art process and lab equipment, has many widely recognized quality certifications including: ISO 9001, FSSC 22000, Kosher and Kosher for Passover (OU), Halal, USP/NF, and cGMP for food grade certified production.

Vantage customizes our services to maximize each and every customer experience. This is achieved by our dedicated customer service staff, attentive and knowledgeable sales and technical teams, our focused market approach, flexible manufacturing capabilities, and our timely delivery of our products. Every day we work to build trust and create value for our customers.

Lubricating Base Stocks

Vantage supplies a range of Group IV & V base stocks providing enhanced performance to your lubricant formulation. Our primary focus is on bio-based and synthetic fluids offered in a range of viscosities that will provide superior friction control, thermal stability, and wear protection for your lubricant.

Bio-based Base Stocks

Vegetable oils are environmentally-friendly alternatives to mineral oils and synthetic base fluids. Derived from renewable resources, they are non-toxic, non-irritating, and low allergen. They provide superior lubrication and less misting in comparison to mineral oils and possess a more stable viscosity across a wide range of temperatures for improved tool life, better efficiency, and cleaner working environments.

Product Name	Chemical Description	Moisture, %	Iodine Value, cg Iodine/gram	Density	Food Grade
OLEOCAL™ C-102	Canola oil, RBD	0.15 max	105—126	0.92	✓
OLEOCAL™ C-104	High oleic canola oil, RB	0.3 max	85—105	0.92	✓
OLEOCAL™ IVO-114 K	Soybean oil	0.15 max	125—140	0.92	✓
ERUCICAL™ H-102	High erucic acid rapeseed (HEAR) oil	0.15 max	≈105	0.92	
OLEOCAL™ ME-70 V	Methyl oleate	0.1 max	55—75	0.88	
OLEOCAL™ ME-112	Methyl canolate	0.1 max	125—135	0.88	
OLEOCAL™ ME-130	Methyl soyate	0.1 max	105—126	0.88	

Synthetic Base Stocks

Synthetic base stocks are high performance lubricant base oils that are ideal for very high temperature, extreme environment, and long-lifecycle applications. They offer consistent quality and reduced impurities. This leads to improved film strength, better viscosity indices, and lower deposits on lubricating surfaces.

Polyalkylene Glycols, Polypropylene Glycols, and Polyol Esters

Solubility	Chemical Description	Product Name	Molecular Weight	Viscosity, 40°C (104°F), cst	Food Grade
Water-insoluble	Polyalkylene glycol (PAG)	POLYCAL™ PGI-135	640	23	
		POLYCAL™ PGI-165	900	32	
		POLYCAL™ PGI-285	1300	57	
		POLYCAL™ PGI-600 D	2300	112	✓
		POLYCAL™ PGI-625	2700	124	✓
		POLYCAL™ PGI-700 D	2000	152	✓
Water-soluble	Polyalkylene glycol (PAG)	POLYCAL™ PGS-260	970	53	
		POLYCAL™ PGS-660	1590	140	✓
		POLYCAL™ PGS-5100	3930	1100	
Oil-soluble	Polypropylene glycol (PPG)	LUMULSE™ P-1000	1000	67	✓
		LUMULSE™ P-1200	1200	91	✓
		LUMULSE™ P-2000	2000	148	✓
		LUMULSE™ P-3000	3000	280	✓
		LUMULSE™ P-4000	4000	800	✓
	Trimethylolpropane esters (TMP)	POLYCAL™ TMP 18-1	892	46	
		POLYCAL™ TMP 18-9	1176	68	
		POLYCAL™ TMP 1203	640	32	
	Proprietary ester blend	POLYCAL™ 1265	486	10.5	✓

Nonionic Surfactants

Vantage offers a variety of surfactant families, each with wide HLB ranges and various cloud points. Our core product chemistries include EO/PO block copolymers, alcohol and glycerine ethoxylates, castor oil ethoxylates, glycerol esters, PEGs, PEG esters, polysorbates, and sorbitan esters.

EO/PO Block Copolymers

A family of non-ionic surfactants with various arrangement of EO and PO to create numerous water and oil solubilities. Ideal additives for soluble oil, semi-synthetic metalworking fluids, and metal cleaners. In addition to the primary function as an emulsifier these additives also provide lubricity, defoaming, and rinse aid benefits.

Product Name	Chemical Name	Cloud Point, 10% aq, °C	HLB	Solubility
LUMULSE™ 2017-R	Meroxapal 172	33—38	4.1	Water soluble
LUMULSE™ 4017-R	Meroxapal 174	44—48	6.7	
LUMULSE™ 2025-R	Meroxapal 252	27—32	3.5	
LUMULSE™ 1064-L	Poloxamer 184	58—62	15	
LUMULSE™ 1061-L	Poloxamer 181	15—19	3.0	Oil soluble
LUMULSE™ 1062-L	Poloxamer 182	22—26	7.0	
LUMULSE™ 1081-L	Poloxamer 407	14—18	2.0	
LUMULSE™ 10101-L	Poloxamer 331	13—17	1.0	

Ethoxylated Alcohols and Ethoxylated Glycerine

Ethoxylated alcohols work synergistically with glycerol esters to create stable emulsions and function as good dispersants, solubilizers, and wetting agents for metal cleaners. They are also an environmentally-friendly alternative to nonylphenol ethoxylates (NPEs). Ethoxylated glycerine products function as good wetting agents and dispersants for metalworking fluids.

Product Name	Chemical Description	HLB	Solubility
LUMULSE™ L-4	Laureth-4	9.5	Water Dispersible
LUMULSE™ L-7	Laureth-7	12.6	
LUMULSE™ L-12	Laureth-12	14.5	Water Soluble
LUMULSE™ L-23	Laureth-23	16.7	
LUMULSE™ POE (7) Glycerine	Glycereth-7	15.4	
LUMULSE™ POE (12) Glycerine	Glycereth-12	17.0	
LUMULSE™ POE (26) Glycerine	Glycereth-26	18.4	

Polyethylene Glycols (PEGs)

Polyethylene Glycols are used in a wide range of lubricant applications due to their low volatility, solubility in water, and natural lubricity. They are non-staining to metal parts, textiles, and clothing and can be burned away leaving minimal residue.

Product Name	Chemical Description	Appearance	HLB	Viscosity 99°C, cst
LUMULSE™ PEG 200	Polyethylene glycol 200	Clear Liquid	20	4.4
LUMULSE™ PEG 300	Polyethylene glycol 300	Clear Liquid	20	5.8
LUMULSE™ PEG 400	Polyethylene glycol 400	Clear Liquid	20	7.4
LUMULSE™ PEG 600	Polyethylene glycol 600	Clear Liquid	20	10.8
LUMULSE™ PEG 1450	Polyethylene glycol 1450	White Flake	20	25—32
LUMULSE™ PEG 3350	Polyethylene glycol 3350	White Flake	20	76—110
LUMULSE™ PEG 8000	Polyethylene glycol 8000	White Flake	20	470—900
LUMULSE™ MPEG 350	Polyethylene glycol 350 methyl ether	Clear Liquid	19.3	3.5—4.5
LUMULSE™ MPEG 550	Polyethylene glycol 550 methyl ether	Clear Liquid	19.5	6.1—7.3

Polyethylene Glycol (PEG) Esters and Glycerol Esters

Secondary emulsifiers with good wetting, non-staining, and low foaming characteristics. Work synergistically with castor oil ethoxylates to solubilize additives and aid in emulsion stability. Ideal for aluminum metalworking applications.

Product Name	Chemical Description	Appearance	HLB	SAP Value, mg OH/gram	Food Grade
LUMULSE™ GML	Glycerol Monolaurate	Yellow Solid	5.2	190—210	✓
LUMULSE™ GMO	Glycerol Monooleate	Clear Amber Liquid	2.8	160—170	✓
LUMULSE™ GMT	Glycerol Monotallate	Clear Liquid	2.8	160—171	
LUMULSE™ GMT-40	Glycerol Monotallate	Clear Amber Liquid	3.6	145 – 155	
LUMULSE™ GMR	Glycerol Monoricinoleate	Liquid	4.0	151 – 171	
LUMULSE™ 22-O	PEG 200 Dioleate	Clear Amber Liquid	6.0	145 – 160	
LUMULSE™ 40-L	PEG 400 Monolaurate	Clear Yellow Liquid	12.8	80—95	
LUMULSE™ 40-O	PEG 400 Monooleate	Clear Amber Liquid	11.8	80—90	✓
LUMULSE™ 42-O	PEG 400 Dioleate	Clear Amber Liquid	8.5	130—140	✓
LUMULSE™ 42-L	PEG 400 Dilaurate	Liquid	9.7	130—140	
LUMULSE™ 62-O	PEG 600 Dioleate	Amber Liquid	10.3	92—99	✓
LUMULSE™ 602-S	PEG 6000 Dioleate	White Flake	18.4	14—20	
LUMULSE™ POE (20) GMO	PEG-20 Glyceryl Oleate	Clear Liquid	13.5	65 – 75	
LUMULSE™ POE (20) GMS	PEG-20 Glyceryl Stearate	White Flake	13.5	65—75	✓
LUMULSE™ POE (40) MS	PEG-40 Stearate	White Flake	17.2	25—35	✓

Castor Oil Ethoxylates

Castor oil ethoxylates are robust co-emulsifiers that aid in the incorporation of the oil phase into high water systems. They provide additional lubricity and corrosion protection and are compatible with both esters and mineral oil base fluids.

Product Name	Chemical Description	HLB	Solubility, 5% aqueous	SAP Value, mg KOH/gm	Pour Point, °C
LUMULSE™ CO-5	POE (5) Castor Oil	4.0	Insoluble	138—153	-20
LUMULSE™ CO-25	POE (25) Castor Oil	10.8	Dispersible	75—88	5
LUMULSE™ CO-30	POE (30) Castor Oil	11.0	Dispersible	65—78	8
LUMULSE™ CO-40	POE (40) Castor Oil	13.0	Dispersible	58—64	14
LUMULSE™ HCO-16T	POE (16) Hydrogenated Castor Oil	9.9	Dispersible	95—105	7
LUMULSE™ HCO-25	POE (25) Hydrogenated Castor Oil	10.8	Dispersible	77—87	5
LUMULSE™ HCO-40	POE (40) Hydrogenated Castor Oil	14	Dispersible	60—67	17

Sorbitan Esters and Polysorbates

Sorbitan esters and polysorbates are food-grade, water-soluble, primary emulsifiers. They provide excellent wetting and defoaming properties with the added benefit of anti-microbial protection. With complementary HLBs, polysorbates work well in combination with sorbitan esters to create robust emulsions. These products are ideal for metalworking and fire-resistant hydraulic fluids.

Product Name	Chemical Description	HLB	SAP Value mg KOH/gm	Hydroxyl Value, mg KOH/gm	Food Grade
LUMISORB™ SML	Sorbitan Monolaurate	8.6	158—170	330—358	✓
LUMISORB™ SMO	Sorbitan Monooleate	4.7	149—160	193—209	✓
LUMISORB™ SMO T	Sorbitan Monotallate	4.3	138—158	190—220	
LUMISORB™ STO MO	Sorbitan Trioleate	1.8	160—180	66—82	✓
LUMISORB™ SMS	Sorbitan Monostearate	4.7	147—157	235—260	✓
LUMISORB™ STS	Sorbitan Tristearate	2.1	176—188	66—80	✓
LUMISORB™ PSML-20	Polysorbate 20	16.7	40—50	96—108	✓
LUMISORB™ PSMS-20	Polysorbate 60	14.9	45—55	81—96	✓
LUMISORB™ PSMS-4	Polysorbate 61	9.5	95 – 115	165 – 195	
LUMISORB™ PSTS-20	Polysorbate 65	10.5	88—98	44—60	✓
LUMISORB™ PSMO-20	Polysorbate 80	15.0	45—55	65—80	✓
LUMISORB™ PSMO-5	Polysorbate 81	10.0	96—104	134—150	✓
LUMISORB™ PSTO-20 MO	Polysorbate 85	11.0	85—95	40—54	

Specialty Alkoxylates

Vantage EST products provide proprietary chemistries that offer unique functionality and benefits. These products have been developed to provide solutions for specialized formulation problems and deliver superior performance.

Product Name	Chemical Description	Function
LUMULSE™ EST-300	HEAR Oil Alkoxylate	High HLB emulsifier with excellent lubricity properties
LUMULSE™ EST-430	MPEG Monolaurate	Thermally stable, secondary emulsifier, good wetting properties
LUMULSE™ EST-500 LF	Proprietary Alkoxylate	Multifunctional low foaming emulsifier and wetting agent
LUMULSE™ EST-520 LM	Lauryl Alcohol Alkoxylate	Low foam surfactant & wetting agent; great for metal cleaning
LUMULSE™ EST-610	EO/PO block copolymer ester	Low foam surfactant
LUMULSE™ EST-740	Tridecyl Alcohol Alkoxylate	Excellent wetting, detergency, and emulsification properties

Specialty Additives

Vantage provides specialty ingredients that provide specific functionality for lubricants and metalworking formulations.

Product Name	Chemical Description	Function
LAMCHEM™ PE-108 K	Phosphated Mono/Diglycerides	Active ingredient in food release applications, provide emulsification and EP functionality; high-temperature stability, lecithin replacement
LAMCHEM™ PE-130 K	Phosphated Mono/Diglycerides	
LUBEADD™ 1307	Amine Phosphate	Multifunctional antiwear and friction modifier
ERUCICAL™ H-107	HEAR Fatty Acid	Emulsifier and lubricity additive
HODAG™ MR-216 K	Proprietary Nonionic Surfactant	Release agent
Jojoba Oil	Long chain fatty acid/alcohol mono-esters	Natural lubricity additive and base fluid

Vantage Specialties, Inc.
3938 Porett Drive, Gurnee, IL 60031 USA
T 847-244-3410 or 800-432-7187
contact@vantagegrp.com
www.vantagegrp.com