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## PRODUCT LIST FOR LUBRICANTS

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3-S Group



### Company Profile

3-S Mühendislik is a lubricant/oleochemical manufacturing company that was established back in 1993 in Turkey. At the very beginning, 3-S started production of Lubricants in cooperation with Quaker Houghton. In the course of time, this lubricant business has evolved into producing new generation oleochemicals (i.e. Esters) under the trademark TRIEST with its own proprietary know-how.

Now, 3-S supplies numerous types of Esters (Fatty Acid, Fatty Acid Complex, Trimellitate, Polyol, Phosphate, Oxo Alcohol etc.) for various industries (Lubricants, Cosmetics, Coatings, Inks, Textile Chemicals, etc.) through its four premises: Turkey Factory, Turkey HQ, Uganda Factory and Netherlands Office.

### Sustainable, Eco-friendly, Tailor-Made

3-S achieves sustainable supply by using renewable, bio-based and environmentally friendly raw materials from globally-known suppliers.

Agile and highly capable R&D, Supply Chain and Production Teams facilitate continuous learning within the organization and thereby quick adoption of innovative technologies. This makes 3-S a valuable partner for tailor-made solutions.

### Quality Driven Culture

3-S has a quality driven business culture, which always prioritize first time through performance. This approach has been excelled through its 30-year corporate life, partnership with global organizations such as Quaker Houghton, Savita Oil Technologies, Chem-Trend and a customer base comprising many Turkey Fortune 500 companies

SALES OFFICE  
**NETHERLANDS**

FACTORY  
**TURKEY**

YOUR INTERNATIONAL  
BUSINESS PARTNER

FACTORY  
**UGANDA**



		CHEMICAL AND PHYSICAL PROPERTIES											MAIN APPLICATION										FEATURES AND BENEFITS	
PRODUCT NAME	DESCRIPTION	Colour Gardner	Viscosity (40°C) mm²/s	Viscosity (100°C) mm²/s	Viscosity Index	Density (kg/m³)	Acid Value (mg KOH/g)	Flash Point °C	Pour Point °C	Saponification Number (mg KOH/g)	Iodine Value (gI₂/100g)	Saturated	Engine Oil	Metalworking Fluid	Grease	Gear Oil	Chain Oil	Compressor Oil	Turbine Oil	Hydraulic Fluid	Rolling Oil			
TRIEST MRS-0411	Methyl Oleate	≤ 2	3-5	1-1,9	-	870-890	≤ 0,5	≥170	≤ -18	190-210	100-130		☉	☉							☉	Derived from vegetable oils. Excellent solvency properties. Readily biodegradable. Low toxicity.		
TRIEST MCC-0111	Methyl Caprylate Caprate	≤ 1	1-3	-	-	870-890	≤ 0,5	≥80	≤ -30	310-340	<1	☉	☉	☉							☉	Bio-based. Low viscosity. Excellent solvency. Low toxicity.		
TRIEST IPO-0511	Isopropyl Oleate	≤ 2	3-5	1-1,9	-	860-880	≤ 0,5	≥170	≤ -18	175-185	100-130		☉	☉	☉						☉	Base oil and additive. Hydrolytically stable. Medium oxidative stability. Good lubricity.		
TRIEST ITS-1611	Isotridecyl Stearate	≤ 1	16-18	4-5	160	860-870	≤ 1	≥220	≤ 5	130-150	<2	☉	☉	☉	☉		☉		☉		☉	Lubricity additive. Good metal adhesion properties.		
TRIEST EHO-0821	2-Ethylhexyl Oleate	≤ 5	7-9	2-3	235	850-870	≤ 1	≥210	≤ -30	140-160	60-75		☉	☉	☉					☉		Base oil and additive. Biodegradable . Good lubrication and emulsion properties. Hydrolytically stable. Also low temperature plasticizer for PVC.		
TRIEST EHP-0811	2-Ethylhexyl Palmitate	≤ 0,5	8-9	2-3	170	850-870	≤ 1	≥210	≤ -3	150-170	<2	☉	☉	☉							☉	Base oil and additive. Biodegradable . Good lubrication and emulsion properties. Hydrolytically stable.		
TRIEST EHS-0911	2-Ethylhexyl Stearate	≤ 0,5	9-10	2-3	170	850-870	≤ 1	≥210	≤ 5	140-160	<2	☉		☉							☉	Base oil and additive. Biodegradable. Good lubrication. Low volatility. Provides clean burn and reduces staining at rolling operations.		
TRIEST EHC-0611	2-Ethylhexyl Cocoate	≤ 2	5-6	1-1,9	-	840-870	≤ 1	≥175	≤ -30	180-200	<5	☉		☉	☉					☉		Base oil and additive. Biodegradable. Good lubrication and emulsion properties. Hydrolytically stable.		
TRIEST EHL-0511	2-Ethylhexyl Laurate	≤ 0,5	5-6	1-1,9	-	850-880	≤ 1	≥180	≤ -30	180-200	<2	☉		☉	☉						☉	Base oil and additive. Biodegradable. Good lubrication and emulsion properties. Hydrolytically stable. Enhances product stability and performance.		
TRIEST EHD-0911	2-Ethylhexyl Dimerate	≤ 10	85-100	12-14	140	900-930	≤ 0,5	≥285	≤ -35	135-155	85-105	☉		☉	☉							Base oil and additive. Biodegradable. Good lubrication.High thermal and oxidative stability. Excellent blending and miscibility behavior.		
TRIEST GMO-4011	Glyceryl Monooleate	≤ 4	60-66	8-10	120	930-950	≤ 3	≥230	≤ 10	170-190	60-85			☉	☉							Base oil and additive. Readily biodegradable. Very low toxicity. Good lubrication properties. Low volatility. Co-emulsifier for O-W and W-O emulsions.		
TRIEST GTO-0411	Glyceryl Trioleate	≤ 6	37-43	7-9	195	910-930	≤ 6	≥290	≤ 0	185-205	80-95			☉	☉									
TRIEST GML-2111	Glyceryl Monolaurate	-	-	-	-	-	≤ 1	-	-	190-210	<2	☉		☉	☉									
TRIEST PGMO-4021	PEG 400 Monooleate	≤ 10	40-45	8-9	185	1000-1050	≤ 3	≥260	≤ 5	85-100	30-50			☉								Nonionic surfactant. A good general purpose emulsifier. Readily biodegradable. Low toxicity.		
TRIEST PGDO-4021	PEG 400 Dioleate	≤ 10	37-43	8-10	235	900-1100	≤ 3	≥260	≤ 5	100-120	40-60			☉										
TRIEST PGMS-4011	PEG 400 Monostearate	-	-	-	-	-	≤ 1	-	-	80-100	<2	☉		☉										
TRIEST PGC-4011	PEG 400 Cocoate	≤ 3	33-38	6-8	145	1000-1050	≤ 2	≥260	≤ 8	80-100	<5	☉		☉								Nonionic surfactant. A good general purpose emulsifier. Readily biodegradable. Low toxicity.		
TRIEST PGMO-6021	PEG 600 Monooleate	≤ 10	58-61	11-13	190	1000-1100	≤ 3	≥270	≤ 15	60-70	20-40			☉										
TRIEST PGDO-6021	PEG 600 Dioleate	≤ 10	50-60	10-13	210	900-1050	≤ 3	≥260	≤ 15	90-110	40-60			☉										
TRIEST SMO-1711	Sorbitan Monooleate	≤ 10	220-380	19-23	85	980-1000	≤ 8	≥240	≤ -10	145-160	70-85			☉	☉							☉	Non-ionic emulsifier and lubrication additive. 100% bio-based. Oil soluble, water dispersible. Can be used both in O-W and W-O emulsions. Can be used as dispersing and wetting agent. SMO-1711 also has corrosion inhibitor properties.	
TRIEST SMS-1511	Sorbitan Monostearate	-	-	-	-	-	≤ 8	-	-	160-190	<5	☉		☉	☉									
TRIEST SML-1711	Sorbitan Monolaurate	≤ 3	-	-	-	1000-1050	≤ 8	≥240	≤ 20	170-190	<2	☉		☉	☉									
TRIEST TMTO-0422	Trimethylolpropane Trioleate	≤ 8	42-50	9-10	190	910-930	≤ 1	≥300	≤ -50	180-220	70-85		☉	☉	☉		☉			☉		Base oil and additive. Highly bio-based. Hydrolytically stable. Excellent lubricity. High VI. Low pour point. Good demulsification. Ideal for HFDU fluids.		
TRIEST TMC-0411	Trimethylolpropane Cocoate	≤ 3	34-40	7-8	160	900-920	≤ 1	≥260	≤ -5	220-250	<10	☉				☉	☉	☉	☉	☉				
TRIEST TMCC-0211	Trimethylolpropane Caprylate Caprate	≤ 1	17-21	4-5	140	930-950	≤ 1	≥250	≤ -50	300-330	<2	☉	☉			☉	☉	☉	☉	☉				
TRIEST PEO-0611	Pentaerythritol Oleate	≤ 4	60-70	10-12	170	900-920	≤ 1	≥300	≤ -25	180-200	75-95			☉	☉			☉	☉	☉				
TRIEST NGDO-0211	Neopentyl Glycol Dioleate	≤ 2	22-26	5-7	195	890-910	≤ 3	≥270	≤ -30	180-200	75-95			☉		☉			☉	☉	☉			
TRIEST PECC-0311	Pentaerythritol Caprylate Caprate	≤ 3	27-33	5-7	140	950-970	≤ 1	≥270	≤ -10	380-410	<2	☉		☉		☉	☉	☉						
TRIEST NGCC-0811	Neopentyl Glycol DiCaprylate Caprate	≤ 2	7-9	2-3	135	900-930	≤ 1	≥200	≤ -30	295-315	<2	☉	☉	☉		☉	☉	☉		☉				
TRIEST TMTO-0612	Trimethylolpropane Trioleate	≤ 4	62-72	11-13	180	920-940	≤ 1	≥300	≤ -50	200-220	70-85		☉	☉	☉			☉		☉		Base oil and additive. Highly bio-based. Hydrolytically stable. Excellent lubricity. High VI. Low pour point. Good demulsification. Ideal for HFDU fluids.		
TRIEST TMTO-1511	Trimethylolpropane Trioleate	≤ 4	120-180	25-28	170	930-950	≤ 1	≥300	≤ -40	180-200	70-85		☉	☉	☉					☉				
TRIEST TMTO-1011 K	Trimethylolpropane Trioleate	≤ 4	900-1100	120-130	220	975-995	≤ 1	≥280	≤ -35	280-320	70-85		☉		☉	☉		☉	☉	☉				
TRIEST TMCC-4011	Trimethylolpropane Caprylate Caprate	≤ 3	380-450	39-45	160	980-1080	≤ 1	≥270	≤ -35	390-430	<2	☉	☉			☉	☉	☉	☉	☉				
TRIEST CTMO-2511	Trimellitic Complex Ester	≤ 5	225-275	30-34	170	960-980	≤ 1	≥300	≤ -35	220-240	70-85		☉			☉		☉	☉	☉				
TRIEST CTMO-2511 K	Trimellitic Complex Ester	≤ 6	2250-2750	200-240	170	970-990	≤ 1	≥300	≤ -15	240-260	70-85		☉		☉					☉				
TRIEST CMCT-0811	C8-10 Succinic Triglyceride	≤ 2	76-84	10-11	120	1000-1100	≤ 2	≥250	≤ -35	400-450	<2	☉			☉						☉			
TRIEST TTM-0811	Trimellitate Ester	≤ 1	80-88	8-10	80	970-990	≤ 1	≥240	≤ -45	310-340	<2				☉		☉					Excellent thermal and oxidative stability. Excellent high temperature performance. Low volatility. Low deposit/sludge/varnish formation.		
TRIEST TTM-1211	Trimellitate Ester	≤ 1	100-120	10-12	85	950-970	≤ 1	≥250	≤ -55	270-300	<2		☉		☉		☉		☉					
TRIEST TTM-3211	Trimellitate Ester	≤ 1	310-350	19-23	70	950-960	≤ 1	≥250	≤ -45	220-250	<2		☉		☉		☉		☉					
TRIEST DPHA-1211	Diester	≤ 1	11-13	2-3	110	910-930	≤ 1	≥190	≤ -70	250-270	<2	☉	☉		☉	☉		☉	☉			Excellent thermal and oxidative stability. Very good hydrolytic stability and best in class low temperature properties.		
TRIEST DTDA-2611	Diester	≤ 1	26-28	4,5-5,5	110	900-920	≤ 1	≥210	≤ -55	200-230	<2	☉	☉		☉	☉		☉						
TRIEST DPHP-3911	Diester	≤ 1	36-40	4-6	40	950-970																		