

NEW GENERATION ESTERS



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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.

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TURKEY

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UGANDA



		Chemical and Physical Properties											Main Application								Features and Benefits		
Product Name	Description	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 (g/100g)	Saturated	Engine Oil	Metalworking Fluid	Grease	Gear Oil	Chain Oil	Compressor Oil	Turbine Oil	Hydraulic Fluid	Rolling Oil			
Mono Esters	TRiest MRS-0411	Methyl Oleate	3-5	1-1.9	-	870-890	≤ 0.5	≥100	≤ -10	190-210	80-95	●	●							●	Derived from vegetable oils. Excellent solvency properties. Readily biodegradable. Low toxicity.		
	TRiest MCC-0111	Methyl Caprylate Caprate	1-3	-	-	870-890	≤ 1	≥80	≤ -20	310-340	<1	●	●							●	Bio-based. Low viscosity. Excellent solvency. Low toxicity.		
	TRiest IPO-0511	Isopropyl Oleate	3-5	1-1.9	-	860-880	≤ 0.5	≥170	≤ -10	175-185	80-95	●	●	●						●	Base oil and additive. Hydrolytically stable. Medium oxidative stability. Good lubricity.		
	TRiest ITS-1611	Isotridecyl Stearate	16-18	4-5	160	860-880	≤ 1	≥220	≤ 5	130-150	<2	●	●	●		●		●		●	Lubricity additive. Good metal adhesion properties.		
2-Ethylhexyl Esters	TRiest EHO-0811	2-Ethylhexyl Oleate	7-9	2-3	235	850-870	≤ 0.5	≥210	≤ -30	140-160	63-71		●	●	●				●		Base oil and additive. Biodegradable. Good lubrication and emulsion properties. Hydrolytically stable. Also low temperature plasticizer for PVC.		
	TRiest EHP-0811	2-Ethylhexyl Palmitate	8-9	2-3	170	850-870	≤ 0.5	≥200	≤ -10	150-170	<1	●	●							●	Base oil and additive. Biodegradable. Good lubrication and emulsion properties. Hydrolytically stable.		
	TRiest EHS-0911	2-Ethylhexyl Stearate	9-10	2-3	170	850-870	≤ 0.5	≥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	5-6	1-1.9	-	850-870	≤ 0.5	≥180	≤ -30	180-200	<5	●	●	●					●		●	Base oil and additive. Biodegradable. Good lubrication and emulsion properties. Hydrolytically stable.	
	TRiest EHL-0511	2-Ethylhexyl Laurate	5-6	1-1.9	-	850-870	≤ 0.5	≥180	≤ -30	180-200	<2	●	●	●							●	Base oil and additive. Biodegradable. Good lubrication and emulsion properties. Hydrolytically stable. Enhances product stability and performance.	
Glycerol Esters	TRiest GMO-4011	Glycerol Monooleate	60-65	8-10	120	930-950	≤ 3	≥250	≤ 5	170-190	60-75			●	●							Base oil and additive. Readily biodegradable. Very low toxicity. Good lubrication properties. Low volatility. Co-emulsifier for O-W and W-O emulsions.	
	TRiest GDO-0411	Glycerol Dioleate	38-42	7-9	175	185-205	≤ 1	≥250	≤ -5	185-205	75-85			●	●								
	TRiest GTO-0411	Glycerol Trioleate	37-41	7-9	195	900-920	≤ 1	≥250	≤ -10	185-205	80-95			●	●								
	TRiest GMS-9011	Glycerol Monostearate	-	-	-	-	≤ 3	-	-	155-175	<5	●	●	●									Emulsifier. Soluble in both oil and water. Compatible with anionic/cationic/non-ionic surfactants.
	TRiest GML-2111	Glycerol Monolaurate	-	-	-	-	≤ 1	-	-	190-210	<2	●	●	●									Surfactant, co-emulsifier, viscosity stabilizer.
PEG Esters	TRiest PGMO-4011	PEG 400 Monooleate	42-45	8-9	185	1000-1050	≤ 3	≥270	≤ 0	80-100	35-45			●								Nonionic surfactant. A good general purpose emulsifier. Readily biodegradable. Low toxicity.	
	TRiest PGDO-4011	PEG 400 Dioleate	35-45	8-10	235	1000-1050	≤ 3	≥250	≤ -5	100-120	45-50			●									
	TRiest PGMS-4011	PEG 400 Monostearate	-	-	-	-	≤ 3	-	-	80-100	<2	●	●										Emulsifier. Lubricity additive. Readily biodegradable. Low toxicity.
	TRiest PGC-4011	PEG 400 Cocoate	33-38	6-8	145	1000-1050	≤ 2	≥270	≤ 0	90-110	<5	●	●										Nonionic surfactant. A good general purpose emulsifier. Readily biodegradable. Low toxicity.
	TRiest PGMO-6011	PEG 600 Monooleate	58-61	11-13	190	1000-1050	≤ 2	≥270	≤ 0	55-75	20-30			●									
	TRiest PGDO-6011	PEG 600 Dioleate	50-60	10-13	210	1000-1050	≤ 1	≥270	≤ 0	90-110	35-45			●									
Sorbitan Esters	TRiest SMO-1711	Sorbitan Monooleate	220-380	19-22	85	980-1000	≤ 6	≥250	≤ -15	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	-	-	-	-	≤ 4	-	-	170-190	<5	●	●	●									
	TRiest SML-1711	Sorbitan Monolaurate	325-345	19-22	45	1000-1050	≤ 3	≥250	≤ 20	170-190	<2	●	●	●									
Polyol Esters	TRiest TMTO-0412	Trimethylolpropane Trioleate	43-48	9-10	190	910-930	≤ 1	≥300	≤ -50	170-190	70-85	●	●	●			●		●		●	Base oil and additive. Highly bio-based. Hydrolytically stable. Excellent lubricity. High VI. Low pour point. Good demulsification. Ideal for HFDT fluids.	
	TRiest TMC-0411	Trimethylolpropane Cocoate	34-40	7-8	160	900-920	≤ 1	≥280	≤ -5	225-245	<10	●	●		●	●	●	●	●	●	●	Base oil and additive. Highly bio-based. Excellent lubricity. Low volatility. Excellent thermal and oxidative stability.	
	TRiest TMCC-0211	Trimethylolpropane Caprylate Caprate	17-21	4-5	140	930-950	≤ 1	≥250	≤ -50	300-320	<2	●	●		●	●	●	●	●	●	●	Base oil and additive. Highly bio-based. Excellent thermal and oxidative stability. Excellent lubricity. Very good low-temperature performance.	
	TRiest PEO-0611	Pentaerythritol Oleate	63-69	11-12	170	900-920	≤ 1	≥300	≤ -20	180-200	80-95		●	●		●			●	●	●		Base oil and additive. Highly bio-based. Hydrolytically stable. Excellent lubricity. High VI. Low volatility. Good low-temperature performance.
	TRiest NGDO-0211	Neopentyl Glycol Dioleate	22-26	5-7	195	890-910	≤ 3	≥270	≤ -25	180-200	80-95		●		●				●	●	●		
Complex Esters	TRiest TMTO-0612	Trimethylolpropane Trioleate	65-72	11-13	180	920-940	≤ 1	≥300	≤ -35	200-220	70-85	●	●	●			●		●		●	Base oil and additive. Highly bio-based. Hydrolytically stable. Excellent lubricity. High VI. Low pour point. Good demulsification. Ideal for HFDT fluids.	
	TRiest TMTO-1511	Trimethylolpropane Trioleate	135-165	25-28	>170	930-950	≤ 1	≥300	≤ -35	180-200	70-85	●	●	●					●	●	●	Base oil and additive. Biodegradable. Superior lubricity. High VI. Hydrolytically stable. Good oxidative stability.	
	TRiest TMTO-1011 K	Trimethylolpropane Trioleate	900-1100	121-125	>220	970-990	≤ 1.5	≥300	≤ -35	290-310	70-85	●	●	●	●		●	●	●	●	●	High viscosity base oil and additive. Biodegradable. Superior lubricity. High VI. Hydrolytically stable. Good oxidative stability.	
	TRiest TMCC-4011	Trimethylolpropane Caprylate Caprate	390-440	41-45	160	910-930	≤ 1	≥280	≤ -35	370-390	<2	●	●		●	●	●	●	●	●	●	High viscosity base oil and additive. Biodegradable. Excellent thermal-oxidative stability and lubricity. Very good high-low temperature performance.	
	TRiest PEO-3811	Pentaerythritol Oleate	360-390	46-52	>190	950-970	≤ 1	≥300	≤ -25	245-265	80-95		●	●		●			●	●	●		High viscosity base oil and additive. Biodegradable. Superior lubricity. High VI. Hydrolytically stable. Good oxidative stability.
	TRiest CTMO-2511	Trimellitic Complex Ester	225-275	30-34	>170	960-980	≤ 1	≥300	≤ -35	220-240	70-85		●		●		●	●	●	●	●		
	TRiest CTMO-2511 K	Trimellitic Complex Ester	2250-2750	200-240	>220	980-1100	≤ 1	≥300	≤ -35	240-260	70-85		●	●		●			●	●	●		
TRiest CMCT-0811	C8-10 Succinic Triglyceride	76-81	10-12	120	1000-1100	≤ 2	≥250	≤ -30	420-440	<2	●	●	●							●	Base oil and additive. Highly bio-based. Good lubricity. High oxidation stability. Aluminium lubrication. Food Grade. (NSF 3H)		
Trimellitate Esters	TRiest TTM-0811	Trimellitate Ester	80-85	8-10	80	980-1000	≤ 1	≥260	≤ -30	305-325	<2			●		●						Excellent thermal and oxidative stability. Excellent high temperature performance. Low volatility. Low deposit/sludge/varnish formation.	
	TRiest TTM-1211	Trimellitate Ester	105-125	10-13	85	950-970	≤ 1	≥240	≤ -60	270-290	<2	●		●		●		●					
	TRiest TTM-3211	Trimellitate Ester	310-330	19-21	70	950-970	≤ 1	≥260	≤ -20	235-255	<2	●		●		●		●					
Dicarboxylic Acid Esters	TRiest DPHA-1211	Diester	11-13	2.5-3.5	110	900-920	≤ 1	≥200	≤ -70	250-270	<2	●	●	●	●		●	●				Excellent thermal and oxidative stability. Very good hydrolytic stability and best in class low temperature properties.	
	TRiest DTDA-2611	Diester	26-28	4.5-5.5	110	900-920	≤ 1	≥210	≤ -45	210-230	<2	●	●	●	●		●	●					
	TRiest DPHP-3911	Diester	34-40	4-6	40	950-970	≤ 1	≥220	≤ -45	240-260	<2	●	●	●	●		●	●		●			
	TRiest DTDp-9011	Diester	84-88	7-9	40	940-960	≤ 1	≥240	≤ -40	205-225	<2	●	●	●	●		●	●					Excellent thermal and oxidation stability. Good corrosion resistance. Excellent low-temperature properties. Low volatility.
	TRiest DOS-0111	Dioctyl Sebacate	11-13	3-4	145	900-920	≤ 1	≥210	≤ -60	260-280	0	●	●	●	●		●	●		●			Thin sheet lubricant. Anti-corrosion properties. Shows low temperature performance. Also can be used as Plasticizer.
Phosphate Esters	TRiest LXPH-0211	Lauryl Alcohol 2 eo Phosphate Ester	150-170	18-20	85	990-1100	≤ 180	≥90	≤ -10	-	0		●						●	●		Water soluble emulsifier, wetting agents and dispersants. EP/AW and corrosion inhibition additive for water based metal working fluids.	
	TRiest LXPH-0711	Lauryl Alcohol 7 eo Phosphate Ester	195-215	24-25	150	1000-1100	≤ 120	≥90	≤ -10	-	0		●						●	●			
	TRiest ITXPH-0511	Isotridecyl Alcohol 5 eo Phosphate Ester	200-210	25-26	150	1000-1100	≤ 120	≥90	≤ -10	-	0		●						●	●			
	TRiest ITXPH-0811	Isotridecyl Alcohol 8 eo Phosphate Ester	240-260	31-32	160	1000-1100	≤ 120	≥90	≤ -10	-	0		●						●	●			
	TRiest EHPH-2111	2-Ethylhexyl Phosphate Ester	200-260	18-22	100	1000-1100	≤ 380	≥90	≤ -10	-	0		●						●	●			
Others	TRiest TIM-1011	TOFA Hydroxyethyl Imidazoline	145-165	12-14	80	930-950	≤ 3	≥285	≤ 10	-	80-95		●	●						●	●	Excellent sour corrosion inhibition performance for low salinity brines. Readily soluble in polar solvents and hydrocarbons.	
	TRiest EHPH-1011 N	2-Ethylhexyl Phosphate DMAPA Salt	-	200-220	-	1000-1100	≤ 250	≥90	≤ -10	-	0		●	●						●	●	Water soluble emulsifier. Anti-wear and extreme pressure additive for water based metal working fluids.	
	TRiest PLR-5011	Polymerized Ricinoleic Acid	475-495	49-51	165	940-960	47-53	≥260	≤ -10	200-230	80-95		●	●					●	●	●	Corrosion inhibitor. Stabilizing agent in metalworking fluids. Shows oxidative biodegradability.	
	TRiest TAO-1511	Trethanolamine Oleate	68-72	9-10	105	950-970	≤ 8	≥260	≤ -0	100-140	70-85		●							●	●	Emulsifier. Surfactant. Anti-corrosion properties.	