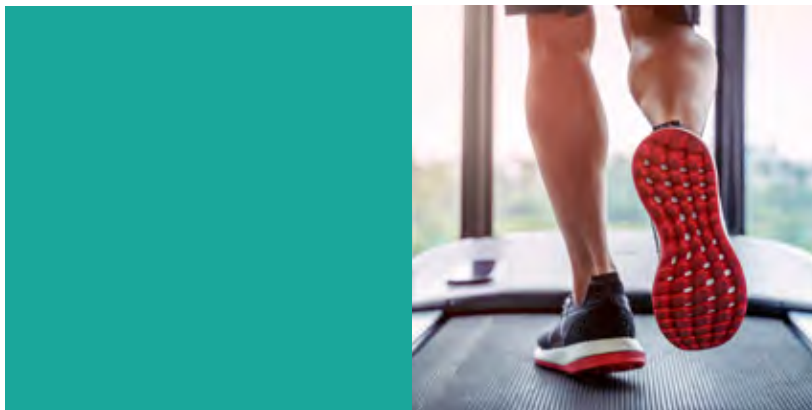


Eastman products at a glance

Plasticizers, polyester polyols,
thermoplastic polyurethanes
and esters for lubricants



Plasticizers



Every day, your life is made a little better by plasticizers — at home, in the car and at the office. They're in everyday products, from the floor you walk on to the chair you sit on to the toys your children enjoy. Plasticizers make thousands of products easier to handle, more flexible and better able to perform.

But your business needs more than reliable plasticizers — it needs a reliable plasticizer manufacturer. As a leading producer of non-phthalate plasticizers, Eastman has been a dependable and trusted plasticizer supplier for more than 50 years. With the largest portfolio in South America, we are positioned to deliver the plasticizers you need in a rapidly changing industry and regulatory environment.

Our facilities deliver consistent products to fit your needs and ensure a secure supply.

Our offerings include:

Eastman 168™ non-phthalate plasticizer, an excellent general-purpose, non-*ortho*-phthalate plasticizer with performance equal to or better than most *ortho*-phthalate plasticizers. It offers good performance properties, excellent low-temperature flexibility, resistance to extraction by soapy water and excellent nonmigration properties. It's been safely used in PVC for generations and is commonly found in toys and other products for children. It is manufactured in the region.

Eastman VersaMax™ Plus plasticizer, a non-phthalate, general-purpose solution that provides improved dry times, better efficiency, lower fusion temperatures and a broader formulation window compared to traditional *ortho*-phthalates. It's an excellent replacement for DINP, can be used in a wide variety of flexible PVC applications, and provides the optimal balance of performance and value for water-based adhesives.

Benzoflex™ 9-88 plasticizer, a high-solvating benzoate ester plasticizer that can be used in a wide variety of polymer systems and applications. Its diverse uses include resilient flooring, automotive, adhesives, caulks and sealants. It is manufactured in the region.

Benzoflex™ 9-88 SG, recommended for cast urethane applications that require minimum cure interference and maximum compatibility. It offers excellent inert filler acceptance and contributes improved tear strength, better rebound and reduced swell with certain solvents. It is adaptable to both metering and hand-batch urethane mix systems. Applications include decals, graphic arts, polyurethane adhesives and sealants. It is manufactured in the region.

Benzoflex™ 2088, a high-solvating plasticizer known for exceptional performance in PVC, polyvinyl acetate and water-based adhesive systems such as flooring/interior surfaces, latex caulks, latex sealants, polysulfide sealant and pressure-sensitive adhesives.

Benzoflex™ 50, a versatile benzoate ester plasticizer that provides exceptional utility in polyvinyl acetate adhesives, efficiency in acrylic latex caulks, and excellent solvating characteristics in plastisol and dry blended vinyl formulations.

Benzoflex™ LA-705, a benzoate ester plasticizer formulated specifically for use in latex adhesives. It provides a unique combination of high performance, broad food contact approvals and reduced EU labeling requirements.

Benzoflex™ 354, compatible with a wide range of synthetic resinous materials and imparts a softening and flexibilizing effect to these resins. Suggested for use as a resin plasticizer/modifier in the formulation of specialty coatings, adhesives and polyvinyl chloride plastisols and as a non-bleeding plasticizer for vinyl plastisol printing inks used to decorate T-shirts.

Benzoflex™ 284, an effective, high-solvating plasticizer especially suited for PVC applications requiring low-temperature processing and/or high stain resistance.

Benzoflex™ 1046, which imparts the highest stain resistance of any plasticizer used in PVC or in PVC acetate copolymers. Its high resin solvation at elevated temperatures, coupled with its tolerance for fillers, makes it the plasticizer of choice for wall coverings and sheet vinyl floor coverings.



Table 1. Benzoflex™ plasticizers

	Benzoflex™ 2088 (typical values)	Benzoflex™ 9-88 (typical values)	Benzoflex™ 9-88 SG (typical values)
Acidity (wt%)	0.1 max.	0.1 max.	0.1 max.
Color, Pt-Co	25–40	40–80	40–80
Refractive index at 25°C	1.54	1.52	1.52
Specific gravity at 20°C	1.16	1.12	1.12
Hydroxyl number	—	—	6 max.
Boiling point	673°F (356°C)	657°F (347°C)	657°F (347°C)
Flash point, Setaflash closed cup	396°F (202°C)	360°F (182°C)	360°F (182°C)
Freezing point	< 61°F (< 16°C)	< -22°F (< -30°C)	< -22°F (< -30°C)
Vapor pressure at 20°C	< 0.00001 torr (< 0.0013 Pa)	< 0.00001 torr (< 0.0013 Pa)	< 0.00001 torr (< 0.0013 Pa)
Viscosity at 25°C	71 cP (71 mPa·s)	105 cP (105 mPa·s)	105 cP (105 mPa·s)
Wt/vol at 20°C	9.68 lb/gal (1.16 kg/L)	9.35 lb/gal (1.11 kg/L)	9.35 lb/gal (1.11 kg/L)

Properties reported here are typical of average lots. Eastman makes no representation that the material in any particular shipment will conform exactly to the values given.

Eastman TXIB™ formulation additive is frequently chosen as an effective diluent for MEKP because of its value as a non-phthalate, low-viscosity diluent with a low freezing point that contributes to easier handling. The unique low viscosity makes this material particularly suitable for PVC plastisols and often allows additional fillers to be added to the plastisol.

Eastman Effusion™ plasticizer is highly efficient and effective at lowering fusion temperatures. It's ideal for automotive underbody coatings and body seam sealers. This high-solvating, fast-fusing solution offers improved efficiency, creating increased line speeds and wider processing windows that can reduce your energy costs.

Monomeric plasticizers: Our line of monomeric plasticizers is composed of low-molecular-weight plasticizers and without repeater units. Because of this, they have good processability and efficiency in changing the hardness and/or flexibility of the final product at low temperatures when compared to polymeric plasticizers. All are manufactured in the region.

Eastman Scandinol™ phthalates plasticizers and their uses:

- **DOP:** compounds for films, calendering, extrusions, injections, coatings
- **SC-1000:** odorless, high-purity DOP for cap seals, medical and electro-electronic applications
- **DBP:** paints, varnishes, textiles, papers, adhesives, and acrylic sheets
- **DIDP:** electrical cables and as a compound for sheeting calendering



Table 2. Eastman Scandinol™ phthalate plasticizers

Monomeric plasticizers								
Product line	Plasticizers	Acid number, max. (mg KOH/g)	Refractive index, 20°C	Viscosity, 20°C (cP)	Specific gravity, 20/4°C	Color, max. (Hazen)	Water content, (%)	Ester content, min. (%)
Phthalates	DBP	0.05	1.493 ± 0.002	21 ± 2	1.045 ± 0.003	20	0.10	99
	DOP	0.05	1.487 ± 0.002	79 ± 2	0.984 ± 0.002	30	0.10	99
	DIDP	0.05	1.485 ± 0.002	120 ± 2	0.967 ± 0.003	30	0.10	99
	SC-1000	0.05	1.487 ± 0.002	79 ± 2	0.984 ± 0.002	20	0.10	99

Eastman Scandinol™ non-phthalate plasticizers and their uses:

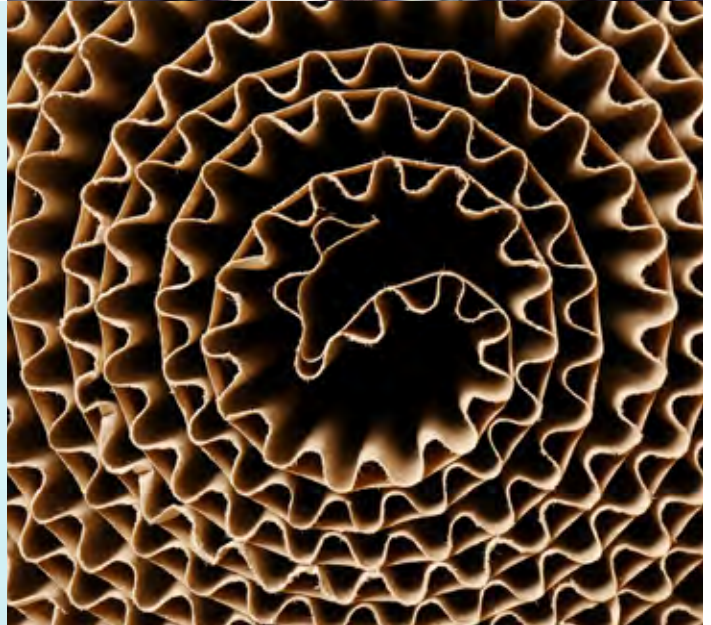
- **DOA-S:** odorless; used for automotive parts, packaging, boots, aprons for refrigeration, and gaskets
- **SP-05:** composition for retainers; gaskets for refrigerators, hoses, automotive and fittings
- **SP-22 S:** food contact packaging; components for cosmetics, pharmaceuticals and toys; as a protective agent for metal sheet
- **SP-21:** paints and varnishes; food contact packaging; as a solvent for pesticides
- **DOM:** emulsions, adhesives, coagulations, colorants, and as an intermediate for sulfosuccinates
- **DBM:** emulsions, coagulations, plastisols, adhesives, PVA paints
- **TOTM:** electrical cables, laminated sheets for outdoor use, swimming pool and irrigation canal lining, bathroom curtains, diapers, umbrellas, refrigerator gaskets, automotive parts and antifogging formulations
- **DOS:** electrical cables, refrigerator and freezer components, low-temperature packaging, auto parts, and as protection for metal sheets



Table 3. Eastman Scandinol™ non-phthalate plasticizers

Monomeric plasticizers								
Product line	Plasticizers	Acid number, max. (mg KOH/g)	Refractive index, 20°C	Viscosity, 20°C (cP)	Specific gravity, 20/4°C	Color, max. (Hazen)	Water content (%)	Ester content, min. (%)
Adipates	DOA-S	0.05	1.447 ± 0.003	15 ± 2	0.926 ± 0.002	20	0.10	99
	SP-05	0.20	1.449 ± 0.003	25 ± 4	1.021 ± 0.003	125	0.25	99
Sebacates	DOS	0.05	1.451 ± 0.002	22 ± 2	0.915 ± 0.002	60	0.10	99
Citrates	SP-21	0.05	1.446 ± 0.002	32 ± 1	1.044 ± 0.002	30	0.10	99
	SP-22	0.020 (% citric acid)	1.441 ± 0.002 (25°C)	34 ± 2 (25°C)	1.050 ± 0.005 (25°C)	30	0.25	99
Maleates	DBM	0.05	1.446 ± 0.002	8 ± 2	0.996 ± 0.002	30	0.30	99
	DOM	0.05	1.454 ± 0.002	20 ± 2	0.943 ± 0.002	40	0.20	99
Trimellitate	TOTM	0.10	1.485 ± 0.003	295 ± 15	0.989 ± 0.003	60	0.10	99

Polymeric plasticizers: Our line of polymeric plasticizers is comprised of products that differ from the traditional line of monomeric plasticizers by having higher molecular weight and repeating units in their molecular structure, providing less volatility, greater resistance to extraction (water/hydrocarbonates) and greater resistance to migration. Polymeric plasticizers work well in applications that require extended external exposure, adhesive vinyls, high temperatures and extended contact with solvents.



Eastman Viernol™ polymeric plasticizers and their uses:

- **XH-06:** electrical isolating tapes; films for packaging; sealants and surgical tapes
- **XH-08:** adhesive tapes, films, electrical cables, synthetic leather
- **XH-14:** adhesive tapes, films, boots, aprons for refrigeration, hoses and gaskets
- **ZH-26:** conveyer belts, boots, gloves, aprons for refrigeration, submarine and subway electrical cables, plastisols, gaskets, and water pond lining



Table 4. Eastman Viernol™ polymeric plasticizers

Product line	Plasticizers	Acid number, max. (mg KOH/g)	Color, max. (Hazen)	Viscosity, 20°C (cP)	Water content (%)
Viernol	XH-08	1.0	70	1,800–2,400	0.1
	XH-14	1.0	70	3,800–4,800	0.1
	ZH-26	1.0	70	3,000–4,800	0.1
	XH-06	1.0	50	950–1,150	0.1



Polyester polyols



Eastman offers a wide range of tailor-made polyester polyols, providing different performance and applications of the combination of several diacids, anhydrides and diols in varied proportions. The possibilities are endless, guaranteeing the desired chemical and abrasion resistance for various end markets, from shoe components such as soles, flexible foams, polyurethane laminates and varnish for footwear to rigid foams, elastomers, coatings, and adhesives and sealants.

Table 5. Scandiflex™ polyester polyols

Polyester polyols	Hydroxyl number (mg KOH/g)	Acid number, max. (mg KOH/g)	Color, max.	Viscosity (cP)	At (°C)
Scandiflex SC-3460	57–63	1.0	100	8,100–9,800	25
Scandiflex SC-1800/56	54–58	1.0	50	450–600	75
Scandiflex SC-1900	54–58	1.0	50	450–600	75
Scandiflex SC-117	14–20	1.0	80	7,000–10,000	80
Scandiflex SC-1600 S	37–40	1.1	50	3,000–4,000	60
Scandiflex SC-1300	35–39	0.6	125	3,000–4,500	60
Scandiflex SC-1100	117–123	0.6	125	300–450	60
Scandiflex UC-125	53–59	1.0	50	650–820	75
Scandiflex SC-3900	300–330	2.0	—	2,000–3,000	25
Scandiflex SC-250	38–44	0.5	100	1,600–2,500	60
Scandiflex SC-980	79–85	1.0	50	280–300	75
Scandiflex SC-2011	200–215	1.0	165	550–750	60
Scandiflex SC-4112	106–118	1.0	100	1,800–2,200	25
Scandiflex SC-1770	107–117	1.0	—	180–200	75
Scandiflex SC-4211	250–280	2.0	—	1,100–2,000	25
Scandiflex SC-0822	53–59	0.8	80	4,700–5,300	35

Thermoplastic polyurethanes



Eastman Thermollan™ thermoplastic polyurethane offers the chemical and mechanical resistance valued in many types of footwear, including football cleats and safety shoes. Its versatility allows both rigid and flexible formulations without compromising comfort and aesthetics. Considered an engineering plastic, Thermollan is largely employed in soles, heels and heel caps, demonstrating chemical, abrasion and weather resistance; excellent flexibility; a wide range of hardness and durability; excellent performance at low temperatures; and recyclability. Other applications include technical pieces, electrical cables, wheels and castors, livestock identification earrings, pipes and hoses, gaskets, and items for the automotive and orthodontic markets.

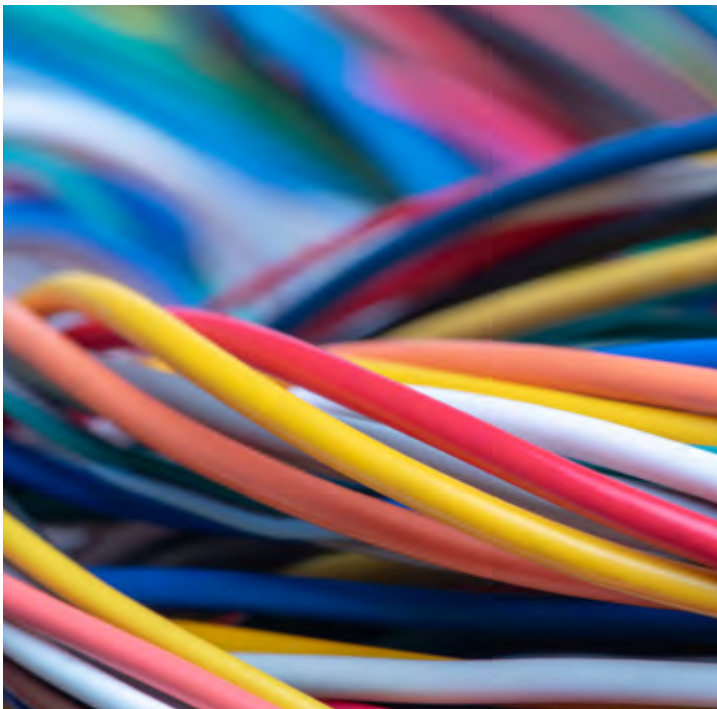


Table 6. Eastman Thermollan™ thermoplastic polyurethane

Product line	Product description	Base TPU	Hardness (Shore A)	Hardness (Shore D)
Thermollan MXB	TPU MXB 01 NATURAL, 25 KG BG	Polyester	77–83	—
	TPU MXB 12 PLUS BLUE, 25 KG BG	Polyester	95–99	48–54
	TPU MXB 12 PLUS CRYSTAL, 25 KG BG	Polyester	95–99	48–54
Thermollan TC/TCM/TCW	TPU TC 5505 D NATURAL, 25 KG BG	Polyester	—	52–58
	TPU TC 6000 D NATURAL, 25 KG BG	Polyester	—	57–63
	TPU TC 6005 D NATURAL, 25 KG BG	Polyester	—	57–63
	TPU TC 7005 D PLUS CRYSTAL, 25 KG BG	Polyester	—	67–73
	TPU TC 7505 A NATURAL, 25 KG BG	Polyester	72–78	—
	TPU TC 8000 A NATURAL, 25 KG BG	Polyester	77–83	—
	TPU TC 8005 A CRYSTAL, 25 KG BG	Polyester	77–83	—
	TPU TC 8005 A NATURAL, 25 KG BG	Polyester	77–83	—
	TPU TC 8500 A NATURAL, 25 KG BG	Polyester	82–88	—
	TPU TC 8500 A PLUS CRYSTAL, 25 KG BG	Polyester	82–88	—
	TPU TC 9000 A NATURAL, 25 KG BG	Polyester	88–94	38–44
	TPU TC 9005 A NATURAL, 25 KG BG	Polyester	87–93	37–43
	TPU TC 9005 A PLUS CRYSTAL, 25 KG BG	Polyester	87–93	37–43
	TPU TC 9505 A NATURAL, 25 KG BG	Polyester	92–98	42–48
	TPU TC 9505 A NATURAL, 25 KG BG	Polyester	92–98	42–48
	TPU TC 9505 A BLACK, 25 KG BG	Polyester	92–98	42–48
	TPU TC 9805 A NATURAL, 25 KG BG	Polyester	94–99	48–54
	TPU TCM 5505 D BLACK, 25 KG BG	Polyester	—	53–59
	TPU TCW 6005 A PLUS NATURAL, 25 KG BG	Polyester	—	57–63
	TPU TCW 6505 A PLUS CRYSTAL, 25 KG BG	Polyester	—	62–68
	TPU TCW 6505 A PLUS NATURAL, 25 KG BG	Polyester	—	62–68
	TPU TCW 6505 A PLUS BLACK, 25 KG BG	Polyester	—	62–68
	TPU TCW 7005 A PLUS CRYSTAL, 25 KG BG	Polyester	—	67–73
TPU TCW 7005 A PLUS NATURAL, 25 KG BG	Polyester	—	67–73	
TPU TCW 7505 A PLUS CRYSTAL, 25 KG BG	Polyester	—	77–78	

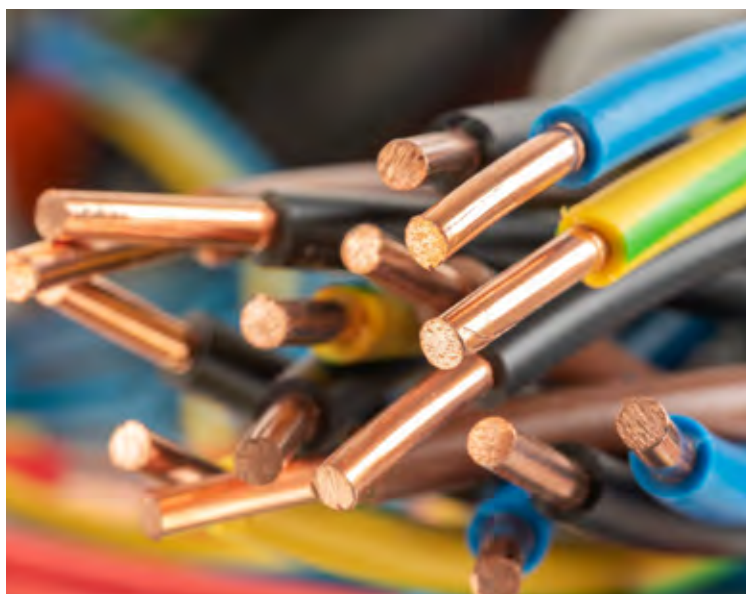
Density (g/cm ³)	Module 100% (N/mm ²)	Module 300% (N/mm ²)	Resistance to breakage (N/mm ²)	Elongation (%)	Abrasion (mm ³)	Fluidity (g/10 min)	Tear strength (N/mm ²)
Minimum value							
1.21-1.25	3	6	30	600	40	5.0 at 200°C	60
1.20-1.24	7	10	35	400	45	10 at 215°C	100
1.21-1.25	7	10	35	400	45	10 at 215°C	100
1.21-1.25	9	12	40	400	45	4.0 at 220°C	150
1.21-1.25	10	13	40	400	50	4.0 at 220°C	150
1.21-1.25	10	13	40	400	50	4.0 at 220°C	150
1.22-1.26	10	13	40	350	50	3.0 at 220°C	150
1.18-1.22	2	5	15	650	50	5.0 at 200°C	30
1.19-1.23	3	6	30	600	35	5.0 at 210°C	60
1.19-1.23	3	6	30	600	40	5.0 at 210°C	60
1.19-1.23	3	6	30	600	40	5.0 at 210°C	60
1.21-1.25	4	7	35	600	40	5.0 at 210°C	65
1.19-1.23	4	7	35	600	40	5.0 at 210°C	65
1.21-1.25	5	8	35	500	40	5.0 at 210°C	80
1.20-1.24	5	8	35	500	40	5.0 at 210°C	80
1.20-1.24	5	8	35	500	40	5.0 at 210°C	80
1.20-1.24	5	8	35	500	40	5.0 at 215°C	90
1.20-1.24	5	8	35	500	40	5.0 at 215°C	90
1.20-1.24	5	8	35	500	40	5.0 at 215°C	90
1.21-1.25	6	9	40	500	45	5.0 at 215°C	100
1.23-1.27	5	8	20	300	70	2.0 at 220°C	35
1.17-1.21	2	5	15	700	40	10 at 200°C	30
1.18-1.22	2	5	15	700	40	10 at 200°C	30
1.18-1.22	2	5	15	700	40	10 at 200°C	30
1.18-1.22	2	5	15	700	40	10 at 200°C	30
1.18-1.22	2	5	15	700	40	10 at 200°C	30
1.18-1.22	2	5	15	700	40	10 at 200°C	30
1.18-1.22	2	5	15	700	40	10 at 200°C	30

THERMOPLASTIC POLYURETHANES

Product line	Product description	Base TPU	Hardness (Shore A)	Hardness (Shore D)
Thermollan TK	TPU TK 9005 A NATURAL, 25 KG BG	Caprolactone	87–93	37–43
Thermollan TO/TOW	TPU TO 9005 A UV BLACK, 25 KG BG	Polyester	88–94	37–43
	TPU TO 9005 A UV NATURAL, 25 KG BG	Polyester	88–94	37–43
	TPU TOW 7005 A UV BLACK, 25 KG BG	Polyester	67–73	—
Thermollan TP	TPU TP 5205 D UV NATURAL, 25 KG BG	Polyether	—	49–55
	TPU TP 8000 A NATURAL, 25 KG BG	Polyether	77–83	—
	TPU TP 9000 A UV CRYSTAL, 25 KG BG	Polyether	87–93	37–43
	TPU TP 9505 A NATURAL, 25 KG BG	Polyether	92–98	42–48
	TPU TP 9805 A UV NATURAL, 25 KG BG	Polyether	96–99	48–54
Thermollan TS/TSW	TPU TS 6005 D NATURAL, 25 KG BG	Polyester	—	57–63
	TPU TS 6005 D OPAQUE, 25 KG BG	Polyester	—	57–63
	TPU TS 6505 D NATURAL, 25 KG BG	Polyester	—	62–68
	TPU TS 6505 D BLACK, 25 KG BG	Polyester	—	62–68
	TPU TS 8005 A NATURAL, 25 KG BG	Polyester	77–83	—
	TPU TS 8305 A NATURAL, 25 KG BG	Polyester	80–86	—
	TPU TS 8500 A NATURAL, 25 KG BG	Polyester	82–88	—
	TPU TS 8505 A ORANGE, 25 KG BG	Polyester	82–88	—
	TPU TS 8505 A NATURAL, 25 KG BG	Polyester	82–88	—
	TPU TS 8705 A NATURAL, 25 KG BG	Polyester	84–90	—
	TPU TS 9005 A NATURAL, 25 KG BG	Polyester	87–93	37–43
	TPU TS 9005 A BLACK, 25 KG BG	Polyester	87–93	37–43
	TPU TS 9005 A CZ GREY UV, 25 KG BG	Polyester	87–93	37–43
	TPU TS 9005 A UV CZ LEAD GREY, 25 KG BG	Polyester	87–93	37–43
	TPU TS 9505 A NATURAL, 25 KG BG	Polyester	92–98	43–49
	TPU TS 9505 A UV NATURAL, 25 KG BG	Polyester	92–98	43–49
	TPU TS 9505 A UV BLACK, 25 KG BG	Polyester	92–98	43–49
	TPU TS 9800 A NATURAL, 25 KG BG	Polyester	95–99	48–54
	TPU TS 9805 A NATURAL, 25 KG BG	Polyester	95–99	48–54

Density (g/cm ³)	Module 100% (N/mm ²)	Module 300% (N/mm ²)	Resistance to breakage (N/mm ²)	Elongation (%)	Abrasion (mm ³)	Fluidity (g/10 min)	Tear strength (N/mm ²)
Minimum value							
1.16–1.20	6	10	40	500	35	5.0 at 210°C	100
1.20–1.24	5	8	35	550	40	5.0 at 210°C	90
1.20–1.24	5	8	35	550	40	5.0 at 210°C	90
1.18–1.22	2	5	15	600	50	20 at 200°C	30
1.13–1.17	6	9	40	500	40	5.0 at 215°C	100
1.09–1.13	4	6	25	550	40	5.0 at 215°C	55
1.13–1.17	7	12	35	500	40	3.0 at 215°C	90
1.13–1.17	6	9	35	500	45	5.0 at 215°C	100
1.13–1.17	6	9	40	500	40	5.0 at 215°C	100
1.21–1.25	10	13	40	400	45	4.0 at 220°C	150
1.21–1.25	10	13	40	400	45	4.0 at 220°C	150
1.20–1.24	10	13	40	350	45	3.0 at 220°C	150
1.20–1.24	10	13	40	350	45	3.0 at 220°C	150
1.18–1.22	3	6	30	650	30	5.0 at 210°C	60
1.18–1.22	3	6	30	650	30	5.0 at 210°C	60
1.18–1.22	4	7	35	600	35	5.0 at 210°C	65
1.20–1.24	4	7	35	600	35	5.0 at 210°C	65
1.18–1.22	4	7	35	600	35	5.0 at 210°C	65
1.19–1.23	4	7	35	550	40	5.0 at 210°C	65
1.20–1.24	4	7	35	550	40	5.0 at 210°C	90
1.20–1.24	5	8	35	550	40	5.0 at 210°C	90
1.20–1.24	5	8	35	550	40	5.0 at 210°C	90
1.20–1.24	5	8	35	550	40	5.0 at 210°C	90
1.19–1.23	5	8	40	500	40	5.0 at 210°C	100
1.20–1.24	5	8	40	500	40	5.0 at 215°C	100
1.20–1.24	5	8	40	500	40	5.0 at 215°C	100
1.18–1.22	6	9	40	500	40	5.0 at 215°C	100
1.21–1.25	6	4	40	500	40	5.0 at 215°C	100

Product line	Product description	Base TPU	Hardness (Shore A)	Hardness (Shore D)
Thermollan TS/TSW	TPU TSW 6008 A NATURAL, 25 KG BG	Polyester	57-63	—
	TPU TSW 6008 A BLACK, 25 KG BG	Polyester	57-63	—
	TPU TSW 7005 A NATURAL, 25 KG BG	Polyester	67-73	—
	TPU TSW 7005 A BLACK, 25 KG BG	Polyester	67-73	—
	TPU TSW 7705 A UV NATURAL, 25 KG BG	Polyester	74-80	—
Thermollan TX	TPU TX 8005 A CRYSTAL, 25 KG BG	Polycarbonate diol	77-83	—
	TPU TX 8005 A CRYSTAL, 25 KG BG	Polycarbonate diol	87-93	37-43
Thermollan TA	TPU TA 8500 A CRYSTAL, 25 KG BG	Polyester	82-88	—



Density (g/cm ²)	Module 100% (N/mm ²)	Module 300% (N/mm ²)	Resistance to breakage (N/mm ²)	Elongation (%)	Abrasion (mm ³)	Fluidity (g/10 min)	Tear strength (N/mm ²)
Minimum value							
1.18–1.22	2	5	15	700	40	10 at 200°C	20
1.18–1.22	2	5	15	700	40	10 at 200°C	30
1.16–1.20	2	5	20	600	40	10 at 200°C	30
1.18–1.22	2	5	20	650	40	10 at 200°C	30
1.18–1.22	2	5	25	600	40	10 at 200°C	30
1.16–1.20	3	6	35	610	30	4.0 at 200°C	65
1.17–1.21	3	6	40	500	40	6.0 at 215°C	90
1.18–1.22	4	7	35	600	30	5.0 at 200°C	90



Esters for lubricants



Eastman Scandilub™ synthetic esters

To meet the growing demand for advanced technologies, Scandilub synthetic esters are available in a wide viscosity range for use as basic components in high-performance lubricant formulations. Scandilub gives lubricants better fluidity at low temperatures; low volatility; increased stability to thermal oxidation due to its low level of deposits, providing increased shelf life; a wider working temperature range; and a high viscosity index. In addition to use in engine lubricants, Scandilub improves the performance of two-stroke engine oils, gun oils, high-temperature greases, hydraulic system oils, air compressors, gear oil, refrigeration units, lubricating groups, textile machinery and cutting oils.

Table 7. Eastman Scandilub™ synthetic esters

	AD 10	AD 15	AD 30	SB 15	PH 10	PH 32	PH 46	PH 68	TM 87
Viscosity (cSt), 100°C	2.4	3.6	5.1	3.3	2.3	4.2	5.4	7.9	9.5
Viscosity (cSt), 40°C	7.6	13.8	24.9	11.9	9.0	27.1	37.9	76.5	87.9
Viscosity (cSt), -40°C	990	3.200	19.800	1.460	—	—	—	—	—
Viscosity index	130	149	136	150	31	10	60	55	80
Pour point (°C)	< -69	-66	-53	-65	-72	-51	-48	-42	-39
Flash point (°C), ASTM D92	230	255	280	250	180	241	268	288	266
Autoignition temperature (°C), ASTM D286	376	430	418	423	198	410	415	425	292
Volatility at 104°C (%), ASTM D2887	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Lost by evaporation (%) (6.5 h at 204.4°C), ASTM 972	19	23	7	21	10	23	19	12	20
Density 20/4°C, ASTM D1045	0.926	0.918	0.915	0.915	1.046	0.982	0.966	0.958	0.989
Thermal conductivity (W/m·K), 25°C x 10 ³	120.3	125.6	130.0	154.0	—	127.5	131.3	135.6	—
Biodegradability (%), CEC-L-33-T-82	97	84	92	97	—	—	—	—	15



Summary

Eastman is committed to the long-term needs and shifting regulatory landscape of our customers. Now, more than ever, Eastman is positioned to be a solutions provider to the ever-growing needs of the industry with our wide range of products.

The pace of change is accelerating, whether through changing customer requirements or regulatory pressures. You need a quality product from a reliable supplier with an experienced technical support staff to get you up and running as quickly and easily as possible.

Eastman is here to help you make the choice that is right for your business. Contact your local Eastman representative to learn more.

EASTMAN

Eastman Corporate Headquarters

P.O. Box 431
Kingsport, TN 37662-5280 U.S.A.

U.S.A. and Canada, 800-EASTMAN (800-327-8626)
Other locations, +(1) 423-229-2000

eastman.com/locations

Although the information and recommendations set forth herein are presented in good faith, Eastman Chemical Company ("Eastman") and its subsidiaries make no representations or warranties as to the completeness or accuracy thereof. You must make your own determination of its suitability and completeness for your own use, for the protection of the environment, and for the health and safety of your employees and purchasers of your products. Nothing contained herein is to be construed as a recommendation to use any product, process, equipment, or formulation in conflict with any patent, and we make no representations or warranties, express or implied, that the use thereof will not infringe any patent. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS AND NOTHING HEREIN WAIVES ANY OF THE SELLER'S CONDITIONS OF SALE.

Safety Data Sheets providing safety precautions that should be observed when handling and storing our products are available online or by request. You should obtain and review available material safety information before handling our products. If any materials mentioned are not our products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be observed.

© 2023 Eastman. Eastman brands referenced herein are trademarks of Eastman or one of its subsidiaries or are being used under license. Non-Eastman brands referenced herein are trademarks of their respective owners.