

ELA chem

# WE DON'T JUST MIX CHEMICALS, WE MIX FEELINGS.

SATURATED POLYESTER RESINS

TECHNICAL PRODUCT BROCHURE

04 WE ARE ELACHEM PEOPLE

06 FIND WHAT SPEAKS TO YOU

08 OUR RANGE OF SATURATED POLYESTER

10 SATURATED POLYESTER POLYOLS FOR FLEXIBLE AND RIGID PU FOAMS

18 SATURATED POLYESTER POLYOLS FOR CASTING ELASTOMERS AND TPU

22 SATURATED POLYESTER POLYOLS FOR POLYURETHANE COATING

28 SATURATED POLYESTER POLYOLS FOR POLYURETHANE ADHESIVES

34 SATURATED POLYESTER POLYOLS FOR POLYURETHANE SYSTEMS FOR FOOTWEAR INDUSTRY



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BUILT ON CHEMISTRY.
INSPIRED BY PEOPLE.







## WE ARE ELACHEM PEOPLE.

Founded in Vigevano, Italy, in 2001, Elachem® S.p.A. is a wholly Italian-owned company that has established itself as an international leader in the production of saturated polyesters, polyurethane systems, and high-performance materials.

With an annual production capacity of 95,000 tonnes of saturated polyesters and 50,000 tonnes of polyurethane systems, the company supplies partners worldwide with innovative, tailor-made solutions.

The acquisition of Epaflex® Polyurethanes in 2008 further expanded its portfolio, adding Thermoplastic Polyurethanes (TPU), elastomers, and other advanced technologies.

At the heart of Elachem®'s innovation are its state-of-the-art laboratories, which oversee the entire development process, from product design to final testing.

# FIND WHAT SPEAKS TO YOU.

Explore the four product areas
at the heart of our expertise.

## SATURATED POLYESTER

Elapol® is our worldwide brand of saturated polyester polyols for flexible and rigid PU foams, casting elastomers and TPU, polyurethane adhesives and coatings, and polyurethane systems for footwear.

## POLYURETHANE SYSTEMS

Our polyurethane systems bring technical precision with a dash of Italian soul.

Our expertise is focused across three key areas: Casual & Sport, Safety, and Fashion, each developed to meet specific performance and design needs.

## TPU AND CASE

Epaflex has been actively involved for more than 30 years in manufacturing and supply of polyurethane (PU) systems and thermoplastic polyurethane granules (TPU) in a wide range of industrial sectors. The range of products offered is constantly evolving, thanks to the commitment and resources invested in research and application development.

## PRIVATE LABEL

Discover our range dedicated to manufacturers: exclusive brand formulations, produced by Epaflex Polyurethanes S.p.A. and Elachem® S.p.A. to the highest quality standards.

**Discover the full range of products on elachem.com**

# WE SMILE OFTEN.



# WE MEAN BUSINESS.

## OUR RANGE OF SATURATED POLYESTER

Elachem S.p.A. offers a broad range of aliphatic and aromatic polyester polyols.

The Saturated Polyester Polyols Division focuses its activities on production and manufacturing processes for the PU industry, in compliance with the highest EHS standards.

Elachem's technical teams provide tailor-made solutions to meet your technological requirements.

**Elapol is a worldwide brand of saturated polyester polyols for polyurethane systems used in footwear, flexible and rigid PU foams, cast elastomers and TPU, polyurethane adhesives, and polyurethane coatings.**

# 01 SATURATED POLYESTER POLYOLS FOR FLEXIBLE AND RIGID PU FOAMS

## SATURATED POLYESTER POLYOLS FOR FLEXIBLE FOAMS

Branched Saturated Polyesters manufactured with synthetic acids and glycols.
Used in flexible foam production, mainly for textile and automotive industry.

| ELAPOL | ACIDS/ ANHYDRIDES | MAIN GLYCOLS | STRUCTURE | APPEARANCE | OH NUMBER mg KOH/g | | ACID NUMBER mg KOH/g | BROOKFIELD VISCOSITY mPa·s | WATER CONTENT % | HAZEN COLOUR | FIELD OF USE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 70213 | Aromatic/Aliphatic | MPG | Highly branched | **Liquid** | 197 - 213 | | ≤ 4 | 5000 - 6500 (35°C) | ≤ 0,10 | ≤ 150 | Mainly used blended (up to 50%) with other polyester polyols, e.g. Elapol 7025 B, to obtain low scorching semi-rigid foams |
| 7025 B | Aliphatic | DEG | Branched | **Liquid** | 59 - 63 | | 0,9 - 1,5 | 8800 - 9800 (35°C) | ≤ 0,10 | ≤ 150 | Used in flexible slabstock foam production, mainly for textile industry applications (e.g. flame lamination) |
| 7025 F | Aliphatic | DEG | Branched | **Liquid** | 59 - 63 | | 0,8 - 1,6 | 18000 - 22000 (25°C) | ≤ 0,08 | ≤ 150 | Used in flexible slabstock foam production, mainly in the automotive industry |

## SATURATED POLYESTER POLYOLS FOR PU THERMAL INSULATION, OCF AND SPRAY FOAMS

Aromatic and hybrid polyester polyols to produce rigid foams with high fire resistance, high rigidity and improved mechanical properties.

| LAMINATION<br>ELAPOL | ACIDS/ ANHYDRIDES | MAIN GLYCOLS | STRUCTURE | APPEARANCE | OH NUMBER<br>mg KOH/g | | ACID NUMBER<br>mg KOH/g | BROOKFIELD VISCOSITY<br>mPa·s | WATER CONTENT<br>% | FIELD OF USE |
|---|---|---|---|---|---|---|---|---|---|---|
| **80250** | **Aromatic/Aliphatic** | **DEG** | Linear | **Liquid** | **220 - 270** | | **≤ 1,5** | **3500 - 8000 (25°C)** | **≤ 0,15** | Not modified polyester polyol with reduced viscosity and moderate reactivity without flame retardant. Can be used as a co-polyol |
| **80315 B** | **Aromatic** | **DEG** | Linear | **Liquid** | **300 - 330** | | **2,0 - 3,0** | **2000 - 3000 (25°C)** | **≤ 0,15** | Standard polyester polyol for general purpose in rigid foams applications: lamination, spray or as a co-polyol in foam systems |
| **81190** | **Aromatic/Aliphatic** | **DEG** | Linear | **Liquid** | **180 - 200** | | **1,0 - 1,5** | **3000 - 8000 (25°C)** | **≤ 0,10** | Polyol with a low hydroxyl number for MDI savings. With reduced viscosity and slightly modified for blowing agent emulsification. Contains flame retardant |
| **81250** | **Aromatic/Aliphatic** | **DEG** | Linear | **Liquid** | **240 - 260** | | **≤ 1** | **2700 - 3100 (25°C)** | **≤ 0,10** | Slightly modified polyester polyol for general purpose in rigid foams applications: lamination, spray or as a co-polyol in foam systems with increased acid value for reduced reactivity |
| **83240 A** | **Aromatic** | **DEG** | Linear | **Liquid** | **230 - 250** | | **1,9 - 2,5** | **3000 - 4400 (25°C)** | **≤ 0,10** | Used in metal and flex faced rigid PIR foams for continuous production. Contains flame retardant. Very good emulsion stability with blowing agent. Good fire and mechanicals. It works well with different pentane isomers |
| **81241** | **Aromatic** | **DEG** | Linear | **Liquid** | **230 - 250** | | **0,6 - 1,0** | **2500 - 3500 (25°C)** | **≤ 0,15** | Used mainly in High Speed Flex Faced PIR boards production. Does not contain flame retardant. Excellent compatibility with blowing agent, very fast emulsification and low foams lambda |
| **83242** | **Aromatic** | **DEG** | Linear | **Liquid** | **230 - 260** | | **1,8 - 2,5** | **3000 - 6000 (25°C)** | **≤ 0,15** | Used in metal and flex faced rigid PIR foams for continuous production. Reduced viscosity for easy processing, no flame retardant. Improved compatibility with the blowing agent and emulsification speed |
| **81195 H** | **Aromatic** | **DEG** | Linear | **Liquid** | **200 - 220** | | **1,4 - 1,6** | **3000 - 5000 (25°C)** | **≤ 0,10** | Used mainly in flex faced PIR boards on high speed lines, optimized for good quality and thermal performance. Low hydroxyl number for MDI savings |

| LAMINATION<br><br>ELAPOL | ACIDS/<br>ANHYDRIDES | MAIN<br>GLYCOLS | STRUCTURE | APPEARANCE | OH<br>NUMBER<br><br>mg KOH/g | | ACID<br>NUMBER<br><br>mg KOH/g | BROOKFIELD<br>VISCOSITY<br><br>mPa·s | WATER<br>CONTENT<br><br>% | FIELD<br>OF USE |
|---|---|---|---|---|---|---|---|---|---|---|
| **87251** | **Aromatic** | **DEG** | Linear | **Liquid** | **230 - 270** | | **1,0 - 1,5** | **6000 - 8500 (25°C)** | **≤ 0,15** | Polyol with approx. 40% of r-PET optimised for good processing and fire performance, low post expansion and thermal performance of the produced PIR foams. Used mainly for flex faced boards production. |
| **87190** | **Aromatic/Aliphatic** | **DEG** | Linear | **Liquid** | **170 - 190** | | **≤ 2** | **3000 - 6000 (25°C)** | **≤ 0,15** | Polyol with approx. 20% of r-PET with low hydroxyl number for MDI savings |
| **85251** | **Aromatic/Aliphatic** | **DEG** | Linear | **Liquid** | **240 - 260** | | **≤ 3** | **3000 - 4500 (25°C)** | **≤ 0,15** | Polyol for metal panels and flex faced boards designed for improved fire performance. Can be used as co-polyol |
| **85221** | **Aromatic/Aliphatic** | **DEG** | Linear | **High Viscosity Liquid** | **210 - 230** | | **≤ 2** | **10000 - 13000 (25°C)** | **≤ 0,15** | Polyol is designed to greatly boost fire performance due to its high aromatic content. It can be used as sole polyol but also as co-polyol in PIR formulations |
| **85252** | **Aromatic/Aliphatic** | **DEG** | Linear | **Liquid** | **250 - 265** | | **1,6 - 2,6** | **3500 - 6000 (25°C)** | **≤ 0,15** | Used in metal and flex faced rigid PIR foams with improved fire performance. Does not contain flame retardant. Slightly improved pentane emulsification |
| **81180** | **Aromatic** | **DEG** | Linear | **Liquid** | **170 - 190** | | **0,5 - 1,0** | **3000 - 8000 (25°C)** | **≤ 0,15** | Low-hydroxy polyol is designed for MDI savings. Low acid value and improved blowing agent emulsification enable high production speed with good quality. Used mainly in flex-faced insulated boards production |
| **83246** | **Aromatic/Aliphatic** | **DEG** | Linear | **Liquid** | **200 - 215** | | **1,8 - 2,4** | **7800 - 8500 (25°C)** | **≤ 0,15** | Low-hydroxy polyol is designed for MDI savings. Moderate acid value and improved blowing agent emulsification enable high production speed with good quality. Used mainly in flex-faced insulated boards production |
| **83408** | **Aromatic** | **DEG** | Linear | **Liquid** | **250 - 270** | | **2,1 - 2,7** | **4500 - 6500 (25°C)** | **≤ 0,15** | Used in metal and flex faced rigid PIR foams for continuous production. Very good emulsion stability with blowing agent. Good fire and mechanicals. It works well with different pentane isomers. No flame retardant |
| **85190** | **Aromatic/Aliphatic** | **DEG** | Linear | **Liquid** | **185 - 200** | | **0,9 - 1,9** | **3500 - 5000 (25°C)** | **≤ 0,15** | Polyol for metal panels and flex faced boards designed for improved fire performance. Can be used as co-polyol. Contains TCPP |

| OCF<br><br>ELAPOL | ACIDS/<br>ANHYDRIDES | MAIN<br>GLYCOLS | STRUCTURE | APPEARANCE | OH<br>NUMBER<br><br>mg KOH/g | | ACID<br>NUMBER<br><br>mg KOH/g | BROOKFIELD<br>VISCOSITY<br><br>mPa·s | WATER<br>CONTENT<br><br>% | FIELD<br>OF USE |
|---|---|---|---|---|---|---|---|---|---|---|
| **88191** | **Aromatic / Aliphatic** | **Secondary OH** | Linear | **Liquid** | **185 - 195** | | **≤ 2** | **2500 - 3500 (25°C)** | **≤ 0,10** | Is an aliphatic - aromatic, polyester polyol with superior purity manufactured from virgin raw materials. Small addition of secondary hydroxyl groups gives low reactivity for extended shelf life of the final product |
| **88150** | **Aromatic** | **Secondary OH** | Linear | **Liquid** | **145 - 155** | | **≤ 2** | **1500 - 2500 (25°C)** | **≤ 0,10** | Is an aromatic, polyester polyol with superior purity manufactured from virgin raw materials. Low reactivity from secondary hydroxyl groups for extended shelf life of the final product |
| **88200** | **Aromatic** | **Primary OH** | Linear | **Liquid** | **185 - 205** | | **1,5 - 2,5** | **2500 - 3500 (25°C)** | **≤ 0,15** | Is an aromatic, polyester polyol with superior purity manufactured from virgin raw materials |

| SPRAY<br>FOAMS<br><br>ELAPOL | ACIDS/<br>ANHYDRIDES | MAIN<br>GLYCOLS | STRUCTURE | APPEARANCE | OH<br>NUMBER<br><br>mg KOH/g | | ACID<br>NUMBER<br><br>mg KOH/g | BROOKFIELD<br>VISCOSITY<br><br>mPa·s | WATER<br>CONTENT<br><br>% | FIELD<br>OF USE |
|---|---|---|---|---|---|---|---|---|---|---|
| **87241** | **Aromatic** | **DEG** | Linear | **Liquid** | **230 - 250** | | **≤ 1** | **1500 - 2500 (25°C)** | **≤ 0,15** | Polyol with approx. 30% of pure r-PET and low Acid Value for fast reactivity of spray foams can be used as a co-polyol in continuous lamination of rigid foams |
| **83250** | **Aromatic / Aliphatic** | **DEG** | Linear | **Liquid** | **230 - 270** | | **≤ 1,5** | **1400 - 1800 (25°C)** | **≤ 0,15** | Polyol with moderate reactivity and modified backbone for low viscosity for easy handling and good processability in spray foams |
| **85250** | **Aromatic** | **DEG** | Linear | **Liquid** | **240 - 260** | | **≤ 1** | **1500 - 3000 (25°C)** | **≤ 0,15** | Polyol is designed for improved fire performance in spray foams, higher Acid Value gives a wider operating window |
| **87291** | **Aromatic** | **DEG** | Linear | **Liquid** | **280 - 300** | | **≤ 3** | **5500 - 8000 (25°C)** | **≤ 0,10** | Polyol with approx. 30% of r-PET and moderate Acid Value for fast reactivity of spray foams can be used as a co-polyol in continuous lamination of rigid foams. Polyol is designed for improved fire performance |
| **87351** | Aromatic | DEG | Linear / Branched | Liquid | 330 - 370 | | 2,2 - 2,7 | 2000 - 3000 (25°C) | ≤ 0,15 | Polyol with approx. 30% of r-PET, functionality 2.7 and moderate Acid Value for fast reactivity of spray foams can be used as a co-polyol in continuous lamination of rigid foams. Polyol is designed for improved fire performance |

# 02 SATURATED POLYESTER POLYOLS FOR CASTING ELASTOMERS AND TPU

## SATURATED POLYESTERS MANUFACTURED WITH SYNTHETIC ACID AND GLYCOLS.

Gives good Hydrolysis resistance and good mechanical properties.

| ELAPOL | ACIDS/ ANHYDRIDES | MAIN GLYCOLS | STRUCTURE | APPEARANCE | OH NUMBER mg KOH/g | | ACID NUMBER mg KOH/g | BROOKFIELD VISCOSITY mPa·s | WATER CONTENT % | HAZEN COLOUR | FIELD OF USE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5520 A | Aliphatic | 1,4-BDO, MEG | Linear | **Waxy** | 54 - 58 | | ≤ 0,7 | 4700 - 5200 (35°C) | ≤ 0,03 | ≤ 50 | Very good physical and mechanical properties. Can be used to produce cast elastomers and TPU (thermoplastic polyurethane elastomers) |
| 5520 C | Aliphatic | 1,4-BDO, MEG | Linear | **Waxy** | 54 - 58 | | ≤ 0,5 | 3000 - 5000 (40°C) | ≤ 0,025 | ≤ 50 | |
| 5420 A | Aliphatic | 1,4-BDO, MEG | Linear | **Waxy** | 54 - 58 | | ≤ 0,4 | 4700 - 5200 (35°C) | ≤ 0,03 | ≤ 50 | |

| ELAPOL | ACIDS/ ANHYDRIDES | MAIN GLYCOLS | STRUCTURE | APPEARANCE | OH NUMBER mg KOH/g | | ACID NUMBER mg KOH/g | BROOKFIELD VISCOSITY mPa·s | WATER CONTENT % | HAZEN COLOUR | FIELD OF USE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **3030 A** | **Aliphatic** | **MEG** | Linear | **Solid** | **36 - 39** | | **≤ 1,0** | **2000 - 2400 (60°C)** | **≤ 0,1** | **≤ 100** | Good general properties. These products combine competitive prices and good performances. They can be used with NDI or MDI to produce cast elastomers or with MDI in the production of TPU |
| **3010 A** | **Aliphatic** | **MEG** | Linear | **Solid** | **108 - 116** | | **≤ 0,5** | **500 - 650 (50°C)** | **≤ 0,03** | **≤ 100** | |

| ELAPOL | ACIDS/ ANHYDRIDES | MAIN GLYCOLS | STRUCTURE | APPEARANCE | OH NUMBER mg KOH/g | | ACID NUMBER mg KOH/g | BROOKFIELD VISCOSITY mPa·s | WATER CONTENT % | HAZEN COLOUR | FIELD OF USE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **5030 A** | **Aliphatic** | **1,4-BDO** | Linear | **Solid** | **37 - 40** | | **≤ 0,5** | **2500 - 4000 (60°C)** | **≤ 0,05** | **≤ 50** | Very good physical and mechanical properties. Good hydrolysis resistance. They can be used to produce cast elastomers and TPU |
| **5020 A** | **Aliphatic** | **1,4-BDO** | Linear | **Solid** | **54 - 58** | | **≤ 0,5** | **1300 - 1500 (60°C)** | **≤ 0,03** | **≤ 40** | |
| **5010 A** | **Aliphatic** | **1,4-BDO** | Linear | **Solid** | **114 - 122** | | **≤ 0,3** | **200 - 400 (60°C)** | **≤ 0,03** | **≤ 30** | |

| ELAPOL | ACIDS/ ANHYDRIDES | MAIN GLYCOLS | STRUCTURE | APPEARANCE | OH NUMBER mg KOH/g | | ACID NUMBER mg KOH/g | BROOKFIELD VISCOSITY mPa·s | WATER CONTENT % | HAZEN COLOUR | FIELD OF USE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **6030 A** | **Aliphatic** | **1,6-hexanediol** | Linear | **Solid** | **35 - 39** | | **≤ 0,5** | **2700 - 3300 (60°C)** | **≤ 0,1** | **≤ 50** | Excellent physical and mechanical properties, especially at low temperature. Good hydrolysis resistance. Mainly used in the production of TPU |
| **6020 A** | **Aliphatic** | **1,6-hexanediol** | Linear | **Solid** | **54 - 58** | | **≤ 0,5** | **1100 - 1300 (60°C)** | **≤ 0,1** | **≤ 100** | |
| **6010 B** | **Aliphatic** | **1,6-hexanediol** | Linear | **Solid** | **108 - 118** | | **≤ 1,0** | **300 - 500 (50°C)** | **≤ 0,1** | **≤ 100** | |

# 03 SATURATED POLYESTER POLYOLS FOR POLYURETHANE COATING

SATURATED POLYESTERS MANUFACTURED WITH SYNTHETIC ACID AND GLYCOLS.

Excellent physical and mechanical properties and flexing resistance.

| ELAPOL | ACIDS/ ANHYDRIDES | MAIN GLYCOLS | STRUCTURE | APPEARANCE | OH NUMBER mg KOH/g | | ACID NUMBER mg KOH/g | BROOKFIELD VISCOSITY mPa·s | WATER CONTENT % | HAZEN COLOUR | FIELD OF USE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **2020 B** | **Aliphatic** | **MEG, DEG** | Linear | **Clear after heating** | **54 - 58** | | **≤ 0,7** | **4200 - 4700 (35°C)** | **≤ 0,1** | **≤ 150** | Mainly used in the production of PU in solution for coating and direct coating |

| ELAPOL | ACIDS/ ANHYDRIDES | MAIN GLYCOLS | STRUCTURE | APPEARANCE | OH NUMBER mg KOH/g | | ACID NUMBER mg KOH/g | BROOKFIELD VISCOSITY mPa·s | WATER CONTENT % | HAZEN COLOUR | FIELD OF USE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **5520 A** | **Aliphatic** | **1,4-BDO, MEG** | Linear | **Waxy** | **54 - 58** | | **≤ 0,7** | **4700 - 5200 (35°C)** | **≤ 0,03** | **≤ 50** | Mainly used in the production of PU in solution for coating and coagulation. Very good physical and mechanical properties |
| **5420 A** | **Aliphatic** | **1,4-BDO, MEG** | Linear | **Liquid** | **54 - 58** | | **≤ 0,4** | **4700 - 5200 (35°C)** | **≤ 0,03** | **≤ 50** | |
| **5520 C** | **Aliphatic** | **1,4-BDO, MEG** | Linear | **Waxy** | **54 - 58** | | **≤ 0,5** | **3000 - 5000 (40°C)** | **≤ 0,025** | **≤ 50** | |

| ELAPOL | ACIDS/ ANHYDRIDES | MAIN GLYCOLS | STRUCTURE | APPEARANCE | OH NUMBER mg KOH/g | | ACID NUMBER mg KOH/g | BROOKFIELD VISCOSITY mPa·s | WATER CONTENT % | HAZEN COLOUR | FIELD OF USE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **5030 A** | **Aliphatic** | **1,4-BDO** | Linear | **Solid** | **37 - 40** | | **≤ 0,5** | **2500 - 4000 (60°C)** | **≤ 0,05** | **≤ 50** | Used in the production of PU in solution and in granules. Excellent physical and mechanical properties and flexing resistance even at low temperature |
| **5020 A** | **Aliphatic** | **1,4-BDO** | Linear | **Solid** | **54 - 58** | | **≤ 0,5** | **1300 - 1500 (60°C)** | **≤ 0,03** | **≤ 40** | |
| **5010 A** | **Aliphatic** | **1,4-BDO** | Linear | **Solid** | **114 - 122** | | **≤ 0,3** | **200 - 400 (60°C)** | **≤ 0,03** | **≤ 30** | |

| ELAPOL | ACIDS/ ANHYDRIDES | MAIN GLYCOLS | STRUCTURE | APPEARANCE | OH NUMBER mg KOH/g | | ACID NUMBER mg KOH/g | BROOKFIELD VISCOSITY mPa·s | WATER CONTENT % | HAZEN COLOUR | FIELD OF USE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **9020 A** | **Aliphatic** | **1,4-BDO, NPG** | Linear | **Clear** | **54 - 58** | | **≤ 0,7** | **8200 - 9800 (35°C)** | **≤ 0,1** | **≤ 100** | Used in the production of coating PU resins and in the processes of coagulation. Excellent physical and mechanical properties with good resistance to hydrolysis |
| **9010 A** | **Aliphatic** | **1,4-BDO, NPG** | Linear | **Liquid** | **108 - 116** | | **≤ 0,5** | **1800 - 2200 (35°C)** | **≤ 0,1** | **≤ 100** | |

| ELAPOL | ACIDS/ ANHYDRIDES | MAIN GLYCOLS | STRUCTURE | APPEARANCE | OH NUMBER mg KOH/g | | ACID NUMBER mg KOH/g | BROOKFIELD VISCOSITY mPa·s | WATER CONTENT % | HAZEN COLOUR | FIELD OF USE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **10020 A** | **Aromatic/Aliphatic** | **1,6-hexanediol** | Linear | **Solid** | **54 - 58** | | **≤ 0,8** | **900 - 1300 (75°C)** | **≤ 0,1** | **≤ 100** | Used in the production of water-based PU dispersions for leather finishing. Excellent physical and mechanical properties; high hydrolysis resistance |

| ELAPOL | ACIDS/ ANHYDRIDES | MAIN GLYCOLS | STRUCTURE | APPEARANCE | OH NUMBER mg KOH/g | | ACID NUMBER mg KOH/g | BROOKFIELD VISCOSITY mPa·s | WATER CONTENT % | HAZEN COLOUR | FIELD OF USE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **6510 B** | **Aliphatic** | **1,6-hexanediol, NPG** | Linear | **Waxy** | **117 - 123** | | **≤ 0,6** | **250 - 300 (60°C)** | **≤ 0,1** | **≤ 100** | Excellent hydrolysis resistance and good flexibility in a wide temperature range |
| **6520 B** | **Aliphatic** | **1,6-hexanediol, NPG** | Linear | **Clear** | **54 - 58** | | **≤ 0,7** | **5600 - 6500 (35°C)** | **≤ 0,1** | **≤ 100** | |

| ELAPOL | ACIDS/ ANHYDRIDES | MAIN GLYCOLS | STRUCTURE | APPEARANCE | OH NUMBER mg KOH/g | | ACID NUMBER mg KOH/g | BROOKFIELD VISCOSITY mPa·s | WATER CONTENT % | HAZEN COLOUR | FIELD OF USE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **4028 A** | **Aliphatic** | **DEG** | Linear | **Liquid** | **38 - 42** | | **≤ 0,5** | **7000 - 8000 (35°C)** | **≤ 0,08** | **≤ 100** | Mainly used in the production of PU in solution for coating. Excellent elastomeric properties and average general features |
| **4010 A** | **Aliphatic** | **DEG** | Linear | **Clear** | **108 - 116** | | **≤ 1** | **900 - 1150 (35°C)** | **≤ 0,08** | **≤ 150** | |

# 04 SATURATED POLYESTER POLYOLS FOR POLYURETHANE ADHESIVES

Saturated Polyesters manufactured with synthetic acid and glycols used in the production of Adhesives for Footwear, Flexible Packaging and Hot Melt.

FOOTWEAR ADHESIVES

| ELAPOL | ACIDS/ ANHYDRIDES | MAIN GLYCOLS | STRUCTURE | APPEARANCE | OH NUMBER mg KOH/g | | ACID NUMBER mg KOH/g | BROOKFIELD VISCOSITY mPa·s | WATER CONTENT % | HAZEN COLOUR | FIELD OF USE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **5030 A** | **Aliphatic** | **1,4-BDO** | Linear | **Solid** | **37 - 40** | | **≤ 0,5** | **2500 - 4000 (60°C)** | **≤ 0,05** | **≤ 50** | Good physical and mechanical properties. Good hydrolysis resistance. Used in the production of granules and solvent based polyurethane adhesives |
| **5020 A** | **Aliphatic** | **1,4-BDO** | Linear | **Solid** | **54 - 58** | | **≤ 0,5** | **1300 - 1500 (60°C)** | **≤ 0,03** | **≤ 40** | |
| **5010 A** | **Aliphatic** | **1,4-BDO** | Linear | **Solid** | **114 - 122** | | **≤ 0,3** | **200 - 400 (60°C)** | **≤ 0,03** | **≤ 30** | |

| ELAPOL | ACIDS/ ANHYDRIDES | MAIN GLYCOLS | STRUCTURE | APPEARANCE | OH NUMBER mg KOH/g | | ACID NUMBER mg KOH/g | BROOKFIELD VISCOSITY mPa·s | WATER CONTENT % | HAZEN COLOUR | FIELD OF USE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **6030 A** | **Aliphatic** | **1,6-hexanediol** | Linear | **Solid** | **35 - 39** | | **≤ 0,5** | **2700 - 3300 (60°C)** | **≤ 0,1** | **≤ 50** | Excellent physical and mechanical properties, especially at low temperature. High hydrolysis resistance. Used in the production of granules and solvent based polyurethane adhesives |
| **6035 B** | **Aliphatic** | **1,6-hexanediol** | Linear | **Solid** | **29 - 34** | | **≤ 1,5** | **3200 - 4200 (60°C)** | **≤ 0,03** | **≤ 100** | |
| **6020 A** | **Aliphatic** | **1,6-hexanediol** | Linear | **Solid** | **54 - 58** | | **≤ 0,5** | **1100 - 1300 (60°C)** | **≤ 0,1** | **≤ 100** | |
| **6010 B** | **Aliphatic** | **1,6-hexanediol** | Linear | **Solid** | **108 - 118** | | **≤ 1** | **300 - 500 (50°C)** | **≤ 0,1** | **≤ 100** | |

FLEXIBLE PACKAGING

| ELAPOL | ACIDS/ ANHYDRIDES | MAIN GLYCOLS | STRUCTURE | APPEARANCE | OH NUMBER mg KOH/g | | ACID NUMBER mg KOH/g | BROOKFIELD VISCOSITY mPa·s | WATER CONTENT % | HAZEN COLOUR | FIELD OF USE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **11110 A** | **Aromatic/Aliphatic** | **DEG** | Linear | **Liquid** | **108 - 116** | | **≤ 1** | **1900 - 2400 (50°C)** | **≤ 0,1** | **≤ 300** | Good flexibility in a wide temperature range. Used for one- and two-component adhesives, usually in ethyl acetate solution |
| **11117 B** | **Aromatic/Aliphatic** | **DEG** | Linear | **Liquid** | **60 - 65** | | **≤ 1** | **8000 - 8600 (50°C)** | **≤ 0,1** | **≤ 3 (Gardner)** | |
| **11108 B** | **Aromatic/Aliphatic** | **DEG** | Linear | **Liquid** | **133 - 143** | | **≤ 1** | **1700 - 2200 (25°C)** | **≤ 0,1** | **≤ 2 (Gardner)** | |
| **11025 B** | **Aromatic/Aliphatic** | **DEG** | Linear | **Liquid** | **55 - 61** | | **1,0 - 3,0** | **3600 - 4100 (70°C)** | **≤ 0,1** | **≤ 3 (Gardner)** | |
| **11025 AE 75** | **Aromatic/Aliphatic** | **DEG** | Linear | **Clear** | **32 - 36** | | **≤ 2** | **800 - 1000 (25°C)** | **≤ 0,1** | **≤ 3 (Gardner)** | |

| ELAPOL | ACIDS/ ANHYDRIDES | MAIN GLYCOLS | STRUCTURE | APPEARANCE | OH NUMBER mg KOH/g | | ACID NUMBER mg KOH/g | BROOKFIELD VISCOSITY mPa·s | WATER CONTENT % | HAZEN COLOUR | FIELD OF USE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **6520 B** | **Aliphatic** | **1,6-hexanediol, NPG** | Linear | **Clear** | **54 - 58** | | **≤ 0,7** | **5600 - 6500 (35°C)** | **≤ 0,1** | **≤ 100** | Excellent hydrolysis resistance and good flexibility in a wide temperature range. Used for one- and two-component adhesives, usually in ethyl acetate solution |
| **6510 B** | **Aliphatic** | **1,6-hexanediol, NPG** | Linear | **Waxy** | **117 - 123** | | **≤ 0,6** | **250 - 300 (60°C)** | **≤ 0,1** | **≤ 100** | |

| ELAPOL | ACIDS/ ANHYDRIDES | MAIN GLYCOLS | STRUCTURE | APPEARANCE | OH NUMBER mg KOH/g | | ACID NUMBER mg KOH/g | BROOKFIELD VISCOSITY mPa·s | WATER CONTENT % | HAZEN COLOUR | FIELD OF USE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **4028 A** | **Aliphatic** | **DEG** | Linear | **Liquid** | **38 - 42** | | **≤ 0,5** | **7000 - 8000 (35°C)** | **≤ 0,08** | **≤ 100** | Good flexibility in a wide temperature range. Used for one- and two-component adhesives, both solvent- or water-based |
| **4010 A** | **Aliphatic** | **DEG** | Linear | **Clear** | **108 - 116** | | **≤ 1** | **900 - 1150 (35°C)** | **≤ 0,08** | **≤ 150** | |



| ELAPOL | ACIDS/ ANHYDRIDES | MAIN GLYCOLS | STRUCTURE | APPEARANCE | OH NUMBER mg KOH/g | | ACID NUMBER mg KOH/g | BROOKFIELD VISCOSITY mPa·s | WATER CONTENT % | HAZEN COLOUR | FIELD OF USE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **12035 B** | **Aromatic/Aliphatic** | **1,6-hexanediol, MEG, NPG** | Linear | **Clear after heating** | **29 - 36** | | **≤ 2** | **6000 - 7500 (80°C)** | **≤ 0,1** | **≤ 250** | Excellent mechanical properties and good hydrolysis resistance |
| **12055 B** | **Aromatic/Aliphatic** | **MEG, NPG** | Linear | **Clear after heating** | **18 - 24** | | **≤ 2** | **3200 - 4200 (80°C)** | **≤ 0,1** | **≤ 250** | |
| **13035 B** | **Aliphatic** | **1,6-hexanediol** | Linear | **Solid** | **28 - 34** | | **≤ 2** | **1900 - 2300 (80°C)** | **≤ 0,1** | **≤ 300** | |

# 05 SATURATED POLYESTER POLYOLS FOR POLYURETHANE SYSTEMS FOR FOOTWEAR INDUSTRY

Branched and linear Saturated Polyesters manufactured with synthetic acids and glycols. Excellent mechanical properties and low density. Branched and linear Saturated Polyesters manufactured with dicarboxylic acids and glycols. Used in polyols for the production of sandals with low moulding density. Being slightly branched, extraction time is reduced.

| ELAPOL | ACIDS/ ANHYDRIDES | MAIN GLYCOLS | STRUCTURE | APPEARANCE | OH NUMBER mg KOH/g | | ACID NUMBER mg KOH/g | BROOKFIELD VISCOSITY mPa·s | WATER CONTENT % | HAZEN COLOUR | FIELD OF USE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **7025 B** | **Aliphatic** | **DEG** | Branched | **Liquid** | **59 - 63** | | **0,9 - 1,5** | **8800 - 9800 (35°C)** | **≤ 0,1** | **≤ 150** | Mainly used for prepolymers and polyols for the production of women's and men's shoe soles with good performance in temperate climates |
| **7020 B** | **Aliphatic** | **DEG** | Branched | **Liquid** | **64 - 68** | | **≤ 0,5** | **4000 - 4600 (35°C)** | **≤ 0,1** | **≤ 150** | |

| ELAPOL | ACIDS/ ANHYDRIDES | MAIN GLYCOLS | STRUCTURE | APPEARANCE | OH NUMBER mg KOH/g | | ACID NUMBER mg KOH/g | BROOKFIELD VISCOSITY mPa·s | WATER CONTENT % | HAZEN COLOUR | FIELD OF USE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **2030 A** | **Aliphatic** | **MEG, DEG** | Linear | **Clear after heating** | **44 - 48** | | **≤ 0,5** | **5700 - 6300 (35°C)** | **≤ 0,05** | **≤ 150** | Can be used for the production of prepolymers and polyols. Good flexing resistance and physical properties. Used in the production of men's and women's footwear in temperate climates. |
| **2130 B** | **Aliphatic** | **MEG, DEG** | Linear | **Clear after heating** | **38 - 42** | | **≤ 0,5** | **8300 - 9300 (35°C)** | **≤ 0,1** | **≤ 150** | |
| **2020 B** | **Aliphatic** | **MEG, DEG** | Linear | **Clear after heating** | **54 - 58** | | **≤ 0,7** | **4200 - 4700 ( 35°C)** | **≤ 0,1** | **≤ 150** | |
| **2010 B** | **Aliphatic** | **MEG, DEG** | Linear | **Waxy** | **108 - 116** | | **≤ 0,6** | **1150 - 1250 (35°C)** | **≤ 0,1** | **≤ 100** | |

| ELAPOL | ACIDS/ ANHYDRIDES | MAIN GLYCOLS | STRUCTURE | APPEARANCE | OH NUMBER mg KOH/g | | ACID NUMBER mg KOH/g | BROOKFIELD VISCOSITY mPa·s | WATER CONTENT % | HAZEN COLOUR | FIELD OF USE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **1120 B** | **Dicarboxylic** | **MEG, DEG** | Linear | **Clear** | **54 - 58** | | **≤ 0,5** | **650 - 750 (75°C)** | **≤ 0,03** | **≤ 12 (Gardner)** | Used in polyols for the production of sandals with low moulding density. Being slightly branched, extraction time is reduced |
| **1020 GL** | **Dicarboxylic** | **MEG** | Branched | **Liquid** | **59 - 64** | | **≤ 0,5** | **9000 - 11000 (35°C)** | **≤ 0,1** | **≤ 18 (Gardner)** | |

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