

Laripur series

General properties												
	abrasion resistance	hydrolysis resistance	cold flexibility	tear resistance	cold impact resistance	oxidation resistance	microbe resistance	thermal resistance	hot compression resistance	oil/fats resistance	acid/base resistance	outdoor resistance
20 standard adipate ester	++	0	0/+	++	0	++	0	+	0/+	++	0	0
25 special adipate ester	++	+	+	++	0/+	++	+	++	0/+	+/++	0/+	0/+
2102 polycaprolactone ester	++	+/++	+	++	+/++	++	+	++	+	+/++	+	+
50 modified ester	++	+	+	++	++	+/++	+	+	0	++	+	+
15/18 plasticized ester	++	+	++	++	++	+	0/+	+	0	0/+	0	0
60 PTMG polyether	++	++	+/++	+/++	+	0	++	0	0/+	+	++	+/++
Seal grades	++	+/++	+/++	++	++	+	+	++	++	++	+	+

++ excellent + good 0 sufficient - poor

Please keep the above indications just as indicative, even considering the behaviour of TPU grades can change significantly inside the same range.

Main applications

	technical items	heels	shoe soles	softer soles	ski boots	wheels, casters	bellows	seals	carriage tags	tubes	cables	transmission belts
20 standard adipate ester	●	□	●	●	□	●	□	□	□	□	□	□
25 special adipate ester	□	●	□	□	□	□	●	●	□	□	●	●
2102 polycaprolactone ester	□	□	□	□	□	□	□	●	□	□	□	□
50 modified ester	●	□	□	□	□	□	□	□	□	□	□	□
15/18 plasticized ester	●	□	□	□	□	□	□	□	□	□	□	□
60 PTMG polyether	□	□	●	●	□	□	●	●	□	□	□	□
Seal grades	●	□	□	□	□	□	□	□	□	□	□	□

● possible application □ recommended application

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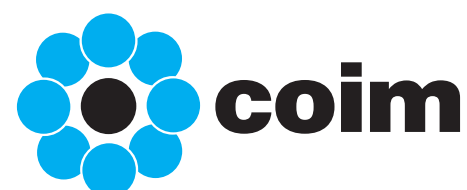
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Laripur

TYPICAL PROPERTIES



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General presentation of Laripur series

Laripurs are thermoplastic polyurethanes and consequently combine the working technology of thermoplastic products together with the well-known features of polyurethanes i.e.

- excellent abrasion resistance
- great flexibility and constancy at various temperatures
- good compression set resistance
- good water and light resistance
- good resistance to oils, fats and many types of solvent.

Depending on their chemical nature Laripurs can be grouped into several categories where the material formulations can be variously balanced to give the typical properties of polyurethanes as above.

Laripurs cover a wide range of hardness from 60 Shore A to 75 Shore D. An important property of the Laripur products is the total absence of plasticizers. There are however plasticized grades available which are suitable for specific applications. The raw materials used in the manufacture of Laripurs are isocyanates, chain extenders and polyols, which are reacted in carefully controlled conditions in order to ensure the highest possible quality and consistency of the end product.

By varying the quantity of the components in the formulation of the polyurethane, it is possible to cover a wide range of applications giving different mechanical and chemical resistances.

The general characteristics of each Series are as follows:

Series 15 and 18 plasticized ester

Products based on saturated polyester and containing a small amount of plasticizer, they have been specially developed to fill a gap between rubber materials and polyurethanes. They combine to give a very soft grade but with polyurethane's typical features such as good flexibility and abrasion resistance, while maintaining short processing times. This can be particularly applied to the shoe industry where TPUs guarantee excellent adhesion to the two-component PU without applying any primer.

Series 20 standard ester

Products based on standard grade saturated polyester. These show strong resilience and tear resistance, excellent abrasion resistance and good stability in water, solvents, light and oxidation.

Series 25 special ester

Products based on special grade saturated polyester. The features are similar to those of Series 20 but are characterized by a higher resistance to hydrolysis failure and improved flexibility at low temperatures.

Series 2102 polycaprolactone ester

Products based on polycaprolactones. They behave roughly in the same way as TPU in the Special Ester Series but exhibit a higher resistance to hydrolysis failure.

Series 50 modified ester

Products are obtained by homogenously incorporating small quantities of particular technopolymers in some rigid types belonging to the Special Ester Series. They couple their elevated hardness with an excellent cold impact resistance.

Series 60 and 2103 ether

Products based on quality polyether. In comparison with the Ester Series, they show a better resistance to hydrolysis and microbiological attack, a very good cold flexibility but a lower resistance to oxidation.

Products for gaskets

These are specially developed TPUs for manufacturing hydraulic gaskets or any other application where a high compression set, resistance to oils and/or high temperatures, is required. Two products based on polycaprolactone (2202-95A and 107-93A) plus one based on ether (2203-93A) belong to this group depending on the application.

Alloys

These are homogenous mixtures of other technopolymers with TPU in a variable ratio, the characteristics of which can vary considerably dependent on the nature of the binder.

Special uses

These grades cover the Series 40 Ester specification for calendaring and soluble grades for the production of synthetic leather.

Others

Other Laripur ranges are commercially available and are intended for special applications.

Economic applications

These TPUs are available on demand according to the application.

The characteristics in this technical data sheet are determined upon conditioned materials and mostly represent the average values found in the evaluation of a significant number of production lots. The present technical note has been written basing on our best knowledge but is not released as a specification for the above mentioned materials. The international standards here indicated have to be intended as a reference to carry out the various tests but the choice of available options and any possible variation are mentioned in our respective internal standards. Even if we guarantee the quality consistency of the Laripur indicated in the above list we periodically take the liberty to issue up-to-date version of the same. Laripur shelf-life has to be considered as six months from date of delivery.

