EPAFLEX POLYURETHANES

IF YOU NEED AN ADHESIVE, AN EPACOL TPU IS FOR YOU

Thermoplastic polyurethane (TPU) granules are innovative technical materials with characteristics that make them suitable for use in many disparate applications in the plastics industry.
One such application is that of solvent-based adhesives.

The Epacol series by Epaflex comprises products specifically developed for the processes of production of solvent-based adhesives.
The TPU granules in the Epacol series by Epaflex are heat activated and, therefore, inert at room temperature.
The range is available in various grades which differ in terms of viscosity, reactivation temperature, rate of crystallisation and solubility.
Epaflex produces TPUs at a consistently high quality and level of processability to meet the needs of the most complex and advanced applications.

ISO 9001 certification is a further guarantee of the excellence of our processes.

EPACOL TK is the line of TPUs designed for solvent-based adhesives and offers many benefits:

Good solubility in many organic solvents. (See Table A)
Suitable for many industrial sectors such as:

- Footwear
- Rubber
- Leather
- Wood
- Construction
- Automotive
- Plastic materials
- Metals
- High initial and final bond strength
- Excellent resistance to ageing

Our Epacol line is highly versatile as the various grades can be combined.
This means it is possible to obtain mixtures for increasing:

- Rate of crystallisation
- Reactivation temperature

The addition of isocyanates further improves the temperature and tear resistance of our Epacol line.

EPACOL TK solvent borne adhesives series

For each pure solvent, the attainable viscosity range is indicated with reference to the Mek, in equal conditions. All the data in table A are obtained using solutions having 15% of solid content. In the case of solvents with a Mek based mixture, the viscosity range is indicated together with, in brackets, the minimum ratio of Mek - Solvent in which the adhesive is still soluble. It could, of course, take a long time for the pellets to dissolve under such conditions, depending also on the specific original viscosity of the Mek.
Every time you choose a new formulation of the solvent, it is very important to carry out preliminary tests, in order to verify not only the solubility of the product but also the appearance and the stability of the resulting solution.

Characteristics within the range of those of the TK 42 and TK 570 can be obtained by mixing the two products in various ratios.

SOLVENTS	TK 42 VISCOSITY 2000 CPS	TK 570 VISCOSITY 2000 CPS
	1.0	1.0
Acetone	0,8	0,9
THF	1.6 - 1.7	1.7 - 1.9
Dioxane	7.8 - 8.0	7.0 - 9.0
Cyclohexanone	8.0 - 8.5	6.5 - 8.5
Toluene	Swell	Swell
Methylene Chloride	Gelatinous	Swell
1,1,1 Trichloroethane	Swell	Swell
Ethyl acetate	Swell/gelatinous	Swell
Trichloroethylene	Swell	Swell
Mek: Toluene	1.0 - 1.5 (7:3)	1.3 - 1.5 (9:1)
Mek Ethyl acetate	1.0 - 1.3 (8:2)	1.4 - 1.6 (8:2)
Mek: Methylene Chloride	1.0 - 1.3 (9:1)	Gelatinous (9:1)

Indicative information. Results to be checked first.
Table A

EPACOL GRADE	TK 42	TK 570
Density	1,16 g/cm^3	1,16 g/cm^3
Adhesion to plasticised materials	excellent	excellent
Glass Transition Temperature Tg	-37 °C	-33 °C
Reactivation temperature	approx. 55/60 °C	approx. 60/65 °C
Rate of crystallisation	high	very high
Creep Test, FEICA method	> 50 °C	> 65 °C
Tear resistance, FEICA method	> 5 - 7 N/mm	> 7 - 10 N/mm
Solution viscosity, 15% in mek at 23° [cps]	200 - 600	200 - 600
	1700 - 2200	1700 - 2200
	2700 - 3200	2700 - 3200

*Intermediate viscosity values are available on request.

Table B

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TREATMENT

The Epacol TPUs for adhesives are fully soluble in solvents commonly used for this application. (See Table A).

Please consult the technical data sheets taking into account the degree of crystallinity of each grade.
The amount of water in the solvents should be less than 0.1%.
The product is dry at room temperature and is activated only at the temperature indicated on the technical sheet.

STORAGE

The TPUs by Epaflex must be stored in a dry place at room temperature preferably around 15-20 °C and in any case at a temperature that is neither too high nor too low, and ideally in an environment that is cool and ventilated.

PACKAGING

Epaflex TPUs come in various packaging such as 25 Kg. Antistatics plastic bags and 600 Kg. or 1000 Kg. octabins.

EPAFLEX was established in 1991 as a system house specialised in producing polyurethane systems for the footwear industry.

Over the years, Epaflex's business has expanded further and diversified, first with the second line of products, Thermoplastic polyurethane (TPU) granules and then with the production of Polyurea, Polyaspartic Polyureas, Prepolymers and Sprays Foams for insulation.

Along with Elachem S.p.A., Epaflex belongs to an industrial group that recently completed an important chemical plant for resin production.

All the polyesters used in Epaflex TPU are manufactured in Elachem so that the quality of the raw material can be carefully controlled, giving it a suitable level of competitiveness for the market needs.

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