

*Thermoplastics Compounds based on Thermodynamic Vulcanized Elastomers*





## THERMOPLASTICS COMPOUNDS BASED ON THERMODYNAMIC VULCANIZED ELASTOMERS

**taroprene**® is the trade name for a new family of thermoplastic compounds based on a dynamical vulcanization of the elastomeric portion (TPV, o TPE-V). They show the typical performance of a thermoset rubber together with the advantages of a thermoplastic compound. The physical form of this compound is spherical in order to promote an easy feeding of the manufacturing machines. The final manufacture made by **taroprene**® does not need any post-vulcanization treatment.

**taroprene**® grades can be produced under both, standard and tailor-made formulations i.e. when showing a particular rheological behaviour in compliance to a specific customer's request, or when enhanced characteristics like improved UV resistance, copper/metal resistance are required. Mainly delivered in black and natural colour (the atural colour of the standard grade is slightly yellow and can be coloured using master pigments polyolefin based) and in many other colours upon request (brown, grey, red, yellow...)



**taroprene**® grades are 100% recyclable. The TPV grind obtained by the scraps coming out from the production lines or from the purge, can be reprocessed alone or dispersed in a virgin compound. Usually a mixture of 20% of TPV grind in a virgin compound does not affect the characteristics of the final manufacture.

**taroprene**® grades are used in the main segments of the industrial production like automotive, building & construction, electricity, goods, household, etc...



**taroprene**® grades show important recovery of its elastic characteristics under compression or elongation stress in a wide range of temperatures (even below -40°C and above 130°C). An easy classification of the **taroprene**® grades can be done by the hardness and according to the transformation techniques: Injection molding, extrusion, calendering, blow molding, etc...

**taroprene**® grades are suitable for a wide range of industrial fields due to the outstanding resistance to ozone and atmospheric aging, as well as to their excellent mechanical characteristics. Again, **taroprene**® grades can be formulated in order to improve the UV resistance, FDA compliance, Flame resistance, Adhesion to polar rigid substrate and more in general it fulfils to specific technical request..



In general the mechanical characteristics of **taroprene®** grades are related to the hardness. Here below you may find a chart showing the mechanical characteristics of three **taroprene®** grades with different hardness (very soft, intermediate and very hard):

<b>Hardness ASTM D 2240 Shore (3")</b>	<b>Density ASTM D 792 gr/cm<sup>3</sup></b>	<b>Tensile Break Strength ASTM D 412-C MPa</b>	<b>Elongation at Break ASTM D 412-C %</b>	<b>Tear Strength ASTM D 624-C N/mm</b>	<b>Compression set ASTM D 395-B 22hr/70°C %</b>
25 A	0,96	2,5	450	14	24
65 A	0,96	6,2	480	26	32
60 D	0,96	20,0	580	88	/

The values in the a.m. chart are only an example of what the mechanical properties of three standard **taroprene®** grades would be like.

The range of **taroprene®** grades are available as reinforced, UV stabilized, Copper stabilized, Flame resistant, as well as in a wide range of hardness and colours.

Remark: consider black and natural as standard grades. Any other colour can be formulated upon request.

In the following chart are reported the range of hardness and density of the main standard **taroprene®** grades:

<b>Description</b>	<b>Hardness Range Shore (3")</b>	<b>Density (gr/cm<sup>3</sup>)</b>
Standard Grade Copper/metal stabilized Grade UV stabilized Grade Very light natural colour Grade	shA 25 - shD 60	0,96
Filled Grade	shA 30 - shD 60	1,05
Flame retardant with Halogen Grade (V0)	shA 60 - shD 60	1,2 - 1,1
Flame retardant with Halogen Grade (V1-V2)	shA 50 - shD 60	1,2 - 1,0
Food contact Grade	shA 50 - shD 60	0,96
Good adhesion on polar substrate (PA, PC...)	shA 50 - shA 80	0,94
Special TPV white in natural colour	shA 50 - shD 40	0,95

Thanks to its polymeric nature the **taroprene®** grades show chemical affinity to the un-polar polymer, mainly polyolefinic based, and thus they show a perfect adhesion (it does not need any surface treatment or adhesive but only heat) to any manufacture made by polyolefins (polypropilenic and polyethylenic). Furthermore, our TPE's can satisfy a wide range of requests like; high temperature and atmospheric resistance, resistance to polar solvent, acid and basic liquid, etc...

Finally, with the new family of the **taroprene®** thermoset grades, Taro Plast S.p.A. makes a remarkable step forward in terms of complementing our existing offer of engineering plastics. Our goal is to give a global and high quality service to our customers.

