

Extractable Impurities of SIBSTAR®-TPV

- SIBS performs well over a wider range of temperature in terms of vibration attenuation, compared to other SBCs.
- With the help of tackifier, the peak temperature of tanδ curve can be controlled arbitrarily.

Test	Spec.	SIBSTAR®	SIBSTAR®-TPV			Typical Other TPV	
			S4300	P1140B	E1140B	PP/Butyl Rubber	PP/EPDM
Grades or Compositions		103T					
Chemistry for dynamic vulcanization		-	Hydrosilylation			Phenolic Resin	Hydro-silylation
Transparency @430nm	99.0%<	99.6%	99.8%	99.7%	99.8%	95.1%	98.6%
Transparency @650nm	99.0%<	99.8%	99.9%	99.9%	99.9%	97.8%	99.4%
pH Change	±1.0	<±0.5	<±0.5	<±0.5	<±0.5	<±0.5	<±0.5
KMnO4-reducing substances	<2.0mL	0.7mL	<0.5mL	<0.5mL	<0.5mL	2.7mL	0.9mL
Residue on evaporation	<2.0mg	<1.0mg	<1.0mg	<1.0mg	<1.0mg	3.2mg	<1.0mg
UV Spectrum	<0.20	0.03	0.02	<0.01	0.02	0.36	0.07

Typical Other TPV: PP/Butyl Rubber or PP/EPDM Composition
 Test method: Japan Pharmacopoeia 59 (Test for Rubber Closure for Aqueous Infusions; 121°C for 1 h)

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NOTE:

The properties of this brochure are typical values and are not intended as product specifications.

Restriction on Medical/Healthcare Applications

Please be noticed that the SIBSTAR® products are NOT manufactured in accordance with any legislative requirements/guidance for medical/healthcare applications. Users should inquire or contact authorities or organizations at own risk before any proposed use of SIBSTAR® in manufacture of medical device or other special indications.

Without the suitable regulatory assessments, Kaneka Corporation nor its subsidiaries may NOT provide or supply the SIBSTAR® products to the users.

SIBSTAR®-TPV

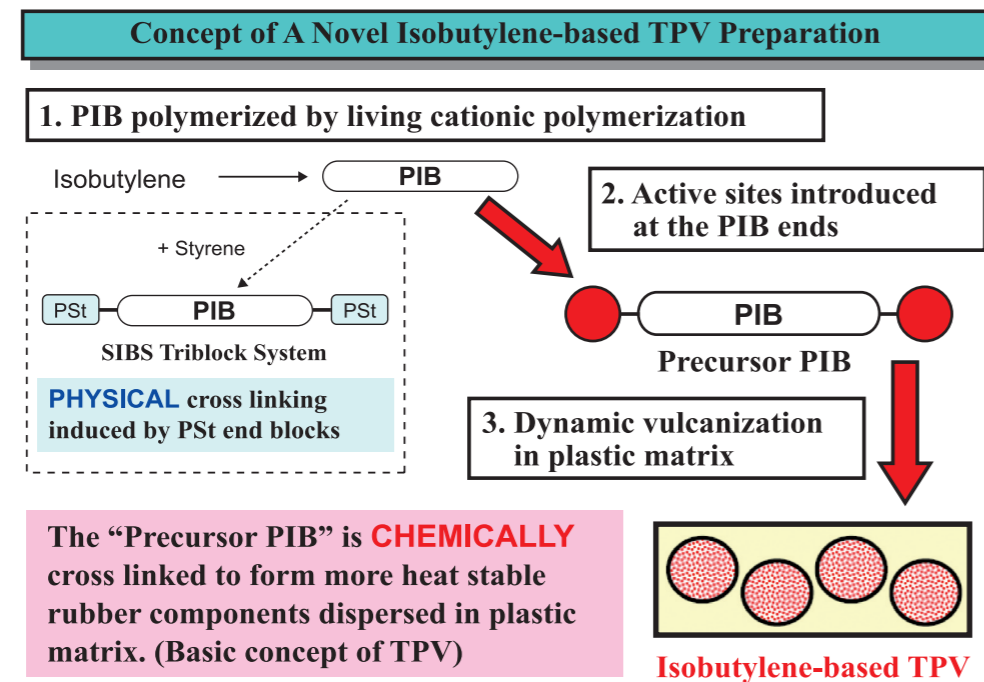
“Isobutylene-based” Thermoplastic Vulcanizates

The new TPV with Isobutylene chemistry provides:

- High service temperature
- Excellent gas barrier properties
- Low impurities/extractives

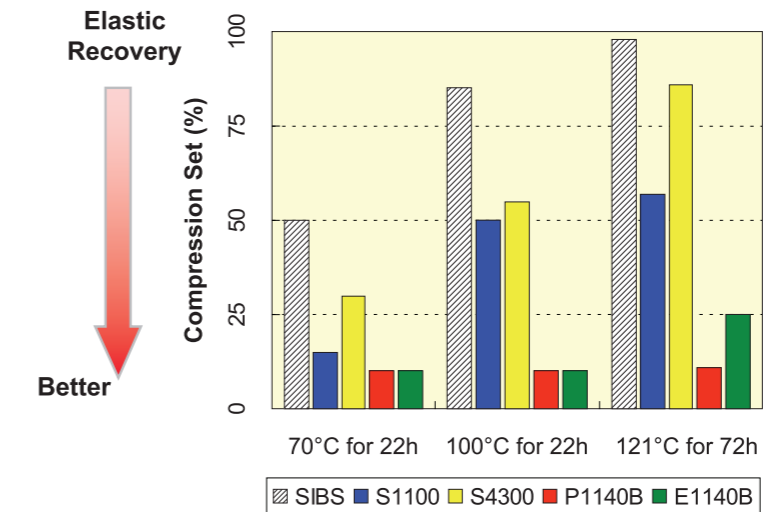
General Aspects of SIBSTAR®-TPV

- SIBSTAR®-TPV is a thermoplastic vulcanizates master batch system with high loading of cross-linked polyisobutylene(PIB) dispersed into various thermoplastic matrices, such as PP, HDPE, and Triblock SIBS.
- By hydrosilylation chemistry for the dynamic vulcanization process, SIBSTAR®-TPV has low level of impurities/by-products as well as good compression set performance at elevated temperature.



Compression Set Performance of SIBSTAR®-TPV

- SIBSTAR®-TPV grades have better elastic recovery characteristics, compared with SIBS triblock grades at elevated temperature.



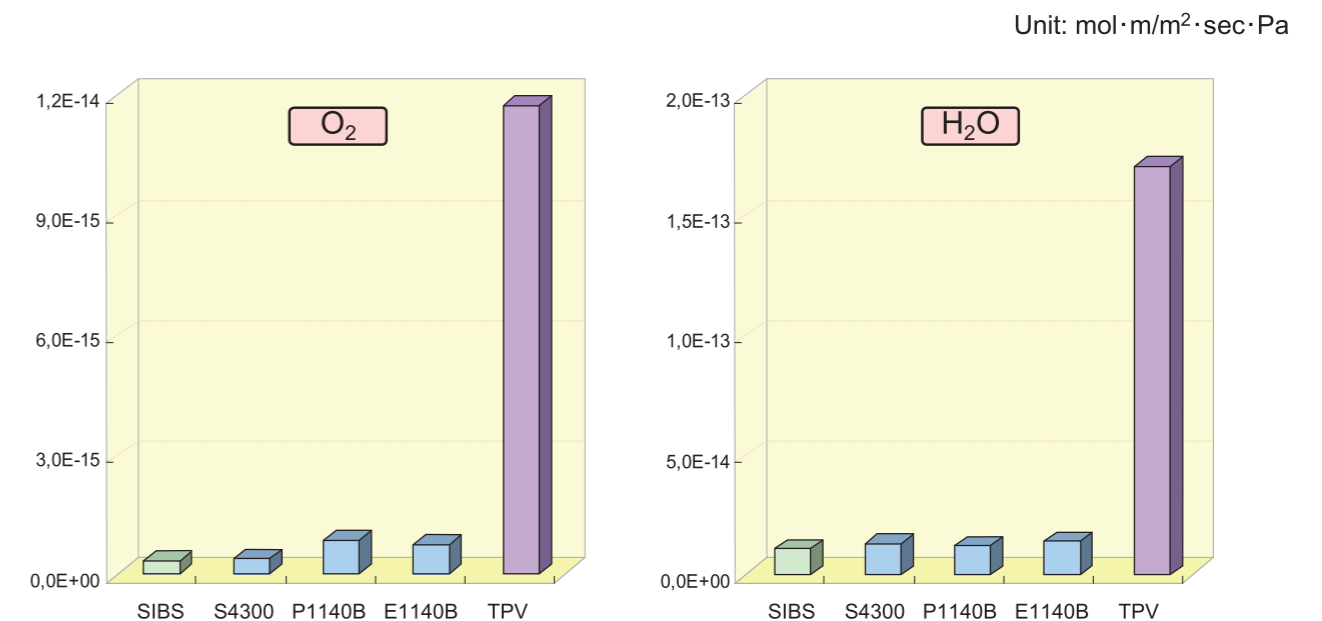
SIBS: SIBSTAR®103T
Test method: JISK6262(Determination of compression set)

Basic Properties of SIBSTAR®-TPV Grades

Properties		Method & Condition	Unit	SIBSTAR S1100	SIBSTAR S4300	SIBSTAR P1140B	SIBSTAR E1140B
Thermoplastic Matrix				SIBS	SIBS	PP	HDPE
Cross-linked Polyisobutylene Content (wt%)				90	70	66	66
Specific Gravity	Specific Gravity	JIS K6268	g/cm ³	0.92	0.93	0.91	0.92
Flexibility	Hardness	JIS K6253 (0sec)	JIS-A	33	35	42	39
Melt Viscosity	Apparent Viscosity	JIS K7199 230°C, 1,220sec ⁻¹	Poise	7,900	7,100	3,700	5,100
Tensile Properties	Strength @Break	JIS K6251 No.3 Dumbbell 23°C	MPa	2.3	10.0	2.1	2.6
	Elongation @Break		%	350	550	380	440
	Modulus @100%		MPa	0.7	0.7	1.0	0.8

Gas Barrier Performance of SIBSTAR®-TPV

- SIBSTAR®-TPV has lower gas permeation characteristics than other commercially available TPV.
- SIBSTAR®-TPV has similar gas permeability to that of SIBS Triblock and Polyolefins such as PP, PE.



SIBS: SIBSTAR®103T
TPV: Commercially available product (PP/EPDM system)
Test method (O₂, H₂O): JISK7126 (Testing method for gas transmission rate)