kaneka

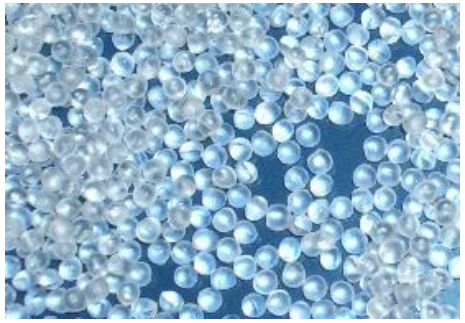
The Dreamology Company

—Make your dreams happen—

SIBSTAR™

Thermoplastic Elastomer

Wholly Saturated Styrene-Isobutylene Block Copolymer



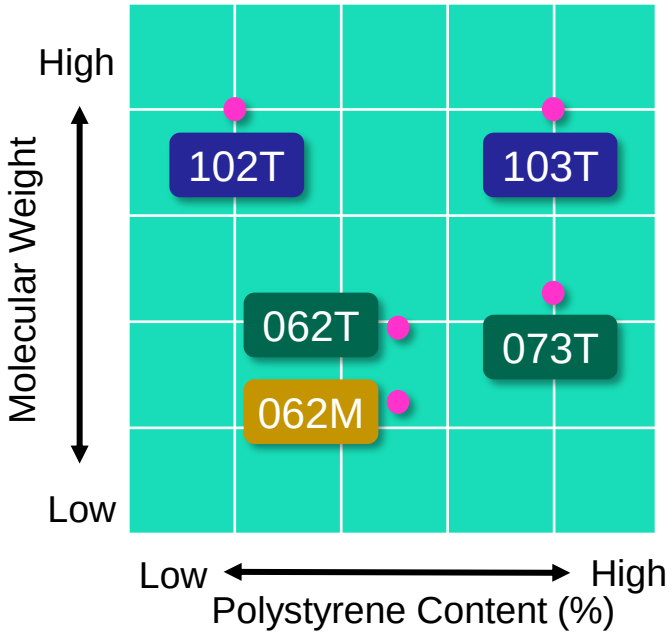
- ✓ Good heat aging resistance
- ✓ Excellent gas barrier properties
- ✓ High vibration damping performance
- ✓ Flexibility without liquid plasticizers

Jan. 2022

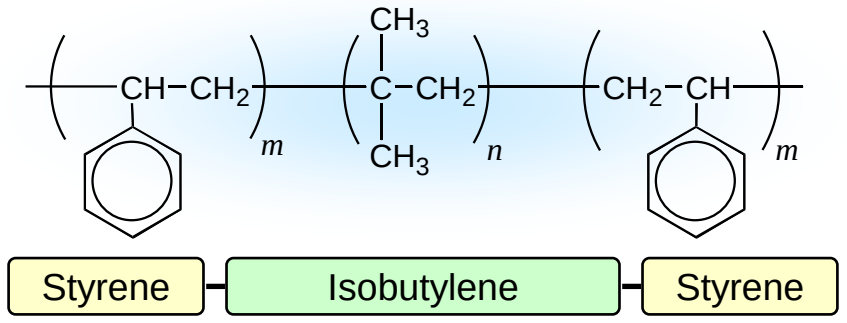
Primary Structure of SIBSTAR™

- SIBSTAR™ is constituted of Tri-block type “SIBS” and Di-block type “SIB”.
- SIBS varies in molecular weight and Styrene contents, and their hardness depends on Styrene contents.
- SIBS is more flexible than other SBCs, and less- or non-oil plasticizer system can be designed.

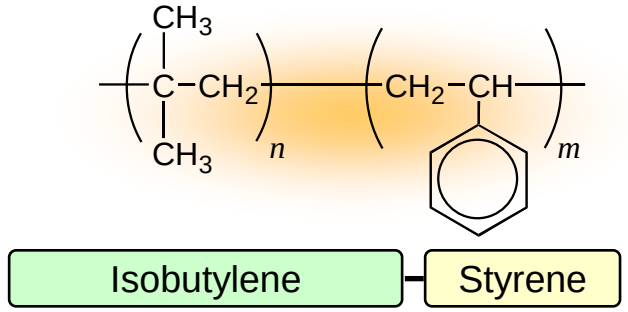
Structure of **SIBSTAR™**



Test method : KANEKA method
102T, 103T, 073T, 062T : SIBS
062M : SIBS/SIB



Styrene-Isobutylene-Styrene Triblock Copolymer (SIBS)



Styrene-Isobutylene Diblock Copolymer (SIB)

Basic Physical Properties of SIBSTAR™

Properties		Method / Condition	Unit	062M	062T	073T	102T	103T
Specific Gravity	Specific Gravity	JIS K 6268	g/cm^3	0.947	0.951	0.954	0.942	0.954
Flexibility	Hardness	JIS K 6253 (15sec delay)	JIS-A	20	35	45	25	46
Flow	MFR	JIS K 7210 230°C, 2.16kgf	g/10min	20	10	6	0.6	0.1
	Apparent Viscosity	JIS K 7199 200°C, $1220sec^{-1}$	poise	1100	1650	2000	3000	4000
Tensile Property	Strength @ Break	JIS K 6251	MPa	6	11	14	15	18
	Elongation @ Break	Dumbell type 3	%	760	630	650	870	620
	Modulus @ 100%	23°C	MPa	0.4	0.7	0.9	0.5	1.0
Tear Property	Tear Strength	JIS K 6252	kN/m	-	22	26	17	38
Permanent set	Tension Set	JIS K 6262 50% strain, 70°C, 24hr	%	-	88	69	75	43
	Compression Set	JIS K 6262 70°C, 22hr	%	95	90	70	65	50
Vibration Damping	DMA	JIS K 6394 23°C, 10Hz	tanδ	0.42	0.39	0.40	0.41	0.41
	Rebound Resilience	JIS K 6255 23°C	%	-	15	21	13	21
Gas Barrier Property	O_2 transmission coefficient	JIS K 7126-1 Method A, 23°C	$(\times 10^{-16})$ mol·m /m^2·sec·Pa	2.9	3.3	3.0	3.4	3.2
	H_2O Permeability	ISO 15106-4 40°C, 90%RH, 1mm^t	g/m^2·24hr	-	0.11	0.12	0.11	0.11

NOTES: The properties shown are typical values and are not intended as product specifications.

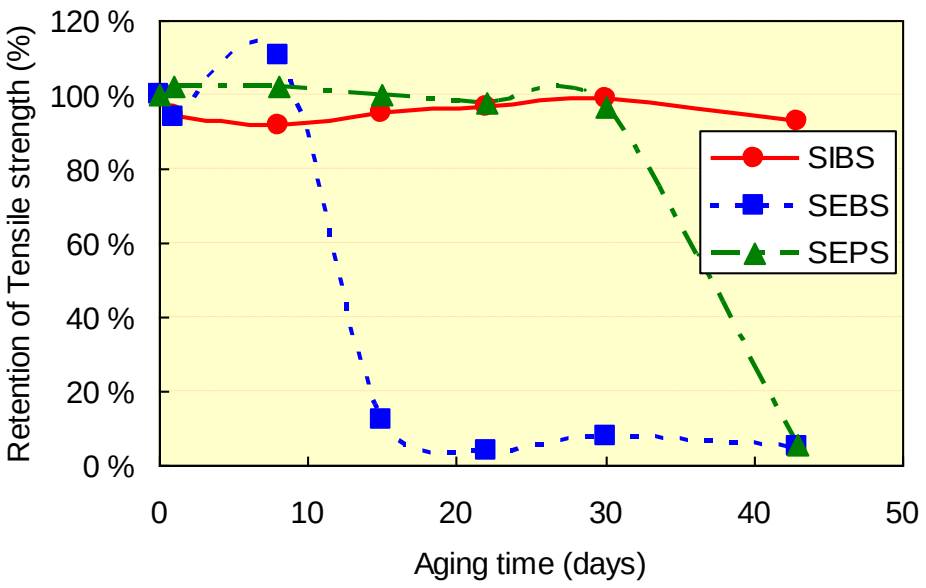
Restriction on Medical/Healthcare Applications

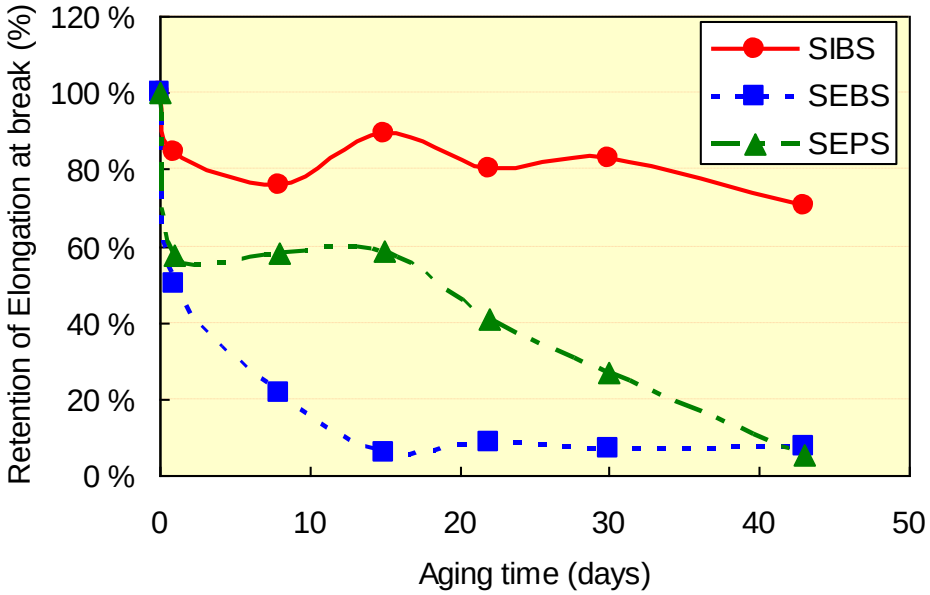
Please note that we do not manufacture our materials to suit medical standard or requirement. We can not provide any samples to customers in medical devices field without assessing their application. Please accept that we have no commitment to supply our materials on commercial base.

Heat ageing resistance of SIBSTAR™

- SIBS has a “wholly saturated” soft segment, and therefore SIBS is highly stable against heat ageing.
- SIBS has a better heat ageing resistance than hydrogenated SBCs, such as SEBS and SEPS.

Ageing temperature : 150˚C



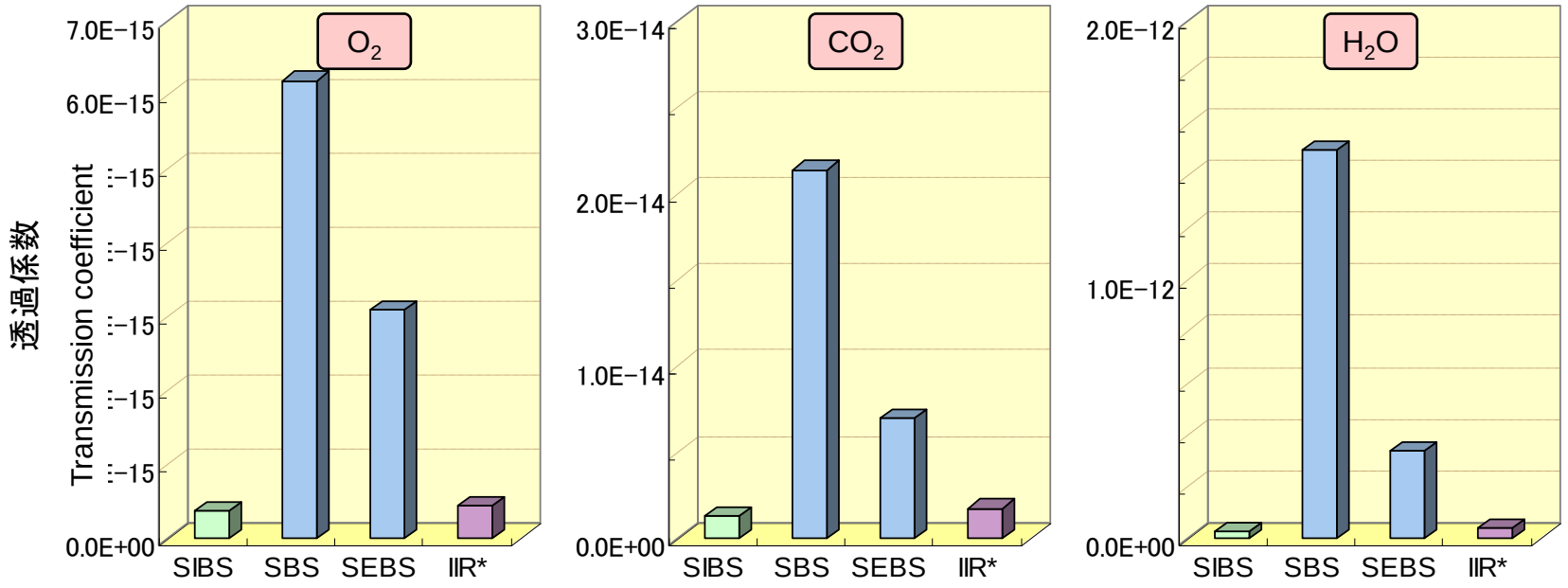


SIBS is 103T. SEBS and SEPS are commercially available polymer (M.W.=100000, St content=30%)
Test method : JISK6257(Determination of heat ageing properties)

Gas Barrier Performance of SIBSTAR™

- SIBS has lower gas permeation characteristics than those of other SBCs.
- SIBS has similar gas permeability to that of Butyl rubber (IIR) and Polyolefine (such as PP, HDPE).

Unit : mol･m／m²･sec･Pa

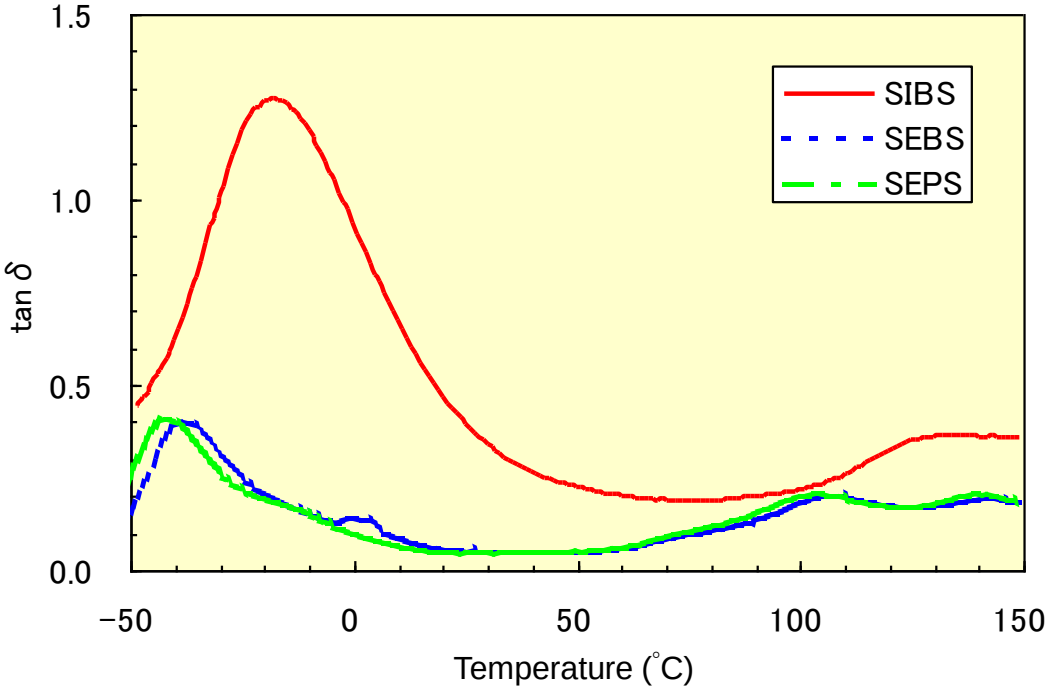


SIBS is 103T. SBS and SEBS are commercially available polymer (M.W.=100000, St content=30%)
Test method (O_2, CO_2) : JISK7126 (Testing method for gas transmission rate)
Test method (H_2O) : JISZ0208 (Testing method for water vaper transmission rate of moisture)
* The data of IIR is a book value. (reference : Polymer Handbook 4th Edition)

Vibration Damping Properties of SIBSTAR™

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

DMA : share mode, 10Hz, 0.05% strain



SIBS is 103T. SEBS and SEPS are commercially available polymer (M.W.=100000, St content=30%)
Test method : JISK6394(Testing method of dynamic properties)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