

CLEAREN

SBC (Styrene-Butadiene Copolymer)

Summary

CLEAREN is DENKA's trade name of Styrene-Butadiene Copolymer for shrinkable film application. CLEAREN is developed by DENKA's unique polymerization technology and have suitable combination between Styrene and Butadiene for excellent "Transparency" and "Processing".

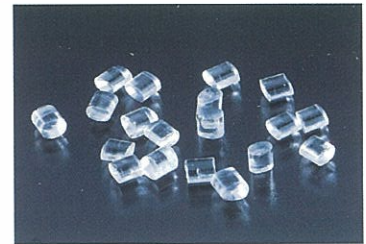
It's used in wide range of film application such as shrinkable sleeve, cap seal etc. CLEAREN is leading Japanese market in shrinkable film.

Features

- ▶ High and well balanced shrinkage
- ▶ Good finishing without wrinkles
- ▶ Low natural Shrinkage
- ▶ Low density
(about 20%-30% lower than PVC and PET)

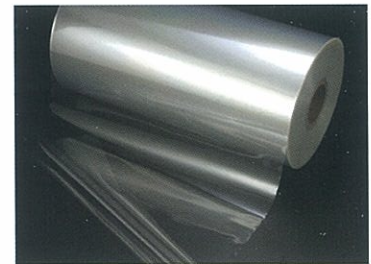
Processing

- ▶ Extrusion & Extension
(In-line & Off-line)
- ▶ Inflation



Comparison on Properties of each Material

	SBC	PVC	PET
High Shrinkage	Excellent	Fair	Excellent
Finishing Appearance	Good	Good	Fair
Perforation Easy-Cut	Excellent	Excellent	Fair



Applications



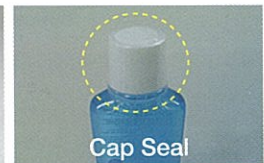
Shrinkable Label



Shrinkable Sleeve



Shrinkable Sleeve



Cap Seal



Candy Wrap

CLEAREN

(General Properties)

Properties	Methods	Conditions	Units	740M	511L	631M
				General & Shrinkable Film	Shrinkable Film	
					Middle Shrinkage	High Shrinkage
Haze	ISO 14782	4mmt	%	1.6	6.7	3.3
MFR	ISO 1133	200°C, 49N	g/10min	8	6	7
Tensile Stress at Yield	ISO 527-2	50mm/min	MPa	31	38	37
Tensile Stress at Break	ISO 527-2	50mm/min	MPa	16	29	27
Tensile Strain at Break	ISO 527-2	50mm/min	%	210	19	27
Flexural Stress	ISO 178	2mm/min	MPa	45	56	52
Flexural Modulus	ISO 178	2mm/min	MPa	1,400	1,860	1,860
Charpy Impact Strength	ISO 179	Notched, 23°C	Kg/m ²	1.8	1.6	2.1
Vicat Softening Temperature	ISO 306	10N	°C	83	72	70
Deflection Temperature Under Load	ISO 75-1.2	1.8MPa	°C	58	54	50
Density	ISO 1183	23°C	Kg/m ³	1.02	1.02	1.02
FDA 21CF177.140 Regulation*				√	√	√
EU Directive 10/2011 Regulation*				√	√	√

* Please contact us for details information.