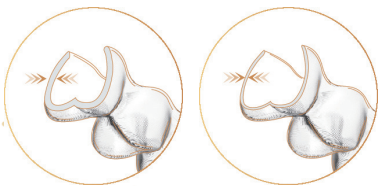
smileynova



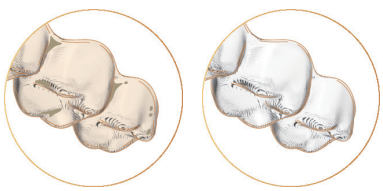
Tri-Layer TPU Aligner Material

Revolutionary clear aligner material for ideal orthodontic biomechanical expression

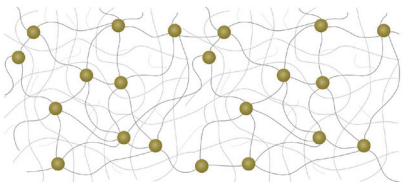
- SmileyNova's aligner material is made of polyether-based TPU (thermo-plastic polyurethane) with 3-layer structure.
- The sheet features high tensile strength, high modulus, and good bio-compatibility, an ideal choice for the production of clear aligner.
- The 3-layer solution reaches the balance between the resilience needed for easy insertion and take-off and the rigidity needed for force per-sistence and durability.
- Different properties of each layer ensure the ideal force expression re-quired by orthodontic treatment.



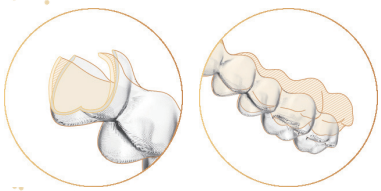
Lighter and Thinner



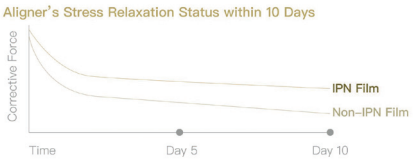
Better Stain Resistance



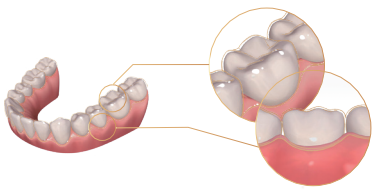
Stronger Tear Resistance



Higher Resilience



More Durable and Stable



Better Fitting

Physical Properties:

Property	Unit	Test Method	Value
Thickness	mm	GB/T 6672-2001	0.7±10%
Specific Gravity	g/cm	ASTM D792	1.2
Hardness	Shore A	ASTM D2240	82±3
Elongation at Break	%	ASTM D638	150
Tensile Strength at Break	MPa	ASTM D638	67
Tensile Modulus	MPa	ASTM D638	1900
Flexural Modulus	MPa	ASTM D790	2300
Vicat Softening Temp	℃	ASTM D1525	101±5

Recommended Parameters for Thermoforming:

Equipment Model	Reference Temp (℃)	Recommended Time (s)	Forming Pressure (bar)	Remarks
Scheu MiniSTAR S	220	25-40	≥4	Adjustable time
Scheu MiniSTAR	220	25-40	≥4	Adjustable time
Erkodent Unit	160-220	40-90	/	Adjustable temperature/time

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Email: info@smileynova.com
https://smileynova.com

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