

TPP

# Polyurethanes (PUs and TPUs)



A comprehensive range of products that provide comfort and convenience in countless ways

SONGWON offers an extensive range of polymers. "Solution" (thermosetting and/or thermoplastic) polyurethanes (PUs), thermoplastic polyurethanes (TPUs) and polyester diols, based on esterification technology are used in ink binders, adhesives, and other applications requiring solution PUs and TPUs.

Super absorbent polymers (SAPs) are suitable for applications where high water absorbance and excellent stability, regardless of heat and light, is required.

It's all about **the chemistry™**

 **SONGWON**

# Polyurethanes (PUs and TPUs)

One of the most versatile plastic materials available today, polyurethanes enhance industrial and consumer products, providing comfort and convenience in countless ways. They are used in furniture and household appliances, construction and electronics, the automotive sector, and for footwear and packaging.

Polyurethanes are either thermosetting or thermoplastic. Thermosetting polyurethane does not melt when heated because it reacts with the curing agent to form a net-like structure, while thermoplastic polyurethane (TPU) can be melted and molded as required.

With a long tradition and high experience in the sector, SONGWON offers both "solution-type" (thermosetting and/or thermoplastic, depending on hardener) and thermoplastic polyurethanes (TPUs).

SONGWON's solution-type polyurethane products are used in the production of synthetic leather (wet and dry process) and flexible packaging, and as ink binders on different plastic films.

Thermoplastic polyurethanes (TPUs) are highly suitable for extrusion and injection molding thanks to their physical properties, which are far superior to those of conventional cast-type polyurethane elastomers.

## Solution-Type Polyurethanes (PUs)



# PUs – Dry Process

## Artificial Leather

	Non-Volatile (%)	Viscosity (cps/room temp.)	Solvent	Film Properties: 100% MD (Kg/cm <sup>2</sup> )	Film Properties: Tensile Strength (Kg/cm <sup>2</sup> )
<b>HI-THANE™ S-1070</b>	29 ~ 31	60000 ~ 100000	DMF, MEK	25 ~ 30	400 ~ 500
<b>HI-THANE™ S-1090</b>	29 ~ 31	60000 ~ 100000	DMF, MEK	90 ~ 95	500 ~ 600
<b>HI-THANE™ S-1013</b>	29 ~ 31	60000 ~ 100000	DMF, MEK	180 ~ 200	350 ~ 450
<b>HI-THANE™ S-1082H</b>	29 ~ 31	70000 ~ 110000	DMF, MEK	60 ~ 70	500 ~ 600
<b>HI-THANE™ S-1082H-7</b>	29 ~ 31	70000 ~ 110000	DMF, MEK	60 ~ 70	500 ~ 600
<b>HI-THANE™ S-2434</b>	19 ~ 21	50000 ~ 80000	DMF, MEK, IPA	50 ~ 60	500 ~ 600
<b>HI-THANE™ S-2434F6</b>	19 ~ 21	50000 ~ 80000	DMF, MEK, IPA	50 ~ 60	500 ~ 600
<b>HI-THANE™ S-1088 / 1088H</b>	29 ~ 31	60000 ~ 100000	DMF, MEK	70 ~ 80	500 ~ 600
<b>HI-THANE™ S-1089</b>	29 ~ 31	70000 ~ 110000	DMF, MEK	70 ~ 80	500 ~ 600
<b>HI-THANE™ S-1900NY</b>	30 ~ 32	60000 ~ 100000	DMF, MEK	80 ~ 90	450 ~ 550
<b>HI-THANE™ S-1090F</b>	29 ~ 31	60000 ~ 100000	DMF, MEK	80 ~ 90	450 ~ 550
<b>HI-THANE™ S-1090FA</b>	22 ~ 24	10000 ~ 15000	DMF, MEK	55 ~ 65	250 ~ 350
<b>HI-THANE™ S-1090NS</b>	29 ~ 31	60000 ~ 100000	DMF, MEK	100 ~ 110	550 ~ 600
<b>HI-THANE™ S-1162</b>	30 ~ 32	60000 ~ 100000	DMF, MEK	80 ~ 90	500 ~ 600
<b>HI-THANE™ S-1363</b>	30 ~ 32	40000 ~ 70000	DMF, MEK	60 ~ 70	500 ~ 600

Film Properties: Elongation (%)	Characteristics	Applications	
500 ~ 600	<ul style="list-style-type: none"> <li>• Good low temperature resistance</li> <li>• Good elasticity</li> <li>• Soft touch</li> <li>• Good heat resistance</li> <li>• Excellent water pressure</li> </ul>	<ul style="list-style-type: none"> <li>• For wigs</li> <li>• Thin PUs</li> <li>• Garments</li> <li>• Water- and windproof treatment</li> </ul>	<b>HI-THANE™ S-1070</b>
400 ~ 500	<ul style="list-style-type: none"> <li>• Less tackiness</li> <li>• Good solvent resistance</li> <li>• Good hydrolysis resistance</li> <li>• Good heat resistance</li> </ul>	<ul style="list-style-type: none"> <li>• For wigs</li> <li>• Thin PUs</li> <li>• Garments</li> <li>• Water- and windproof treatment</li> <li>• Hard type PUs</li> </ul>	<b>HI-THANE™ S-1090</b>
200 ~ 250	<ul style="list-style-type: none"> <li>• Two tone type</li> <li>• Less tackiness</li> </ul>	<ul style="list-style-type: none"> <li>• Two tone type PUs</li> <li>• Water- and windproof treatment</li> </ul>	<b>HI-THANE™ S-1013</b>
400 ~ 500	<ul style="list-style-type: none"> <li>• Good low temperature resistance</li> <li>• Good elasticity</li> <li>• Good hydrolysis resistance</li> <li>• Good heat resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Shoes upper</li> <li>• Bags</li> </ul>	<b>HI-THANE™ S-1082H</b>
400 ~ 500	<ul style="list-style-type: none"> <li>• Good low temperature resistance</li> <li>• Good elasticity</li> <li>• Good hydrolysis resistance</li> <li>• Good heat resistance</li> <li>• Excellent UV resistance</li> <li>• Good NOx resistant</li> </ul>	<ul style="list-style-type: none"> <li>• Shoes upper</li> <li>• Bags</li> </ul>	<b>HI-THANE™ S-1082H-7</b>
300 ~ 400	<ul style="list-style-type: none"> <li>• Good NOx resistant</li> <li>• Good hydrolysis resistance</li> <li>• Good elasticity</li> </ul>	<ul style="list-style-type: none"> <li>• Vehicle interiors</li> <li>• Furniture</li> </ul>	<b>HI-THANE™ S-2434</b>
300 ~ 400	<ul style="list-style-type: none"> <li>• Good NOx resistant</li> <li>• Waxy touch</li> <li>• Good hydrolysis resistance</li> <li>• Good elasticity</li> </ul>	<ul style="list-style-type: none"> <li>• Vehicle interiors</li> <li>• Furniture</li> </ul>	<b>HI-THANE™ S-2434F6</b>
400 ~ 500	<ul style="list-style-type: none"> <li>• Good low temperature resistance</li> <li>• Good elasticity</li> <li>• Good hydrolysis resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Shoes upper</li> <li>• Bags</li> </ul>	<b>HI-THANE™ S-1088</b>
400 ~ 500	<ul style="list-style-type: none"> <li>• Good low temperature resistance</li> <li>• Good elasticity</li> <li>• Good hydrolysis resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Shoes upper</li> <li>• Bags</li> </ul>	<b>HI-THANE™ S-1089</b>
450 ~ 550	<ul style="list-style-type: none"> <li>• No tackiness</li> <li>• Good NOx resistant</li> </ul>	<ul style="list-style-type: none"> <li>• Balls</li> <li>• Enamel type for shoes upper</li> </ul>	<b>HI-THANE™ S-1900NY</b>
450 ~ 550	<ul style="list-style-type: none"> <li>• Good low temperature resistance</li> <li>• Less tackiness</li> <li>• Good scratch resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Shoes upper</li> <li>• Semi hard type PUs</li> </ul>	<b>HI-THANE™ S-1090F</b>
350 ~ 450	<ul style="list-style-type: none"> <li>• Good low temperature resistance</li> <li>• Less tackiness</li> <li>• Good scratch resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Micro gravure coatings</li> </ul>	<b>HI-THANE™ S-1090FA</b>
400 ~ 500	<ul style="list-style-type: none"> <li>• No swelling</li> <li>• Less tackiness</li> <li>• Good hydrolysis resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Shoes upper</li> <li>• Semi hard type PUs</li> </ul>	<b>HI-THANE™ S-1090NS</b>
550 ~ 650	<ul style="list-style-type: none"> <li>• Good heat resistance</li> <li>• Good scratch resistance</li> <li>• Good hydrolysis resistance</li> <li>• Wet touch</li> </ul>	<ul style="list-style-type: none"> <li>• Soccer shoes upper</li> </ul>	<b>HI-THANE™ S-1162</b>
400 ~ 500	<ul style="list-style-type: none"> <li>• Good heat resistance</li> <li>• Good scratch resistance</li> <li>• Good hydrolysis resistance</li> <li>• Wet touch</li> </ul>	<ul style="list-style-type: none"> <li>• Shoes upper</li> </ul>	<b>HI-THANE™ S-1363</b>

	Non-Volatile (%)	Viscosity (cps/room temp.)	Solvent	Film Properties: 100% MD (Kg/cm <sup>2</sup> )	Film Properties: Tensile Strength (Kg/cm <sup>2</sup> )
<b>HI-THANE™ S-2533B</b>	29 ~ 31	70000 ~ 110000	DMF, MEK	70 ~ 80	500 ~ 600
<b>HI-THANE™ S-5145</b>	28 ~ 31	60000 ~ 100000	DMF, MEK	60 ~ 70	500 ~ 600
<b>HI-THANE™ S-1082D</b>	29 ~ 31	70000 ~ 110000	DMF, MEK	60 ~ 70	500 ~ 600
<b>HI-THANE™ S-1082D-7</b>	29 ~ 31	70000 ~ 110000	DMF, MEK	60 ~ 70	500 ~ 600
<b>HI-THANE™ S-6000B</b>	29 ~ 31	60000 ~ 100000	DMF, MEK	50 ~ 60	500 ~ 600

### Water- and Windproofing

<b>HI-THANE™ S-1019A</b>	38 ~ 42	60000 ~ 100000	IPA, MEK, TOL	15 ~ 20	150 ~ 250
<b>HI-THANE™ S-1157</b>	28 ~ 31	30000 ~ 70000	DMF, MEK	25 ~ 35	350 ~ 450
<b>HI-THANE™ S-1510A</b>	28 ~ 31	30000 ~ 50000	DMF, MEK, TOL	50 ~ 60	500 ~ 600
<b>HI-THANE™ S-5346</b>	38 ~ 42	60000 ~ 100000	DMF, MEK, TOL	5 ~ 15	30 ~ 100
<b>HI-THANE™ SA-8500A</b>	53 ~ 57	40000 ~ 80000	DMF, MEK, TOL	15 ~ 25	100 ~ 200
<b>HI-THANE™ SP-1500G</b>	28 ~ 32	40000 ~ 70000	DMF, MEK	50 ~ 60	500 ~ 600

### Direct Coating

<b>HI-THANE™ S-1056</b>	48 ~ 52	110000 ~ 150000	DMF, MEK	20 ~ 25	400 ~ 500
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Film Properties: Elongation (%)	Characteristics	Applications	
400 ~ 500	<ul style="list-style-type: none"> <li>• Good low temperature resistance</li> <li>• Good elasticity</li> <li>• Good hydrolysis resistance</li> <li>• Excellent UV resistant</li> <li>• Good NOx resistant</li> </ul>	<ul style="list-style-type: none"> <li>• Shoes upper</li> <li>• Bags</li> </ul>	<b>HI-THANE™ S-2533B</b>
400 ~ 500	<ul style="list-style-type: none"> <li>• Good low temperature resistance</li> <li>• Good elasticity</li> <li>• Good hydrolysis resistance</li> <li>• Good heat resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Shoes upper</li> <li>• Semi hard type PUs</li> </ul>	<b>HI-THANE™ S-5145</b>
400 ~ 500	<ul style="list-style-type: none"> <li>• Good low temperature resistance</li> <li>• Good elasticity</li> <li>• Good hydrolysis resistance</li> <li>• Good heat resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Shoes upper</li> <li>• Bags</li> </ul>	<b>HI-THANE™ S-1082D</b>
400 ~ 500	<ul style="list-style-type: none"> <li>• Good low temperature resistance</li> <li>• Good elasticity</li> <li>• Good hydrolysis resistance</li> <li>• Good heat resistance</li> <li>• Excellent UV resistant</li> <li>• Good NOx resistant</li> </ul>	<ul style="list-style-type: none"> <li>• Shoes upper</li> <li>• Bags</li> </ul>	<b>HI-THANE™ S-1082D-7</b>
500 ~ 600	<ul style="list-style-type: none"> <li>• Good elasticity</li> <li>• Soft touch</li> <li>• Good heat resistance</li> <li>• Excellent water pressure resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Thin PUs</li> <li>• Garments</li> </ul>	<b>HI-THANE™ S-6000B</b>

750 ~ 850	<ul style="list-style-type: none"> <li>• Good waterproofing and moisture permeability</li> <li>• Good hydrolysis resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Thin PUs</li> <li>• Garments</li> <li>• Base coating for breathable treatment</li> </ul>	<b>HI-THANE™ S-1019A</b>
650 ~ 750	<ul style="list-style-type: none"> <li>• Good waterproofing and moisture permeability</li> <li>• Good hydrolysis resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Thin PUs</li> <li>• Garments</li> <li>• Top coating for breathable treatment</li> </ul>	<b>HI-THANE™ S-1157</b>
450 ~ 550	<ul style="list-style-type: none"> <li>• Good waterproofing and moisture permeability</li> <li>• Good hydrolysis resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Laminating skin for breathable treatment</li> </ul>	<b>HI-THANE™ S-1510A</b>
250 ~ 350	<ul style="list-style-type: none"> <li>• Good waterproofing and moisture permeability</li> <li>• Good hydrolysis resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Thin PUs</li> <li>• Garments</li> <li>• Base coating for breathable treatment</li> </ul>	<b>HI-THANE™ S-5346</b>
350 ~ 450	<ul style="list-style-type: none"> <li>• Good waterproofing and moisture permeability</li> <li>• Less swelling</li> <li>• Good hydrolysis resistance</li> <li>• Lamination type</li> </ul>	<ul style="list-style-type: none"> <li>• Laminating adhesive for breathable treatment</li> </ul>	<b>HI-THANE™ SA-8500A</b>
450 ~ 550	<ul style="list-style-type: none"> <li>• Good waterproofing and moisture permeability</li> <li>• No swelling</li> <li>• Good hydrolysis resistance</li> <li>• Lamination type</li> </ul>	<ul style="list-style-type: none"> <li>• Laminating skin for breathable treatment</li> </ul>	<b>HI-THANE™ SP-1500G</b>

400 ~ 500	<ul style="list-style-type: none"> <li>• Soft type</li> <li>• High density</li> <li>• High viscosity</li> </ul>	<ul style="list-style-type: none"> <li>• Thin PUs</li> <li>• Garments</li> <li>• Base coating for water- and windproof treatment</li> </ul>	<b>HI-THANE™ S-1056</b>
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<b>HI-THANE™ S-1056S</b>	48 ~ 52	60000 ~ 100000	DMF, MEK	90 ~ 100	500 ~ 600
<b>HI-THANE™ S-1063D</b>	38 ~ 42	60000 ~ 100000	DMF, MEK, TOL	50 ~ 60	300 ~ 400
<b>HI-THANE™ S-1064B</b>	58 ~ 62	60000 ~ 100000	DMF, MEK	1 ~ 3	1 ~ 3
<b>HI-THANE™ S-1070J</b>	29 ~ 31	60000 ~ 100000	DMF, EA	40 ~ 45	500 ~ 600
<b>HI-THANE™ S-1075J</b>	34 ~ 36	70000 ~ 110000	DMF, MEK	40 ~ 45	450 ~ 550
<b>HI-THANE™ S-1004H</b>	29 ~ 31	60000 ~ 100000	DMF, MEK	70 ~ 80	400 ~ 500
<b>HI-THANE™ S-1008ND</b>	29 ~ 31	60000 ~ 100000	DMF, MEK	20 ~ 25	400 ~ 500
<b>HI-THANE™ S-1040K</b>	39 ~ 41	60000 ~ 100000	DMF, MEK, TOL	5 ~ 15	300 ~ 400
<b>HI-THANE™ S-1066L</b>	48 ~ 52	70000 ~ 110000	DMF, MEK	90 ~ 100	500 ~ 600
<b>HI-THANE™ S-3060E</b>	34 ~ 36	50000 ~ 90000	DMF, MEK, TOL	25 ~ 35	400 ~ 500
<b>HI-THANE™ S-2018</b>	48 ~ 52	60000 ~ 100000	DMF, EA, TOL	10 ~ 20	30 ~ 100
<b>HI-THANE™ S-2018D</b>	48 ~ 52	60000 ~ 100000	DMAc, EA, TOL	10 ~ 20	30 ~ 100
<b>HI-THANE™ S-3011B</b>	32 ~ 36	60000 ~ 100000	IPA, MEK(EA), TOL	8 ~ 10	50 ~ 60
<b>HI-THANE™ S-3050W</b>	29 ~ 31	50000 ~ 90000	DMF, MEK, TOL	40 ~ 50	400 ~ 500
<b>HI-THANE™ S-3126B</b>	48 ~ 52	80000 ~ 120000	DMF, EA	100 ~ 110	300 ~ 400



400 ~ 500	<ul style="list-style-type: none"> <li>• High density</li> <li>• Less tackiness</li> </ul>	<ul style="list-style-type: none"> <li>• Thin PUs</li> <li>• Garments</li> <li>• Top coating for water- and windproof treatment</li> </ul>	<b>HI-THANE™ S-1056S</b>
450 ~ 550	<ul style="list-style-type: none"> <li>• Good low temperature resistance</li> <li>• Excellent water pressure resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Thin PUs</li> <li>• Garments</li> <li>• Top coating for water- and windproof treatment</li> </ul>	<b>HI-THANE™ S-1063D</b>
900 ~ 1000	<ul style="list-style-type: none"> <li>• Soft type</li> <li>• High density</li> </ul>	<ul style="list-style-type: none"> <li>• Thin PUs</li> <li>• Garments</li> <li>• Base coating for water- and windproof treatment</li> </ul>	<b>HI-THANE™ S-1064B</b>
450 ~ 550	<ul style="list-style-type: none"> <li>• Good low temperature resistance</li> <li>• Good elasticity</li> <li>• Soft touch</li> <li>• Good heat resistance</li> <li>• Excellent water pressure resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Thin PUs</li> <li>• Garments</li> <li>• Water- and windproof treatment</li> </ul>	<b>HI-THANE™ S-1070J</b>
450 ~ 550	<ul style="list-style-type: none"> <li>• Good low temperature resistance</li> <li>• Good elasticity</li> <li>• Good heat resistance</li> <li>• Excellent water pressure resistance</li> <li>• Good solvent resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Thin PUs</li> <li>• Garments</li> <li>• Water- and windproof treatment</li> </ul>	<b>HI-THANE™ S-1075J</b>
450 ~ 550	<ul style="list-style-type: none"> <li>• Less tackiness</li> <li>• Good hydrolysis resistance</li> <li>• Good solvent resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Thin PUs</li> <li>• Garments</li> <li>• Water- and windproof treatment</li> </ul>	<b>HI-THANE™ S-1004H</b>
500 ~ 600	<ul style="list-style-type: none"> <li>• Soft touch</li> <li>• Good hydrolysis resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Thin PUs</li> <li>• Garments</li> <li>• Water- and windproof treatment</li> </ul>	<b>HI-THANE™ S-1008ND</b>
800 ~ 900	<ul style="list-style-type: none"> <li>• Soft type</li> <li>• High density</li> </ul>	<ul style="list-style-type: none"> <li>• Thin PUs</li> <li>• Garments</li> <li>• Base coating for water- and windproof treatment</li> </ul>	<b>HI-THANE™ S-1040K</b>
350 ~ 450	<ul style="list-style-type: none"> <li>• High density</li> <li>• Less tackiness</li> </ul>	<ul style="list-style-type: none"> <li>• Thin PUs</li> <li>• Garments</li> <li>• Top coating for water- and windproof treatment</li> </ul>	<b>HI-THANE™ S-1066L</b>
650 ~ 750	<ul style="list-style-type: none"> <li>• No yellowing</li> </ul>	<ul style="list-style-type: none"> <li>• Thin PUs</li> <li>• Garments</li> <li>• Top coating for water- and windproof treatment</li> </ul>	<b>HI-THANE™ S-3060E</b>
350 ~ 450	<ul style="list-style-type: none"> <li>• Good low temperature resistance</li> <li>• Good elasticity</li> <li>• High density</li> <li>• Good water pressure resistance</li> <li>• Good adhesion melting temperature (110 ~ 120°C)</li> </ul>	<ul style="list-style-type: none"> <li>• Garments</li> <li>• Base coating for water- and windproof treatment</li> </ul>	<b>HI-THANE™ S-2018</b>
350 ~ 450	<ul style="list-style-type: none"> <li>• Good low temperature resistance</li> <li>• Good elasticity</li> <li>• High density</li> <li>• Good water pressure resistance</li> <li>• Good adhesion melting temperature (110 ~ 120°C)</li> </ul>	<ul style="list-style-type: none"> <li>• Garments</li> <li>• Bags</li> <li>• Base coating for water- and windproof treatment</li> </ul>	<b>HI-THANE™ S-2018D</b>
750 ~ 850	<ul style="list-style-type: none"> <li>• Good low temperature resistance</li> <li>• Good elasticity</li> <li>• Good heat resistance</li> <li>• Excellent water pressure resistance</li> <li>• Good tear strength</li> </ul>	<ul style="list-style-type: none"> <li>• Thin PUs</li> <li>• Garments</li> <li>• Base coating for water- and windproof treatment</li> </ul>	<b>HI-THANE™ S-3011B</b>
400 ~ 500	<ul style="list-style-type: none"> <li>• Non yellowing</li> <li>• Less tackiness</li> </ul>	<ul style="list-style-type: none"> <li>• Thin PUs</li> <li>• Garments</li> <li>• Top coating for water- and windproof treatment</li> </ul>	<b>HI-THANE™ S-3050W</b>
300 ~ 400	<ul style="list-style-type: none"> <li>• Good elasticity</li> <li>• Good water pressure resistance</li> <li>• High density</li> <li>• No tackiness</li> </ul>	<ul style="list-style-type: none"> <li>• Garments</li> <li>• Top coating for water- and windproof treatment</li> </ul>	<b>HI-THANE™ S-3126B</b>

## PUs – Wet Process

Smooth Layer

	Non-Volatile (%)	Viscosity (cps/room temp.)	Solvent	Film Properties: 100% MD (Kg/cm <sup>2</sup> )	Film Properties: Tensile Strength (Kg/cm <sup>2</sup> )
<b>HI-THANE™ SW-1034I</b>	29 ~ 31	120000 ~ 160000	DMF	20 ~ 30	450 ~ 550
<b>HI-THANE™ SW-1034L</b>	22 ~ 24	15000 ~ 20000	DMF	20 ~ 30	450 ~ 550
<b>HI-THANE™ SW-1135</b>	29 ~ 32	90000 ~ 130000	DMF	30 ~ 40	400 ~ 500
<b>HI-THANE™ SW-4089</b>	34 ~ 36	130000 ~ 170000	DMF	35 ~ 45	450 ~ 550
<b>HI-THANE™ SW-5809</b>	29 ~ 31	130000 ~ 170000	DMF	50 ~ 60	450 ~ 550
<b>HI-THANE™ SW-6035</b>	34 ~ 36	130000 ~ 170000	DMF	38 ~ 48	450 ~ 550
<b>HI-THANE™ SW-6045</b>	34 ~ 36	130000 ~ 170000	DMF	40 ~ 50	450 ~ 550
<b>HI-THANE™ SW-6059</b>	34 ~ 36	130000 ~ 170000	DMF	38 ~ 48	450 ~ 550
<b>HI-THANE™ SW-7068</b>	34 ~ 36	130000 ~ 170000	DMF	42 ~ 52	400 ~ 500
<b>HI-THANE™ SW-7085</b>	34 ~ 36	130000 ~ 170000	DMF	50 ~ 60	550 ~ 650
<b>HI-THANE™ SW-7085B</b>	32 ~ 34	130000 ~ 170000	DMF	50 ~ 60	550 ~ 650
<b>HI-THANE™ SW-8059</b>	34 ~ 36	140000 ~ 180000	DMF	50 ~ 60	450 ~ 550

Film Properties: Elongation (%)	Characteristics	Applications	
650 ~ 750	<ul style="list-style-type: none"> <li>• Good buffing properties</li> <li>• Good heat resistance</li> <li>• Good hydrolysis resistance</li> <li>• Soft and wet touch</li> <li>• Good UV, NOx resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Volley balls</li> <li>• Golf gloves</li> </ul>	<b>HI-THANE™ SW-1034I</b>
950 ~ 1050	<ul style="list-style-type: none"> <li>• Good buffing properties</li> <li>• Good heat resistance</li> <li>• Good hydrolysis resistance</li> <li>• Soft and wet touch</li> <li>• Good UV, NOx resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Volley balls</li> <li>• Golf gloves</li> </ul>	<b>HI-THANE™ SW-1034L</b>
750 ~ 850	<ul style="list-style-type: none"> <li>• Good buffing properties</li> <li>• Good heat resistance</li> <li>• Good hydrolysis resistance</li> <li>• Good UV, NOx resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Hot stamping labels</li> </ul>	<b>HI-THANE™ SW-1135</b>
650 ~ 750	<ul style="list-style-type: none"> <li>• Good buffing properties</li> <li>• Good heat resistance</li> <li>• Good hydrolysis resistance</li> <li>• Good UV, NOx resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Shoes</li> <li>• Films</li> </ul>	<b>HI-THANE™ SW-4089</b>
600 ~ 700	<ul style="list-style-type: none"> <li>• Good buffing properties</li> <li>• High adhesive strength</li> <li>• Good heat resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Nubuck for shoes</li> </ul>	<b>HI-THANE™ SW-5809</b>
650 ~ 750	<ul style="list-style-type: none"> <li>• Good buffing properties</li> <li>• Good hydrolysis resistance</li> <li>• Good heat resistance</li> <li>• Good UV, NOx resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Shoes</li> <li>• Film</li> <li>• Balls</li> </ul>	<b>HI-THANE™ SW-6035</b>
600 ~ 700	<ul style="list-style-type: none"> <li>• Good buffing properties</li> <li>• Excellent hydrolysis resistance</li> <li>• Good heat resistance</li> <li>• Good UV, NOx resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Shoes</li> <li>• Film</li> <li>• Balls</li> </ul>	<b>HI-THANE™ SW-6045</b>
650 ~ 750	<ul style="list-style-type: none"> <li>• Good buffing properties</li> <li>• Good hydrolysis resistance</li> <li>• Good heat resistance</li> <li>• Good UV, NOx resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Shoes</li> <li>• Film</li> <li>• Balls</li> </ul>	<b>HI-THANE™ SW-6059</b>
600 ~ 700	<ul style="list-style-type: none"> <li>• Good buffing properties</li> <li>• Good hydrolysis resistance</li> <li>• Good heat resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Nubuck for shoes</li> </ul>	<b>HI-THANE™ SW-7068</b>
600 ~ 700	<ul style="list-style-type: none"> <li>• Good buffing properties</li> <li>• Good hydrolysis resistance</li> <li>• Good heat resistance</li> <li>• Good UV, NOx resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Shoes</li> <li>• Semi hard type PUs</li> </ul>	<b>HI-THANE™ SW-7085</b>
600 ~ 700	<ul style="list-style-type: none"> <li>• Good buffing properties</li> <li>• Good hydrolysis resistance</li> <li>• Good heat resistance</li> <li>• Good UV, NOx resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Shoes</li> <li>• Semi hard type PUs</li> </ul>	<b>HI-THANE™ SW-7085B</b>
550 ~ 650	<ul style="list-style-type: none"> <li>• Excellent embossing properties</li> </ul>	<ul style="list-style-type: none"> <li>• Basket balls</li> </ul>	<b>HI-THANE™ SW-8059</b>

## Dipping

	Non-Volatile (%)	Viscosity (cps/room temp.)	Solvent	Film Properties: 100% MD (Kg/cm <sup>2</sup> )	Film Properties: Tensile Strength (Kg/cm <sup>2</sup> )
<b>HI-THANE™ SW-3061</b>	30 ~ 32	60000 ~ 90000	DMF	45 ~ 55	450 ~ 550
<b>HI-THANE™ SW-5109</b>	29 ~ 31	80000 ~ 120000	DMF	70 ~ 85	500 ~ 600
<b>HI-THANE™ SW-55P</b>	29 ~ 32	60000 ~ 100000	DMF	55 ~ 60	450 ~ 550

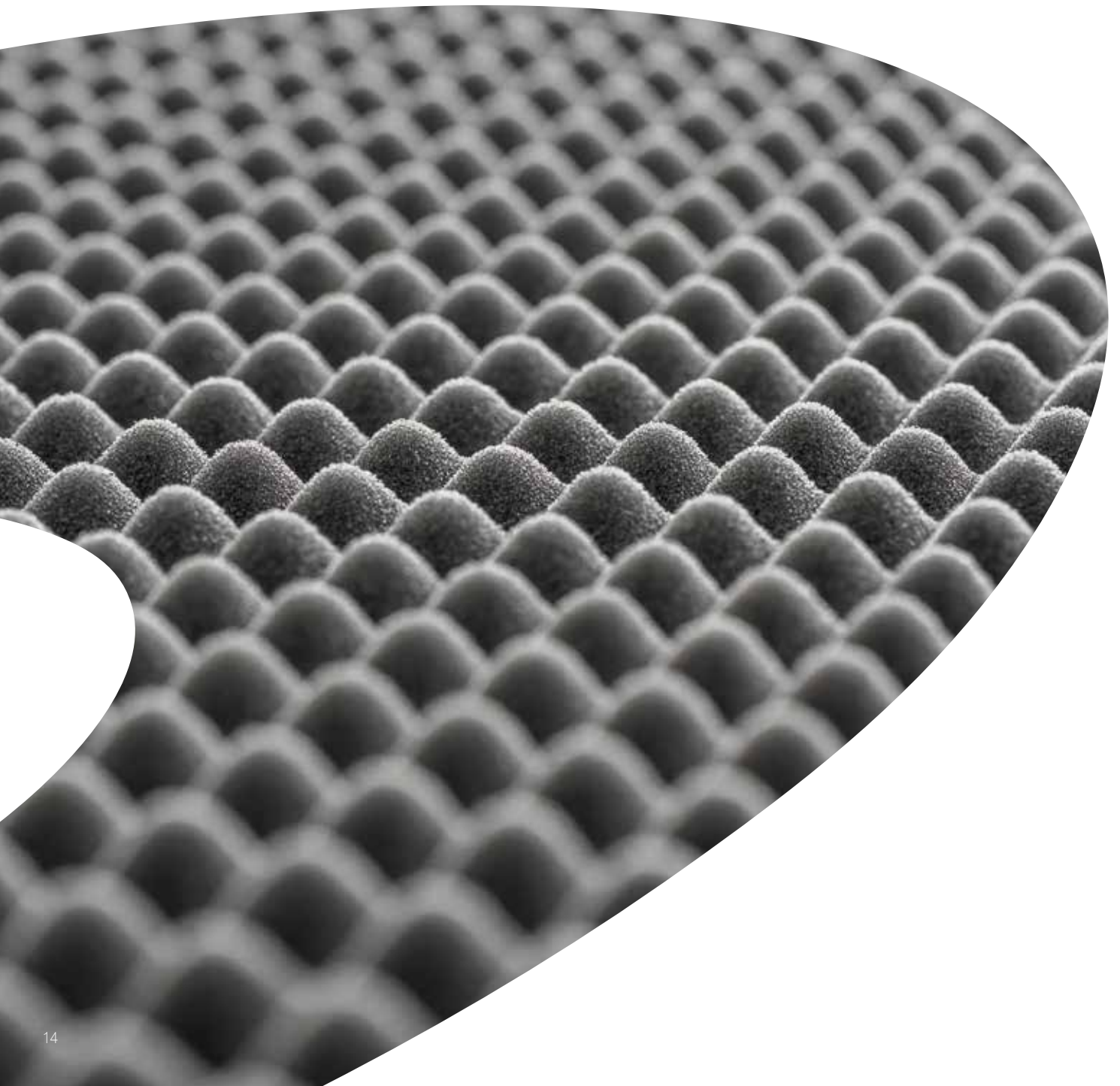
## Gloves

<b>HI-THANE™ SW-2030</b>	29 ~ 31	140000 ~ 180000	DMF	20 ~ 30	400 ~ 500
<b>HI-THANE™ SW-8040A</b>	27 ~ 29	130000 ~ 180000	DMF	70 ~ 80	600 ~ 700
<b>HI-THANE™ SW-8075J</b>	29 ~ 31	120000 ~ 160000	DMF	35 ~ 45	500 ~ 600
<b>HI-THANE™ SW-8075JM</b>	27 ~ 29	60000 ~ 90000	DMF	35 ~ 45	500 ~ 600
<b>HI-THANE™ SW-8075JN</b>	29 ~ 31	150000 ~ 190000	DMF	35 ~ 45	500 ~ 600
<b>HI-THANE™ SW-8079</b>	29 ~ 31	140000 ~ 180000	DMF	30 ~ 40	450 ~ 550
<b>HI-THANE™ SW-8083</b>	29 ~ 31	140000 ~ 180000	DMF	20 ~ 30	450 ~ 550
<b>HI-THANE™ SW-8085D</b>	29 ~ 31	140000 ~ 200000	DMF	28 ~ 38	500 ~ 600
<b>HI-THANE™ SW-8085L</b>	29 ~ 31	40000 ~ 60000	DMF	28 ~ 38	500 ~ 600
<b>HI-THANE™ SW-8087</b>	29 ~ 31	140000 ~ 200000	DMF	25 ~ 35	500 ~ 600

Film Properties: Elongation (%)	Characteristics	Applications	
550 ~ 650	<ul style="list-style-type: none"> <li>• Excellent in pigment blends</li> </ul>	<ul style="list-style-type: none"> <li>• Toners</li> </ul>	<b>HI-THANE™ SW-3061</b>
500 ~ 600	<ul style="list-style-type: none"> <li>• Suitable for dipping process</li> <li>• Less tackiness</li> <li>• Excellent hydrolysis resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Dipping for shoes</li> </ul>	<b>HI-THANE™ SW-5109</b>
550 ~ 650	<ul style="list-style-type: none"> <li>• Good low temperature resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Dipping for shoes</li> <li>• Polishing pads</li> </ul>	<b>HI-THANE™ SW-55P</b>
650 ~ 750	<ul style="list-style-type: none"> <li>• Suitable for dipping process</li> <li>• Good heat resistance</li> <li>• Very easy removal from the mold</li> </ul>	<ul style="list-style-type: none"> <li>• Dipping for gloves</li> </ul>	<b>HI-THANE™ SW-2030</b>
500 ~ 600	<ul style="list-style-type: none"> <li>• Good in mar resistance</li> <li>• Suitable for dipping process</li> <li>• Good heat resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Dipping for gloves</li> <li>• Semi hard type PUs</li> </ul>	<b>HI-THANE™ SW-8040A</b>
550 ~ 650	<ul style="list-style-type: none"> <li>• Suitable for dipping process</li> <li>• Easy removal from the mold</li> <li>• Good heat resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Dipping for gloves</li> </ul>	<b>HI-THANE™ SW-8075J</b>
550 ~ 650	<ul style="list-style-type: none"> <li>• Good in mar resistance</li> <li>• Suitable for dipping process</li> <li>• Good heat resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Dipping for gloves</li> </ul>	<b>HI-THANE™ SW-8075JM</b>
550 ~ 650	<ul style="list-style-type: none"> <li>• Suitable for dipping process</li> <li>• Easy removal from the mold</li> <li>• Good heat resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Dipping for gloves</li> </ul>	<b>HI-THANE™ SW-8075JN</b>
650 ~ 750	<ul style="list-style-type: none"> <li>• Suitable for dipping process</li> <li>• Easy removal from the mold</li> <li>• Good heat resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Dipping for gloves</li> </ul>	<b>HI-THANE™ SW-8079</b>
650 ~ 750	<ul style="list-style-type: none"> <li>• Good in mar resistance</li> <li>• Suitable for dipping process</li> <li>• Good heat resistance</li> <li>• Good wet touch</li> </ul>	<ul style="list-style-type: none"> <li>• Dipping for gloves</li> </ul>	<b>HI-THANE™ SW-8083</b>
550 ~ 650	<ul style="list-style-type: none"> <li>• Good in mar resistance</li> <li>• Suitable for dipping process</li> <li>• Good heat resistance</li> </ul>	<ul style="list-style-type: none"> <li>• Dipping for gloves</li> </ul>	<b>HI-THANE™ SW-8085D</b>
550 ~ 650	<ul style="list-style-type: none"> <li>• Good in mar resistance</li> <li>• Suitable for dipping process</li> <li>• Good heat resistance</li> <li>• Good anti-blocking</li> </ul>	<ul style="list-style-type: none"> <li>• Dipping for gloves</li> </ul>	<b>HI-THANE™ SW-8085L</b>
550 ~ 650	<ul style="list-style-type: none"> <li>• Suitable for dipping process</li> <li>• Good heat resistance</li> <li>• Very easy removal from the mold</li> </ul>	<ul style="list-style-type: none"> <li>• Dipping for gloves</li> </ul>	<b>HI-THANE™ SW-8087</b>

## Water- and Windproofing

<b>HI-THANE™ SW-305</b>	29 ~ 32	90000 ~ 130000	DMF	40 ~ 50	450 ~ 550
<b>HI-THANE™ SW-508</b>	29 ~ 32	130000 ~ 170000	DMF	50 ~ 60	450 ~ 550
<b>HI-THANE™ SW-903</b>	19 ~ 22	60000 ~ 100000	DMF	80 ~ 90	450 ~ 550



500 ~ 600	<ul style="list-style-type: none"> <li>• Good waterproofing and moisture permeability</li> </ul>	<ul style="list-style-type: none"> <li>• Garments for breathable treatment</li> </ul>	<b>HI-THANE™ SW-305</b>
500 ~ 600	<ul style="list-style-type: none"> <li>• Good waterproofing and moisture permeability</li> <li>• Good buffing properties</li> </ul>	<ul style="list-style-type: none"> <li>• Garments for breathable treatment</li> </ul>	<b>HI-THANE™ SW-508</b>
350 ~ 450	<ul style="list-style-type: none"> <li>• Good waterproofing and moisture permeability</li> </ul>	<ul style="list-style-type: none"> <li>• Garments for breathable treatment</li> </ul>	<b>HI-THANE™ SW-903</b>

# PUs – Adhesives

## Artificial Leather

	Non-Volatile (%)	Viscosity (cps/room temp.)	Solvent	Film Properties: 100% MD (Kg/cm <sup>2</sup> )	Film Properties: Tensile Strength (Kg/cm <sup>2</sup> )
<b>HI-THANE™ A-1080HM</b>	35 ~ 37	3000 ~ 4000	DMF, MEK	20 ~ 30	200 ~ 300
<b>HI-THANE™ A-1081HM</b>	35 ~ 37	6000 ~ 12000	DMAC, MEK	20 ~ 30	200 ~ 300
<b>HI-THANE™ A-1212HM</b>	49 ~ 51	11000 ~ 16000	DMF, MEK	20 ~ 30	80 ~ 90
<b>HI-THANE™ A-1212HM-L</b>	49 ~ 51	11000 ~ 16000	DMF, MEK	10 ~ 20	50 ~ 60
<b>HI-THANE™ A-1830HM-1</b>	29 ~ 31	10000 ~ 15000	DMF, MEK	25 ~ 35	300 ~ 400
<b>HI-THANE™ A-2014</b>	34 ~ 36	80000 ~ 120000	DMF, MEK, TOL	10 ~ 15	200 ~ 250
<b>HI-THANE™ A-205</b>	48 ~ 52	40000 ~ 70000	DMF, MEK	–	–
<b>HI-THANE™ A-2075</b>	73 ~ 77	150 ~ 450	ET-AC	–	–
<b>HI-THANE™ A-2083HM</b>	34 ~ 36	11000 ~ 15000	DMF, EA, TOL	50 ~ 60	150 ~ 200
<b>HI-THANE™ A-2090HM</b>	43 ~ 47	10000 ~ 14000	DMF, ET-AC	–	–
<b>HI-THANE™ A-BWP</b>	33 ~ 35	100 ~ 500	MEK, TOL	BWP / CA-35BL = 9 ~ 10/1	
<b>HI-THANE™ A-3310D</b>	68 ~ 72	70000 ~ 110000	DMF, MEK	–	–
<b>HI-THANE™ A-7004</b>	43 ~ 47	70000 ~ 110000	DMF, EA, TOL	75 ~ 80	400 ~ 500
<b>HI-THANE™ A-7004YS</b>	43 ~ 47	70000 ~ 110000	DMF, EA	75 ~ 80	400 ~ 500
<b>HI-THANE™ A-7005</b>	43 ~ 47	30000 ~ 60000	MEK, TOL	25 ~ 35	300 ~ 400
<b>HI-THANE™ A-7026</b>	73 ~ 77	60000 ~ 100000	MEK	10 ~ 15	150 ~ 200
<b>HI-THANE™ A-7028</b>	68 ~ 72	40000 ~ 70000	MEK, TOL	10 ~ 15	150 ~ 200
<b>HI-THANE™ A-7069C</b>	68 ~ 72	90000 ~ 130000	DMF, MEK	15 ~ 25	300 ~ 400
<b>HI-THANE™ A-7069M</b>	68 ~ 72	90000 ~ 130000	MEK	15 ~ 25	300 ~ 400
<b>HI-THANE™ A-7070</b>	68 ~ 72	80000 ~ 120000	DMF, MEK, TOL	20 ~ 30	400 ~ 500
<b>HI-THANE™ A-8006H</b>	58 ~ 62	60000 ~ 100000	TOL	15 ~ 20	300 ~ 400
<b>HI-THANE™ A-8006HL</b>	58 ~ 62	5000 ~ 10000	TOL	15 ~ 20	300 ~ 400
<b>HI-THANE™ A-8007</b>	44 ~ 46	80000 ~ 120000	DMF, MEK, TOL	60 ~ 65	500 ~ 550
<b>HI-THANE™ A-8070</b>	44 ~ 46	80000 ~ 120000	DMF, MEK, TOL	70 ~ 75	500 ~ 550
<b>HI-THANE™ A-8802</b>	78 ~ 82	20000 ~ 40000	MEK, TOL	10 ~ 15	300 ~ 400
<b>HI-THANE™ A-9401</b>	29 ~ 31	10000 ~ 14000	DMF, MEK	20 ~ 30	150 ~ 250
<b>HI-THANE™ A-9404</b>	29 ~ 31	40000 ~ 50000	DMF, MEK	20 ~ 30	300 ~ 400



Film Properties: Elongation (%)	Characteristics	Applications	
600 ~ 700	<ul style="list-style-type: none"> <li>Hot melt type</li> <li>Melting temperature 100 ~ 110°C</li> </ul>	<ul style="list-style-type: none"> <li>Garments</li> </ul>	<b>HI-THANE™ A-1080HM</b>
600 ~ 700	<ul style="list-style-type: none"> <li>Hot melt type</li> <li>Melting temperature 100 ~ 110°C</li> </ul>	<ul style="list-style-type: none"> <li>Garments</li> </ul>	<b>HI-THANE™ A-1081HM</b>
550 ~ 650	<ul style="list-style-type: none"> <li>Hot melt type</li> <li>Melting temperature 100 ~ 115°C</li> </ul>	<ul style="list-style-type: none"> <li>Garments</li> </ul>	<b>HI-THANE™ A-1212HM</b>
450 ~ 550	<ul style="list-style-type: none"> <li>Hot melt type</li> <li>Melting temperature 70 ~ 80°C</li> </ul>	<ul style="list-style-type: none"> <li>Garments</li> </ul>	<b>HI-THANE™ A-1212HM-L</b>
500 ~ 600	<ul style="list-style-type: none"> <li>Hot melt type</li> <li>Melting temperature 130°C</li> </ul>	<ul style="list-style-type: none"> <li>Garments</li> </ul>	<b>HI-THANE™ A-1830HM</b>
900 ~ 1000	<ul style="list-style-type: none"> <li>Soft type</li> </ul>	<ul style="list-style-type: none"> <li>Garments</li> </ul>	<b>HI-THANE™ A-2014</b>
–	<ul style="list-style-type: none"> <li>Semi 2-component type adhesive</li> <li>Good initial tack</li> </ul>	<ul style="list-style-type: none"> <li>Shoes</li> <li>Bags</li> </ul>	<b>HI-THANE™ A-205</b>
–	<ul style="list-style-type: none"> <li>Additive</li> <li>Adhesion Promotor</li> </ul>	<ul style="list-style-type: none"> <li>Gravure ink for PET films</li> </ul>	<b>HI-THANE™ A-2075</b>
750 ~ 850	<ul style="list-style-type: none"> <li>Hot melt type</li> <li>Melting temperature 60 ~ 70°C</li> </ul>	<ul style="list-style-type: none"> <li>Garments</li> </ul>	<b>HI-THANE™ A-2083HM</b>
–	<ul style="list-style-type: none"> <li>Hot melt type</li> <li>Melting temperature 50 ~ 60°C</li> <li>Excellent UV resistance</li> </ul>	<ul style="list-style-type: none"> <li>Shoes</li> <li>Bags</li> </ul>	<b>HI-THANE™ A-2090HM</b>
BWP / CA-35BL = 9 ~ 10/1	<ul style="list-style-type: none"> <li>Excellent adhesion between wood and plastic</li> <li>Heat press type</li> </ul>	<ul style="list-style-type: none"> <li>Glass fiber / wood lamination</li> </ul>	<b>HI-THANE™ A-BWP</b>
–	<ul style="list-style-type: none"> <li>Semi 2-component type adhesive</li> <li>Good adhesion</li> </ul>	<ul style="list-style-type: none"> <li>Vehicles</li> </ul>	<b>HI-THANE™ A-3310D</b>
400 ~ 500	<ul style="list-style-type: none"> <li>Excellent adhesion to PVC, nylon</li> <li>Good hydrolysis resistance</li> </ul>	<ul style="list-style-type: none"> <li>General type PUs</li> </ul>	<b>HI-THANE™ A-7004</b>
400 ~ 500	<ul style="list-style-type: none"> <li>Excellent adhesion to PVC, nylon</li> <li>Good hydrolysis resistance</li> </ul>	<ul style="list-style-type: none"> <li>General type PUs</li> </ul>	<b>HI-THANE™ A-7004YS</b>
400 ~ 500	<ul style="list-style-type: none"> <li>Excellent adhesion to PVC, nylon</li> <li>Good adhesion resistance</li> </ul>	<ul style="list-style-type: none"> <li>General type PUs</li> </ul>	<b>HI-THANE™ A-7005</b>
400 ~ 500	<ul style="list-style-type: none"> <li>Excellent adhesion to PVC</li> <li>Dry lamination type</li> </ul>	<ul style="list-style-type: none"> <li>General type PUs</li> <li>Stamping foils</li> </ul>	<b>HI-THANE™ A-7026</b>
400 ~ 500	<ul style="list-style-type: none"> <li>Excellent adhesion to PVC</li> <li>Good hydrolysis resistance</li> </ul>	<ul style="list-style-type: none"> <li>General type for PVC leathers</li> </ul>	<b>HI-THANE™ A-7028</b>
400 ~ 500	<ul style="list-style-type: none"> <li>Excellent adhesion</li> <li>Good low temperature flexibility</li> </ul>	<ul style="list-style-type: none"> <li>General type PUs</li> </ul>	<b>HI-THANE™ A-7069C</b>
400 ~ 500	<ul style="list-style-type: none"> <li>Excellent adhesion</li> <li>Good low temperature flexibility</li> </ul>	<ul style="list-style-type: none"> <li>Artificial leathers for furniture</li> </ul>	<b>HI-THANE™ A-7069M</b>
500 ~ 550	<ul style="list-style-type: none"> <li>Good hydrolysis resistance</li> </ul>	<ul style="list-style-type: none"> <li>Artificial leathers for sport shoes</li> </ul>	<b>HI-THANE™ A-7070</b>
400 ~ 450	<ul style="list-style-type: none"> <li>Dry lamination</li> <li>Good initial tack</li> </ul>	<ul style="list-style-type: none"> <li>General type PUs</li> <li>Stamping foils</li> </ul>	<b>HI-THANE™ A-8006H</b>
400 ~ 450	<ul style="list-style-type: none"> <li>Dry lamination</li> <li>Good initial tack</li> </ul>	<ul style="list-style-type: none"> <li>General type PUs</li> <li>Stamping foils</li> </ul>	<b>HI-THANE™ A-8006HL</b>
250 ~ 300	<ul style="list-style-type: none"> <li>Semi-hard type</li> <li>Good elasticity</li> <li>Good adhesion</li> </ul>	<ul style="list-style-type: none"> <li>Bags</li> </ul>	<b>HI-THANE™ A-8007</b>
250 ~ 300	<ul style="list-style-type: none"> <li>Hard type</li> <li>Good hydrolysis resistance</li> <li>Good adhesion</li> </ul>	<ul style="list-style-type: none"> <li>Bags</li> </ul>	<b>HI-THANE™ A-8070</b>
550 ~ 650	<ul style="list-style-type: none"> <li>Foaming type</li> <li>Multipurpose adhesion to PVC</li> </ul>	<ul style="list-style-type: none"> <li>General type PUs</li> </ul>	<b>HI-THANE™ A-8802</b>
450 ~ 550	<ul style="list-style-type: none"> <li>Good electromagnetic shielding binder</li> </ul>	<ul style="list-style-type: none"> <li>Binder for metal powders</li> </ul>	<b>HI-THANE™ A-9401</b>
600 ~ 700	<ul style="list-style-type: none"> <li>Good electromagnetic shielding binder</li> </ul>	<ul style="list-style-type: none"> <li>Binder for metal powders</li> </ul>	<b>HI-THANE™ A-9404</b>

## PU – Adhesives for Flexible Packaging

One Component

	Non-Volatile (%)	Viscosity (cps/room temp.)	Solvent	NCO content (%)
<b>HI-THANE™ A-8200</b>	100	800 ~ 1300 (80°C)	None	4.8 ~ 5.8
<b>HI-THANE™ A-8400</b>	73 ~ 77	3000 ~ 5000	ET-AC	2 ~ 3

Two Component

<b>HI-THANE™ A-2050LM</b>	68 ~ 72	2000 ~ 5000	MeOH	–
<b>HI-THANE™ A-2070LM</b>	67 ~ 73	2000 ~ 5000	MeOH	–
<b>HI-THANE™ A-2100S</b>	63 ~ 67	2000 ~ 5000	ET-AC	–
<b>HI-THANE™ A-2232</b>	33 ~ 37	250 ~ 500	ET-AC, EtOH	–
<b>HI-THANE™ A-2750</b>	73 ~ 77	4000 ~ 8000	ET-AC	–
<b>HI-THANE™ A-3065</b>	63 ~ 67	2000 ~ 5000	ET-AC	–
<b>HI-THANE™ A-3070</b>	68 ~ 72	8000 ~ 12000	ET-AC	–
<b>HI-THANE™ A-3100S</b>	63 ~ 67	2000 ~ 5000	ET-AC	–
<b>HI-THANE™ A-3110</b>	48 ~ 52	2000 ~ 5000	ET-AC	–
<b>HI-THANE™ A-3110T</b>	48 ~ 52	2000 ~ 5000	ET-AC	–
<b>HI-THANE™ A-3360E</b>	58 ~ 62	400 ~ 800	ET-AC	–
<b>HI-THANE™ A-4210R</b>	58 ~ 62	2000 ~ 5000	ET-AC	–
<b>HI-THANE™ A-4650R</b>	63 ~ 67	2000 ~ 5000	ET-AC	–
<b>HI-THANE™ A-5100B</b>	58 ~ 62	2000 ~ 5000	ET-AC	–
<b>HI-THANE™ A-6200</b>	100	600 ~ 1000 (40°C)	None	–
<b>HI-THANE™ A-6301</b>	100	700 ~ 1300 (40°C)	None	–
<b>HI-THANE™ A-720M</b>	73 ~ 77	4000 ~ 8000	ET-AC	–
<b>HI-THANE™ A-7300</b>	100	600 ~ 1000 (40°C)	None	–
<b>HI-THANE™ A-7332</b>	100	600 ~ 1000 (40°C)	None	–
<b>HI-THANE™ A-9506</b>	64 ~ 68	2000 ~ 5000	ET-AC	–
<b>HI-THANE™ A-2150A</b>	52 ~ 56	350 ~ 650	ET-AC	–

Characteristics	Applications	
• Moisture cured type	PET, OPP/CPP, OPP/VM films, OPP/AL leaf	<b>HI-THANE™ A-8200</b>
• Moisture cured type	PET, OPP/CPP, OPP/VM films, OPP/AL leaf	<b>HI-THANE™ A-8400</b>
• Good adhesion for generic plastic films	PET, OPP/CPP, PET, OPP/AL leaf, PET, OPP/VM films, etc.	<b>HI-THANE™ A-2050LM</b>
• Good adhesion for generic plastic films	PET, OPP/CPP, PET, OPP/AL leaf, PET, OPP/VM films, etc.	<b>HI-THANE™ A-2070LM</b>
• Good adhesion for generic plastic films	PET, OPP/CPP, PET, OPP/AL leaf, PET, OPP/VM films/LLDPE, T-die anchor coating, etc.	<b>HI-THANE™ A-2100S</b>
• Good adhesion for paper films	Paper binding resin	<b>HI-THANE™ A-2232</b>
• Good adhesion for generic plastic films	PET, OPP/CPP, PET, OPP/AL leaf, PET, OPP/VM films/LLDPE, T-die anchor coating, etc.	<b>HI-THANE™ A-2750</b>
• Good adhesion for plastic films	PET, OPP/CPP, PET, OPP/AL leaf, PET, OPP/VM films/LLDPE, T-die anchor coating, etc.	<b>HI-THANE™ A-3065</b>
• Good adhesion for plastic films	PET, OPP/CPP, PET, OPP/AL leaf, PET, OPP/VM films/LLDPE, T-die anchor coating, etc.	<b>HI-THANE™ A-3070</b>
• Good adhesion for generic plastic films • Good initial tack	PET, OPP/CPP, PET, OPP/AL leaf, PET, OPP/VM films/LLDPE, T-die anchor coating, etc.	<b>HI-THANE™ A-3100S</b>
• Excellent adhesion for generic plastic films • Good initial tack • Outstanding heat resistance	PET, OPP/CPP, PET, OPP/AL leaf, PET, OPP/VM films/LLDPE, T-die anchor coating, etc.	<b>HI-THANE™ A-3110</b>
• Good adhesion for generic plastic films	PET, OPP/CPP, PET, OPP/AL leaf, PET, OPP/VM films/LLDPE, T-die anchor coating, etc.	<b>HI-THANE™ A-3110T</b>
• Good initial tack	PET, OPP/CPP, PET, OPP/AL leaf, PET, OPP/VM films/LLDPE, T-die anchor coating, etc.	<b>HI-THANE™ A-3360E</b>
• Excellent adhesion for generic plastic films • Good initial tack • Outstanding heat resistance	PET, OPP/CPP, PET, OPP/AL leaf, PET, OPP/VM films/LLDPE, T-die anchor coating, etc.	<b>HI-THANE™ A-4210R</b>
• Excellent adhesion for generic plastic films • Good initial tack • Outstanding heat resistance	PET, OPP/CPP, PET, OPP/AL leaf, PET, OPP/VM films/LLDPE, T-die anchor coating, etc.	<b>HI-THANE™ A-4650R</b>
• Excellent adhesion for generic plastic films • Good initial tack • Outstanding heat resistance	PET, OPP/CPP, PET, OPP/AL leaf, PET, OPP/VM films/LLDPE, T-die anchor coating, etc.	<b>HI-THANE™ A-5100B</b>
• A-7332/A-6200 = 100 / 40 ~ 50	PET, OPP/CPP, OPP/AL leaf, OPP, PET/VM films/LLDPE	<b>HI-THANE™ A-6200</b>
• A-7300/A-6301 = 100 / 40 ~ 50	PET, OPP/CPP, OPP/AL leaf, OPP, PET/VM films/LLDPE	<b>HI-THANE™ A-6301</b>
• Good adhesion for generic plastic films • Good initial adhesion	PET, OPP/CPP, PET, OPP/AL leaf, PET, OPP/VM films, etc.	<b>HI-THANE™ A-720M</b>
• A-7300/A-6301 = 100 / 40 ~ 50	PET, OPP/CPP, OPP/AL leaf, OPP, PET/VM films/LLDPE	<b>HI-THANE™ A-7300</b>
• A-7332/A-6200 = 100 / 40 ~ 50	PET, OPP/CPP, OPP/AL leaf, OPP, PET/VM films/LLDPE	<b>HI-THANE™ A-7332</b>
• Good adhesion for generic plastic films	PET, OPP/CPP, PET, OPP/AL leaf, PET, OPP/VM films, T-die anchor coating, etc.	<b>HI-THANE™ A-9506</b>
• Good adhesion for generic plastic films • Good initial tack	PET, OPP/CPP, PET, OPP/AL leaf, PET, OPP/VM films/LLDPE, Flexible aluminum duct coating, etc.	<b>HI-THANE™ A-2150A</b>

# PUs – Ink Binders

	Non-Volatile (%)	Viscosity (cps/room temp.)	Solvent	Characteristics	Applications
<b>HI-THANE™ A-2013</b>	34 ~ 36	400 ~ 700	ET-AC, IPA	<ul style="list-style-type: none"> <li>• Excellent adhesion to films</li> <li>• Resolubility for solvent</li> <li>• Outstanding heat resistance</li> </ul>	<ul style="list-style-type: none"> <li>• PET</li> <li>• OPP</li> <li>• Nylon</li> </ul>
<b>HI-THANE™ A-3033A</b>	29 ~ 31	200 ~ 500	MEK, ET-AC, IPA	<ul style="list-style-type: none"> <li>• Excellent adhesion to films</li> <li>• Resolubility for solvent</li> <li>• Outstanding heat resistance</li> </ul>	<ul style="list-style-type: none"> <li>• PET</li> <li>• OPP</li> <li>• Nylon</li> </ul>
<b>HI-THANE™ A-7006</b>	49 ~ 51	130000 ~ 180000	MEK, TOL	<ul style="list-style-type: none"> <li>• Excellent adhesion to films</li> <li>• Resolubility for solvent</li> </ul>	<ul style="list-style-type: none"> <li>• PET</li> <li>• OPP</li> <li>• Nylon</li> </ul>
<b>HI-THANE™ A-860</b>	29 ~ 31	800 ~ 1300	ET-AC, IPA	<ul style="list-style-type: none"> <li>• Excellent adhesion to films</li> <li>• Resolubility for solvent</li> <li>• Outstanding heat resistance</li> </ul>	<ul style="list-style-type: none"> <li>• PET</li> <li>• OPP</li> <li>• Nylon</li> </ul>
<b>HI-THANE™ A-890L</b>	29 ~ 31	400 ~ 700	ET-AC, IPA	<ul style="list-style-type: none"> <li>• Excellent adhesion to films</li> <li>• Resolubility for solvent</li> <li>• Outstanding heat resistance</li> </ul>	<ul style="list-style-type: none"> <li>• PET</li> <li>• OPP</li> <li>• Nylon</li> </ul>
<b>HI-THANE™ A-890K</b>	29 ~ 31	400 ~ 700	ET-AC, IPA	<ul style="list-style-type: none"> <li>• Excellent adhesion to films</li> <li>• Resolubility for solvent</li> </ul>	<ul style="list-style-type: none"> <li>• PET</li> <li>• OPP</li> <li>• Nylon</li> </ul>
<b>HI-THANE™ A-9000</b>	47 ~ 51	8000 ~ 12000	ET-OH, ET-AC	<ul style="list-style-type: none"> <li>• For flexo and gravure ink</li> <li>• No yellowing type PU</li> <li>• Excellent adhesion to films</li> </ul>	<ul style="list-style-type: none"> <li>• PET</li> <li>• OPP</li> <li>• Nylon</li> </ul>
<b>HI-THANE™ A-9001E</b>	29 ~ 31	500 ~ 800	ET-AC, IPA	<ul style="list-style-type: none"> <li>• Excellent adhesion to films</li> <li>• Resolubility for solvent</li> <li>• Outstanding heat resistance</li> </ul>	<ul style="list-style-type: none"> <li>• PET</li> <li>• OPP</li> <li>• Nylon</li> </ul>
<b>HI-THANE™ A-9004B</b>	29 ~ 31	400 ~ 700	ET-AC, IPA	<ul style="list-style-type: none"> <li>• Excellent adhesion to films</li> <li>• Resolubility for solvent</li> <li>• Outstanding heat resistance</li> </ul>	<ul style="list-style-type: none"> <li>• PET</li> <li>• OPP</li> <li>• Nylon</li> </ul>
<b>HI-THANE™ A-9004HL</b>	34 ~ 36	400 ~ 700	ET-AC, IPA	<ul style="list-style-type: none"> <li>• Excellent adhesion to films</li> <li>• Resolubility for solvent</li> <li>• Outstanding heat resistance</li> </ul>	<ul style="list-style-type: none"> <li>• PET</li> <li>• OPP</li> <li>• Nylon</li> </ul>
<b>HI-THANE™ A-9005B</b>	29 ~ 31	900 ~ 1400	ET-AC, IPA	<ul style="list-style-type: none"> <li>• Excellent adhesion to films</li> <li>• Resolubility for solvent</li> <li>• Outstanding heat resistance</li> </ul>	<ul style="list-style-type: none"> <li>• PET</li> <li>• OPP</li> <li>• Nylon</li> </ul>
<b>HI-THANE™ A-9015</b>	33 ~ 37	600 ~ 1000	MEK, IPA	<ul style="list-style-type: none"> <li>• Excellent adhesion to films</li> <li>• Resolubility for solvent</li> </ul>	<ul style="list-style-type: none"> <li>• PET</li> <li>• OPP</li> <li>• Nylon</li> </ul>
<b>HI-THANE™ A-9301B</b>	29 ~ 31	850 ~ 1500	ET-AC, IPA	<ul style="list-style-type: none"> <li>• Excellent adhesion to films</li> <li>• Resolubility for solvent</li> </ul>	<ul style="list-style-type: none"> <li>• PET</li> <li>• OPP</li> <li>• Nylon</li> </ul>
<b>HI-THANE™ A-9301E</b>	29 ~ 31	850 ~ 1500	ET-AC, IPA	<ul style="list-style-type: none"> <li>• Excellent adhesion to films</li> <li>• Resolubility for solvent</li> </ul>	<ul style="list-style-type: none"> <li>• PET</li> <li>• OPP</li> <li>• Nylon</li> </ul>

## PUs – Adhesive Hardeners

	Non-Volatile (%)	Viscosity (cps/room temp.)	Solvent	NCO Content (%)	Characteristics	Applications
<b>HI-THANE™ CA-295H</b>	73 ~ 77	2000 ~ 5000	ET-AC	4.5 ~ 5.0	<ul style="list-style-type: none"> <li>No yellowing</li> </ul>	<ul style="list-style-type: none"> <li>Hardener for A-720M</li> </ul>
<b>HI-THANE™ CA-35BL</b>	33 ~ 36	–	ET-AC	–	<ul style="list-style-type: none"> <li>Block type</li> </ul>	<ul style="list-style-type: none"> <li>Hardener for A-BWP</li> </ul>
<b>HI-THANE™ CA-50H</b>	48 ~ 52	5 ~ 100	BT-AC, ET-AC	8.5 ~ 9.5	<ul style="list-style-type: none"> <li>Inks</li> </ul>	<ul style="list-style-type: none"> <li>Hardener for gravure inks</li> </ul>
<b>HI-THANE™ CA-50NY</b>	48 ~ 52	20 ~ 50	MEK	6.5 ~ 7.5	<ul style="list-style-type: none"> <li>No yellowing</li> </ul>	<ul style="list-style-type: none"> <li>Hardener for general adhesives</li> </ul>
<b>HI-THANE™ CA-75</b>	73 ~ 77	1000 ~ 3000	ET-AC	12.5 ~ 13.5	<ul style="list-style-type: none"> <li>General type</li> </ul>	<ul style="list-style-type: none"> <li>Hardener for general adhesives</li> </ul>
<b>HI-THANE™ CA-75NY</b>	73 ~ 77	2000 ~ 5000	MEK	10 ~ 12	<ul style="list-style-type: none"> <li>No yellowing</li> </ul>	<ul style="list-style-type: none"> <li>Hardener for general adhesives</li> </ul>
<b>HI-THANE™ CA-100EP</b>	100	11000 ~ 14000	None	–	<ul style="list-style-type: none"> <li>Epoxy</li> </ul>	<ul style="list-style-type: none"> <li>Hardener for A-2050LM, A-2070LM</li> </ul>



## PUs – Curing Accelerators

	Non-Volatile (%)	Solvent	Characteristics	Applications
<b>HI-THANE™ AT-222R2</b>	1.8 ~ 2.2	TOL	<ul style="list-style-type: none"> <li>General tin type</li> </ul>	<ul style="list-style-type: none"> <li>Accelerator for two component type</li> </ul>
<b>HI-THANE™ AT-Q</b> <b>HI-THANE™ AT-V</b>	AT-Q: 1.3 ~ 1.7 AT-V: 2.8 ~ 3.2	TOL	<ul style="list-style-type: none"> <li>High activity tin type</li> </ul>	<ul style="list-style-type: none"> <li>Accelerator</li> </ul>
<b>HI-THANE™ AT-S</b>	20	TOL, MEK	<ul style="list-style-type: none"> <li>Very high activity tin type</li> </ul>	<ul style="list-style-type: none"> <li>Accelerator</li> </ul>
<b>HI-THANE™ C-300</b>	10	MEK	<ul style="list-style-type: none"> <li>Very high activity tin type</li> </ul>	<ul style="list-style-type: none"> <li>Accelerator</li> </ul>
<b>HI-THANE™ C-309</b>	10	MEK	<ul style="list-style-type: none"> <li>Very high activity tin type</li> <li>No MBT, DBT, TBT</li> </ul>	<ul style="list-style-type: none"> <li>Accelerator</li> </ul>
<b>HI-THANE™ C-380</b>	9 ~ 11	MEK	<ul style="list-style-type: none"> <li>Very high activity tin type</li> <li>No MBT, DBT, TBT</li> </ul>	<ul style="list-style-type: none"> <li>Accelerator</li> </ul>
<b>HI-THANE™ AD-30CL</b>	48 ~ 52	DMF	<ul style="list-style-type: none"> <li>Suitable for Synthetic Leather</li> </ul>	<ul style="list-style-type: none"> <li>Additive for UV resistance</li> </ul>
<b>HI-THANE™ AD-3000</b>	48 ~ 52	ET-AC	<ul style="list-style-type: none"> <li>Suitable for PET film</li> </ul>	<ul style="list-style-type: none"> <li>Adhesion Promotor for gravure inks</li> </ul>
<b>HI-THANE™ AD-5000</b>	21 ~ 23	ET-AC, MEK, TOL, IPA	<ul style="list-style-type: none"> <li>Suitable for OPP film</li> </ul>	<ul style="list-style-type: none"> <li>Adhesion Promotor for gravure inks (OPP)</li> </ul>

## PUs – Beads

	Appearance	Odor	Particle size (um)	Oil Absorbency Linseed Oil (ml/100g)	Microbiology	Bulk Density (g/ml)	Arsenic, Lead	Isocyanate	Solvent
<b>HI-THANE™ UB-17</b>	White PW	Odorless	17 ± 3	50 ± 5	< 100 organisms/g, no pathogens	0.58 ± 0.03	< 0.001%	< 0.001%	< 0.001%
<b>HI-THANE™ UB-26</b>	White PW	Odorless	26 ± 3	45 ± 5	< 100 organisms/g, no pathogens	0.63 ± 0.03	< 0.001%	< 0.001%	< 0.001%
<b>Test method used</b>	Visual	Organo-leptic	COULTER LS-230	ASTM D 281-84	Current USP microbial limit	ASTM D 1895-89	ASTM D 3335	GC HP-1 column	GC SP-2250 column

# Thermoplastic Polyurethanes (TPUs)



# SONGSTOMER™

# P1000 (Polyester based)

Characteristics	Standard grade
Processing	Injection molding, Extrusion
Main Applications	Pneumatic hoses, Mobile phone cases, Snow chains

Properties	Test Method	Units	P-1155D	P-1160D	P-1164D	P-1168D	P-1175D
Hardness	ASTM D2240	Shore A	–	–	–	–	–
		Shore D	58 ± 3	61 ± 3	63 ± 3	68 ± 3	72 ± 3
Specific Gravity	ASTM D792	g/cm <sup>3</sup>	1.22	1.23	1.23	1.24	1.24
Tensile Strength	ASTM D412	kgf/cm <sup>2</sup>	450	450	500	450	400
Tensile Stress at 100% Modulus	ASTM D412	kgf/cm <sup>2</sup>	130	170	180	200	240
Tensile Stress at 300% Modulus	ASTM D412	kgf/cm <sup>2</sup>	220	250	300	300	300
Ultimate Elongation	ASTM D412	%	400	350	350	400	400
Tear Strength	ASTM D624	kgf/cm	160	190	195	200	210
Taber Abrasion (H18 Wheel, 1000 g Load)	ASTM D4060	mg/1,000 cycle	60	80	90	100	105
Mold Shrinkage	ASTM D955	m/m	0.0045	0.0045	0.0040	0.0040	0.0040
Vicat Softening Temperature	ASTM D1525	°C	129	141	150	155	164
Injection Molding Conditions	Feed Barrel	°C	200	205	210	210	210
	Transition		205	210	215	215	215
	Metering		210	215	220	220	220
	Nozzle		210	215	220	220	220
	Mold		20 ~ 40	20 ~ 40	20 ~ 40	20 ~ 40	20 ~ 40
Extrusion Conditions	Zone 1	°C	200	–	–	–	–
	Zone 2		205	–	–	–	–
	Zone 3		210	–	–	–	–
	Adapter		215	–	–	–	–
	Die		210	–	–	–	–



# SONGSTOMER™

## P3100 (Polyester based)

Characteristics	Standard grade
Processing	Injection molding, Extrusion
Main Applications	Pneumatic hoses, Mobile phone cases, Snow chains

Properties	Test Method	Units	P-3190								
			P-3160A	P-3170A	P-3175A	P-3180A	P-3185A	P-3190A	A-NB	P-3195A	P-3198A
Hardness	ASTM D2240	Shore A	65 ± 2	70 ± 2	78 ± 2	82 ± 2	87 ± 2	90 ± 2	92 ± 2	95 ± 2	97 ± 2
		Shore D	-	-	-	-	-	-	-	-	-
Specific Gravity	ASTM D792	g/cm <sup>3</sup>	1.13	1.14	1.19	1.19	1.20	1.21	1.21	1.22	1.22
Tensile Strength	ASTM D412	kgf/cm <sup>2</sup>	200	220	300	350	400	450	480	500	450
Tensile Stress at 100% Modulus	ASTM D412	kgf/cm <sup>2</sup>	20	25	40	40	60	70	90	100	130
Tensile Stress at 300% Modulus	ASTM D412	kgf/cm <sup>2</sup>	40	45	90	90	100	150	180	200	220
Ultimate Elongation	ASTM D412	%	700	750	500	450	450	450	400	400	400
Tear Strength	ASTM D624	kgf/cm	50	60	80	90	100	110	120	140	160
Taber Abrasion (H18 Wheel, 1000 g Load)	ASTM D4060	mg/1,000 cycle	15	15	20	25	30	35	40	50	60
Mold Shrinkage	ASTM D955	m/m	0.0085	0.0085	0.0080	0.0060	0.0055	0.0050	0.0050	0.0050	0.0045
Vicat Softening Temperature	ASTM D1525	°C	72	73	80	81	101	105	115	126	129
Injection Molding Conditions	Feed Barrel	°C	175	175	180	185	190	195	200	200	200
	Transition		180	180	185	190	195	200	205	205	205
	Metering		185	185	190	195	200	205	210	210	210
	Nozzle		185	185	190	195	200	205	210	210	210
	Mold		20 ~ 40	20 ~ 40	20 ~ 40	20 ~ 40	20 ~ 40	20 ~ 40	20 ~ 40	20 ~ 40	20 ~ 40
Extrusion Conditions	Zone 1	°C	175	175	180	185	190	195	200	200	200
	Zone 2		180	180	185	190	195	200	205	205	205
	Zone 3		185	185	190	195	200	205	210	210	210
	Adapter		190	190	195	200	205	210	215	215	215
	Die		185	185	190	195	200	205	210	210	210

# SONGSTOMER™

## P3200 (Polyether based)

Characteristics	Standard grade
Processing	Injection molding, Extrusion
Main Applications	Cable sheath, Fire hoses

Properties	Test Method	Units	P-3275A	P-3280A	P-3285A	P-3290A	P-3295A
Hardness	ASTM D2240	Shore A	75 ± 2	82 ± 2	86 ± 2	92 ± 2	95 ± 2
		Shore D	–	–	–	–	–
Specific Gravity	ASTM D792	g/cm <sup>3</sup>	1.11	1.11	1.12	1.13	1.14
Tensile Strength	ASTM D412	kgf/cm <sup>2</sup>	250	280	300	350	400
Tensile Stress at 100% Modulus	ASTM D412	kgf/cm <sup>2</sup>	35	40	60	100	120
Tensile Stress at 300% Modulus	ASTM D412	kgf/cm <sup>2</sup>	65	70	110	150	220
Ultimate Elongation	ASTM D412	%	500	450	450	450	400
Tear Strength	ASTM D624	kgf/cm	60	70	95	110	120
Taber Abrasion (H18 Wheel, 1000 g Load)	ASTM D4060	mg/1,000 cycle	20	20	35	40	45
Mold Shrinkage	ASTM D955	m/m	0.0060	0.0045	0.0040	0.0035	0.0030
Vicat Softening Temperature	ASTM D1525	°C	64	78	87	103	121
Injection Molding Conditions	Feed Barrel	°C	180	185	190	195	195
	Transition		185	190	195	200	200
	Metering		190	195	200	205	205
	Nozzle		190	195	200	205	205
	Mold		20 ~ 40	20 ~ 40	20 ~ 40	20 ~ 40	20 ~ 40
Extrusion Conditions	Zone 1	°C	180	185	190	195	195
	Zone 2		185	190	195	200	200
	Zone 3		190	195	200	205	205
	Adapter		195	200	205	210	210
	Die		190	195	200	205	205

# SONGSTOMER™

## P2000 (Polyester based)

Characteristics	Transparency
Processing	Injection molding, Extrusion
Main Applications	Shoes components, Pneumatic hoses, Mobile phone cases

Properties	Test Method	Units	P-2180A	P-2185A	P-2190A	P-2195A	P-2155D	P-2160D	P-2164D	P-2168D
Hardness	ASTM D2240	Shore A	82 ± 2	87 ± 2	92 ± 2	96 ± 2	–	–	–	–
		Shore D	–	–	–	–	58 ± 3	61 ± 3	63 ± 3	68 ± 3
Specific Gravity	ASTM D792	g/cm <sup>3</sup>	1.19	1.20	1.21	1.23	1.23	1.23	1.23	1.24
Tensile Strength	ASTM D412	kgf/cm <sup>2</sup>	350	420	450	450	400	450	480	450
Tensile Stress at 100% Modulus	ASTM D412	kgf/cm <sup>2</sup>	40	70	80	130	140	170	180	190
Tensile Stress at 300% Modulus	ASTM D412	kgf/cm <sup>2</sup>	90	130	150	230	230	250	300	330
Ultimate Elongation	ASTM D412	%	450	400	450	400	400	400	350	350
Tear Strength	ASTM D624	kgf/cm	80	100	100	130	140	180	185	190
Taber Abrasion (H18 Wheel, 1000 g Load)	ASTM D4060	mg/1,000 cycle	35	40	45	55	70	80	100	105
Mold Shrinkage	ASTM D955	m/m	0.0055	0.0050	0.0045	0.0045	0.0045	0.0045	0.0040	0.0040
Vicat Softening Temperature	ASTM D1525	°C	77	94	98	113	115	120	122	124
Injection Molding Conditions	Feed Barrel	°C	185	190	195	200	200	205	210	210
	Transition		190	195	200	205	205	210	215	215
	Metering		195	200	205	210	210	215	220	220
	Nozzle		195	200	205	210	210	215	220	220
	Mold		20 ~ 40	20 ~ 40	20 ~ 40	20 ~ 40	20 ~ 40	20 ~ 40	20 ~ 40	20 ~ 40
Extrusion Conditions	Zone 1	°C	185	190	195	200	200	–	–	–
	Zone 2		190	195	200	205	205	–	–	–
	Zone 3		195	200	205	210	210	–	–	–
	Adapter		200	205	210	215	215	–	–	–
	Die		195	200	205	210	210	–	–	–

## SONGSTOMER™

## P4000 (Polyester based)

## P6000 (Polyester based)

Characteristics	Transparency	Elastic recovery
Processing	Injection molding, Extrusion	Injection molding, Extrusion
Main Applications	Shoes components, Pneumatic hoses, Mobile phone cases	Straps for inner wear

Properties	Test Method	Units	P-4192A	P-4198A	P-6170A	P-6175A	P-6180A	P-6185A
Hardness	ASTM D2240	Shore A	93 ± 2	97 ± 2	72 ± 2	75 ± 2	82 ± 2	86 ± 2
		Shore D	–	–	–	–	–	–
Specific Gravity	ASTM D792	g/cm <sup>3</sup>	1.22	1.23	1.20	1.20	1.21	1.22
Tensile Strength	ASTM D412	kgf/cm <sup>2</sup>	420	400	250	300	350	400
Tensile Stress at 100% Modulus	ASTM D412	kgf/cm <sup>2</sup>	100	150	30	35	40	60
Tensile Stress at 300% Modulus	ASTM D412	kgf/cm <sup>2</sup>	200	230	45	50	60	90
Ultimate Elongation	ASTM D412	%	420	400	650	600	550	500
Tear Strength	ASTM D624	kgf/cm	120	160	65	70	80	95
Taber Abrasion (H18 Wheel, 1000 g Load)	ASTM D4060	mg/1,000 cycle	50	70	15	20	25	30
Mold Shrinkage	ASTM D955	m/m	0.0045	0.0045	0.0085	0.0080	0.0060	0.0055
Vicat Softening Temperature	ASTM D1525	°C	99	118	65	74	80	97
Injection Molding Conditions	Feed Barrel		195	200	170	175	180	185
	Transition		200	205	175	180	185	190
	Metering	°C	205	210	180	185	190	195
	Nozzle		205	210	180	185	190	195
	Mold		20 ~ 40	20 ~ 40	20 ~ 40	20 ~ 40	20 ~ 40	20 ~ 40
Extrusion Conditions	Zone 1		195	200	170	175	180	185
	Zone 2		200	205	175	180	185	190
	Zone 3	°C	205	210	180	185	190	195
	Adapter		210	215	185	190	195	200
	Die		205	210	180	185	190	195



# SONGSTOMER™

## P7000 (Polyester based)

Characteristics	Transparency, Suitable for T-die extrusion
Processing	Injection molding, Extrusion
Main Applications	Sheets, Films

Properties	Test Method	Units	P-7185A	P-7185A-2	P-7187A	P-7190A	P-7195A	P-7197A	P-7180D
Hardness	ASTM D2240	Shore A	87 ± 2	87 ± 2	85 ± 2	92 ± 2	96 ± 2	96 ± 2	–
		Shore D	–	–	–	–	–	–	77 ± 3
Specific Gravity	ASTM D792	g/cm <sup>3</sup>	1.20	1.20	1.20	1.21	1.23	1.23	1.24
Tensile Strength	ASTM D412	kgf/cm <sup>2</sup>	420	420	300	450	450	400	380
Tensile Stress at 100% Modulus	ASTM D412	kgf/cm <sup>2</sup>	70	70	55	80	130	140	280
Tensile Stress at 300% Modulus	ASTM D412	kgf/cm <sup>2</sup>	130	130	80	150	230	220	–
Ultimate Elongation	ASTM D412	%	400	400	600	450	400	400	300
Tear Strength	ASTM D624	kgf/cm	100	100	80	100	130	140	240
Taber Abrasion (H18 Wheel, 1000 g Load)	ASTM D4060	mg/1,000 cycle	40	40	40	45	55	55	110
Mold Shrinkage	ASTM D955	m/m	0.0050	0.0050	0.0050	0.0045	0.0045	0.0045	0.0040
Vicat Softening Temperature	ASTM D1525	°C	94	94	89	98	113	111	130
Injection Molding Conditions	Feed Barrel	°C	190	190	185	195	200	200	215
	Transition		195	195	190	200	205	205	220
	Metering		200	200	195	205	210	210	225
	Nozzle		200	200	195	205	210	210	225
	Mold		20 ~ 40	20 ~ 40	20 ~ 40	20 ~ 40	20 ~ 40	20 ~ 40	20 ~ 40
Extrusion Conditions	Zone 1	°C	190	190	185	195	200	200	215
	Zone 2		195	195	190	200	205	205	220
	Zone 3		200	200	195	205	210	210	225
	Adapter		205	205	200	210	215	215	230
	Die		200	200	195	205	210	210	225

## SONGSTOMER™

## P8000 (Polyester based)

Characteristics	Easy Gelling	Suitable for inflation film extrusion
Processing	Calendering	Extrusion
Main Applications	Tarpaulin	Films

Properties	Test Method	Units	P-8185AC	P-8185AI	P-8190AI	P-8195AI
Hardness	ASTM D2240	Shore A	87 ± 2	88 ± 2	90 ± 2	95 ± 2
		Shore D	–	–	–	–
Specific Gravity	ASTM D792	g/cm <sup>3</sup>	1.20	1.21	1.22	1.22
Tensile Strength	ASTM D412	kgf/cm <sup>2</sup>	400	450	480	480
Tensile Stress at 100% Modulus	ASTM D412	kgf/cm <sup>2</sup>	60	65	75	100
Tensile Stress at 300% Modulus	ASTM D412	kgf/cm <sup>2</sup>	90	120	150	170
Ultimate Elongation	ASTM D412	%	450	400	400	400
Tear Strength	ASTM D624	kgf/cm	90	100	120	130
Taber Abrasion (H18 Wheel, 1000 g Load)	ASTM D4060	mg/1,000 cycle	35	30	30	40
Mold Shrinkage	ASTM D955	m/m	0.0050	0.0055	0.0055	0.0050
Vicat Softening Temperature	ASTM D1525	°C	71	95	97	110
Injection Molding Conditions	Feed Barrel	°C	–	–	–	–
	Transition		–	–	–	–
	Metering		–	–	–	–
	Nozzle		–	–	–	–
	Mold		–	–	–	–
Extrusion Conditions	Zone 1	°C	185	185	185	190
	Zone 2		190	190	190	195
	Zone 3		195	195	195	200
	Adapter		200	200	200	205
	Die		195	195	195	200

## SONGSTOMER™

## HM (Polyester based)

Characteristics

Hotmelt adhesives

Processing

Extrusion

Main Applications

Seam tapes, Emblem

Properties	Test Method	Units	HM-1000	HM-4000	HM-6000
Hardness	ASTM D2240	Shore A	76 ± 2	83 ± 2	94 ± 2
		Shore D	–	–	–
Specific Gravity	ASTM D792	g/cm <sup>3</sup>	1.19	1.16	1.19
Tensile Strength	ASTM D412	kgf/cm <sup>2</sup>	250	250	200
Tensile Stress at 100% Modulus	ASTM D412	kgf/cm <sup>2</sup>	30	45	40
Tensile Stress at 300% Modulus	ASTM D412	kgf/cm <sup>2</sup>	45	70	60
Ultimate Elongation	ASTM D412	%	700	600	700
Tear Strength	ASTM D624	kgf/cm	70	80	80
Appearance	–	–	Transparent	Transparent	Opaque
Tg by DSC	ASTM E1356	°C	-23°C	-19°C	-40°C
Kofler Melting Temperature	–	°C	110°C	115°C	80°C
Extrusion Conditions	Zone 1	°C	165	175	155
	Zone 2		175	185	165
	Zone 3		180	190	170
	Adapter		180	190	170
	Die		175	185	165



# Standard Packaging

- **PUs – Dry and Wet Process:** 100 kg Steel Drum  
110 kg Steel Drum
- **PUs – Adhesives :** 80 kg Steel Drum  
100 kg Steel Drum  
110 kg Steel Drum  
190 kg Steel Drum  
200 kg Steel Drum
- **PUs – Adhesive for Flexible Packaging:** 10 kg Can  
15 kg Can  
18 kg Can  
19 kg Can  
200 kg Steel Drum
- **PUs – Ink Binders:** 170 kg Steel Drum  
180 kg Steel Drum  
200 kg Steel Drum
- **PUs – Adhesive Hardeners and Curing Accelerators:** 10 kg Can  
15 kg Can  
18 kg Can  
20 kg Can  
170 kg Steel Drum  
180 kg Steel Drum
- **PUs – Beads:** 10 kg Paper Box
- **TPUs:** 25 kg Paper Bag (with inner PE Bag)  
25 kg PE Bag  
25 kg AL Bag

## Key to Abbreviations of Physical Forms

- **PW:** Powder
- **DW:** Dispersion
- **BD:** Beads
- **GR:** Granule
- **SB:** Semi Bead
- **MB:** Micro Beads
- **DF:** Dust Free Flow
- **FG:** Fine Grind
- **SL:** Solid
- **FC:** Fusion Crystal
- **CP:** Crystalline Powder
- **VL:** Viscous Liquid
- **FF:** Free Flow
- **LQ:** Liquid or Molten
- **PS:** Pastilles



## Transport and Storage

As a general guideline, we recommend storing the products mentioned in this brochure in their original sealed containers in a cold and dry place. For more detailed information on a specific product, please refer to the corresponding **Technical Data Sheet**.

By law, a number of chemical products must be labeled in respect of transport, storage and handling. Thus corresponding care is a prerequisite for their appropriate handling. Furthermore, local legal regulations may apply.

Detailed information is given in the respective **Safety Data Sheets**.

# About SONGWON Industrial Group

SONGWON, which was founded in 1965 and is headquartered in Ulsan, South Korea, is a leader in the development, production and supply of specialty chemicals.

The second largest manufacturer of polymer stabilizers worldwide, SONGWON operates group companies all over the world, offering the combined benefits of a global framework and readily accessible local organizations.

Dedicated experts work closely together with customers to develop tailor-made solutions that meet individual requirements.

For further information, please go to:  
**[www.songwon.com](http://www.songwon.com)**





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SONGWON provides customers with warranties and representations as to the chemical or technical specifications, compositions and/or the suitability for use for any particular purpose exclusively in individual written agreements.

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