

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™**



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

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

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

Water- and Windproofing

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

Direct Coating

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|-------------------------|---------|-----------------|----------|---------|-----------|
| HI-THANE™ S-1056 | 48 ~ 52 | 110000 ~ 150000 | DMF, MEK | 20 ~ 25 | 400 ~ 500 |
|-------------------------|---------|-----------------|----------|---------|-----------|

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

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

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|-----------|---|---|-------------------------|
| 400 ~ 500 | <ul style="list-style-type: none"> • Soft type • High density • High viscosity | <ul style="list-style-type: none"> • Thin PUs • Garments • Base coating for water- and windproof treatment | HI-THANE™ S-1056 |
|-----------|---|---|-------------------------|

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|---------------------------|---------|----------------|-------------------|-----------|-----------|
| HI-THANE™ S-1056S | 48 ~ 52 | 60000 ~ 100000 | DMF, MEK | 90 ~ 100 | 500 ~ 600 |
| HI-THANE™ S-1063D | 38 ~ 42 | 60000 ~ 100000 | DMF, MEK, TOL | 50 ~ 60 | 300 ~ 400 |
| HI-THANE™ S-1064B | 58 ~ 62 | 60000 ~ 100000 | DMF, MEK | 1 ~ 3 | 1 ~ 3 |
| HI-THANE™ S-1070J | 29 ~ 31 | 60000 ~ 100000 | DMF, EA | 40 ~ 45 | 500 ~ 600 |
| HI-THANE™ S-1075J | 34 ~ 36 | 70000 ~ 110000 | DMF, MEK | 40 ~ 45 | 450 ~ 550 |
| HI-THANE™ S-1004H | 29 ~ 31 | 60000 ~ 100000 | DMF, MEK | 70 ~ 80 | 400 ~ 500 |
| HI-THANE™ S-1008ND | 29 ~ 31 | 60000 ~ 100000 | DMF, MEK | 20 ~ 25 | 400 ~ 500 |
| HI-THANE™ S-1040K | 39 ~ 41 | 60000 ~ 100000 | DMF, MEK, TOL | 5 ~ 15 | 300 ~ 400 |
| HI-THANE™ S-1066L | 48 ~ 52 | 70000 ~ 110000 | DMF, MEK | 90 ~ 100 | 500 ~ 600 |
| HI-THANE™ S-3060E | 34 ~ 36 | 50000 ~ 90000 | DMF, MEK, TOL | 25 ~ 35 | 400 ~ 500 |
| HI-THANE™ S-2018 | 48 ~ 52 | 60000 ~ 100000 | DMF, EA, TOL | 10 ~ 20 | 30 ~ 100 |
| HI-THANE™ S-2018D | 48 ~ 52 | 60000 ~ 100000 | DMAc, EA, TOL | 10 ~ 20 | 30 ~ 100 |
| HI-THANE™ S-3011B | 32 ~ 36 | 60000 ~ 100000 | IPA, MEK(EA), TOL | 8 ~ 10 | 50 ~ 60 |
| HI-THANE™ S-3050W | 29 ~ 31 | 50000 ~ 90000 | DMF, MEK, TOL | 40 ~ 50 | 400 ~ 500 |
| HI-THANE™ S-3126B | 48 ~ 52 | 80000 ~ 120000 | DMF, EA | 100 ~ 110 | 300 ~ 400 |

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

PUs – Wet Process

Smooth Layer

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

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

Dipping

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

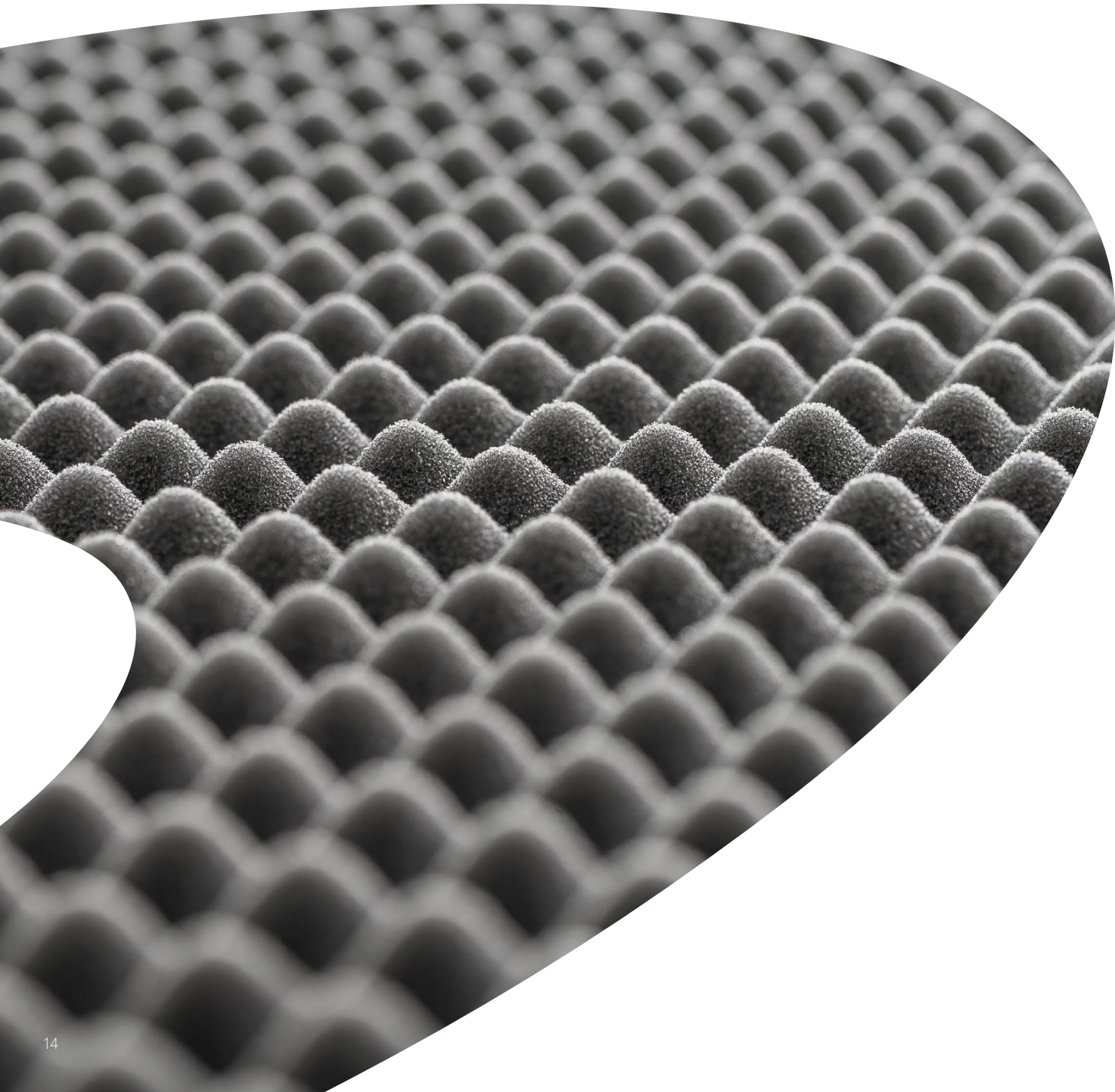
Gloves

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

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

Water- and Windproofing

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



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

PUs – Adhesives

Artificial Leather

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

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

PUs – Adhesives for Flexible Packaging

One Component

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

Two Component

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

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

PUs – Ink Binders

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

PUs – Adhesive Hardeners

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



PUs – Curing Accelerators

| | Non-Volatile (%) | Solvent | Characteristics | Applications |
|--|------------------------------------|----------------------|---|--|
| HI-THANE™ AT-222R2 | 1.8 ~ 2.2 | TOL | • General tin type | • Accelerator for two component type |
| HI-THANE™ AT-Q HI-THANE™ AT-V | AT-Q: 1.3 ~ 1.7 AT-V: 2.8 ~ 3.2 | TOL | • High activity tin type | • Accelerator |
| HI-THANE™ AT-S | 20 | TOL, MEK | • Very high activity tin type | • Accelerator |
| HI-THANE™ C-300 | 10 | MEK | • Very high activity tin type | • Accelerator |
| HI-THANE™ C-309 | 10 | MEK | • Very high activity tin type • No MBT, DBT, TBT | • Accelerator |
| HI-THANE™ C-380 | 9 ~ 11 | MEK | • Very high activity tin type • No MBT, DBT, TBT | • Accelerator |
| HI-THANE™ AD-30CL | 48 ~ 52 | DMF | • Suitable for Synthetic Leather | • Additive for UV resistance |
| HI-THANE™ AD-3000 | 48 ~ 52 | ET-AC | • Suitable for PET film | • Adhesion Promotor for gravure inks |
| HI-THANE™ AD-5000 | 21 ~ 23 | ET-AC, MEK, TOL, IPA | • Suitable for OPP film | • Adhesion Promotor for gravure inks (OPP) |

PUs – Beads

| | Appearance | Odor | Particle size (um) | Oil Absorbency Linseed Oil (ml/100g) | Microbiology | Bulk Density (g/ml) | Arsenic, Lead | Isocyanate | Solvent |
|-------------------------|------------|---------------|--------------------|--------------------------------------|---------------------------------|---------------------|---------------|----------------|-------------------|
| HI-THANE™ UB-17 | White PW | Odorless | 17 ± 3 | 50 ± 5 | < 100 organisms/g, no pathogens | 0.58 ± 0.03 | < 0.001% | < 0.001% | < 0.001% |
| HI-THANE™ UB-26 | White PW | Odorless | 26 ± 3 | 45 ± 5 | < 100 organisms/g, no pathogens | 0.63 ± 0.03 | < 0.001% | < 0.001% | < 0.001% |
| Test method used | 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™

| |
|-------------------|
| Characteristics |
| Processing |
| Main Applications |

P1000 (Polyester based)

| |
|--|
| Standard grade |
| Injection molding, Extrusion |
| 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/cm³ | 1.22 | 1.23 | 1.23 | 1.24 | 1.24 |
| Tensile Strength | ASTM D412 | kgf/cm² | 450 | 450 | 500 | 450 | 400 |
| Tensile Stress at 100% Modulus | ASTM D412 | kgf/cm² | 130 | 170 | 180 | 200 | 240 |
| Tensile Stress at 300% Modulus | ASTM D412 | kgf/cm² | 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™

| |
|-------------------|
| Characteristics |
| Processing |
| Main Applications |

P3100 (Polyester based)

| |
|--|
| Standard grade |
| Injection molding, Extrusion |
| Pneumatic hoses, Mobile phone cases, Snow chains |

| Properties | Test Method | Units | P-3160A | P-3170A | P-3175A | P-3180A | P-3185A | P-3190A | P-3190A-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/cm³ | 1.13 | 1.14 | 1.19 | 1.19 | 1.20 | 1.21 | 1.21 | 1.22 | 1.22 |
| Tensile Strength | ASTM D412 | kgf/cm² | 200 | 220 | 300 | 350 | 400 | 450 | 480 | 500 | 450 |
| Tensile Stress at 100% Modulus | ASTM D412 | kgf/cm² | 20 | 25 | 40 | 40 | 60 | 70 | 90 | 100 | 130 |
| Tensile Stress at 300% Modulus | ASTM D412 | kgf/cm² | 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™

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|-------------------|
| Characteristics |
| Processing |
| Main Applications |

P3200 (Polyether based)

| |
|------------------------------|
| Standard grade |
| Injection molding, Extrusion |
| 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/cm³ | 1.11 | 1.11 | 1.12 | 1.13 | 1.14 |
| Tensile Strength | ASTM D412 | kgf/cm² | 250 | 280 | 300 | 350 | 400 |
| Tensile Stress at 100% Modulus | ASTM D412 | kgf/cm² | 35 | 40 | 60 | 100 | 120 |
| Tensile Stress at 300% Modulus | ASTM D412 | kgf/cm² | 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/cm³ | 1.19 | 1.20 | 1.21 | 1.23 | 1.23 | 1.23 | 1.23 | 1.24 |
| Tensile Strength | ASTM D412 | kgf/cm² | 350 | 420 | 450 | 450 | 400 | 450 | 480 | 450 |
| Tensile Stress at 100% Modulus | ASTM D412 | kgf/cm² | 40 | 70 | 80 | 130 | 140 | 170 | 180 | 190 |
| Tensile Stress at 300% Modulus | ASTM D412 | kgf/cm² | 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 |
| | Transi- tion | | 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™

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|-------------------|
| Characteristics |
| Processing |
| Main Applications |

P4000 (Polyester based)

| |
|---|
| Transparency |
| Injection molding, Extrusion |
| Shoes components, Pneumatic hoses, Mobile phone cases |

P6000 (Polyester based)

| |
|------------------------------|
| Elastic recovery |
| Injection molding, Extrusion |
| 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/cm³ | 1.22 | 1.23 | 1.20 | 1.20 | 1.21 | 1.22 |
| Tensile Strength | ASTM D412 | kgf/cm² | 420 | 400 | 250 | 300 | 350 | 400 |
| Tensile Stress at 100% Modulus | ASTM D412 | kgf/cm² | 100 | 150 | 30 | 35 | 40 | 60 |
| Tensile Stress at 300% Modulus | ASTM D412 | kgf/cm² | 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 | °C | 195 | 200 | 170 | 175 | 180 | 185 |
| | Transition | | 200 | 205 | 175 | 180 | 185 | 190 |
| | Metering | | 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 | °C | 195 | 200 | 170 | 175 | 180 | 185 |
| | Zone 2 | | 200 | 205 | 175 | 180 | 185 | 190 |
| | Zone 3 | | 205 | 210 | 180 | 185 | 190 | 195 |
| | Adapter | | 210 | 215 | 185 | 190 | 195 | 200 |
| | Die | | 205 | 210 | 180 | 185 | 190 | 195 |



SONGSTOMER™

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|-------------------|
| Characteristics |
| Processing |
| Main Applications |

P7000 (Polyester based)

| |
|--|
| Transparency, Suitable for T-die extrusion |
| Injection molding, Extrusion |
| 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/cm³ | 1.20 | 1.20 | 1.20 | 1.21 | 1.23 | 1.23 | 1.24 |
| Tensile Strength | ASTM D412 | kgf/cm² | 420 | 420 | 300 | 450 | 450 | 400 | 380 |
| Tensile Stress at 100% Modulus | ASTM D412 | kgf/cm² | 70 | 70 | 55 | 80 | 130 | 140 | 280 |
| Tensile Stress at 300% Modulus | ASTM D412 | kgf/cm² | 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™

| |
|-------------------|
| Characteristics |
| Processing |
| Main Applications |

P8000 (Polyester based)

| | |
|--------------|---------------------------------------|
| Easy Gelling | Suitable for inflation film extrusion |
| Calendering | Extrusion |
| 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/cm³ | 1.20 | 1.21 | 1.22 | 1.22 |
| Tensile Strength | ASTM D412 | kgf/cm² | 400 | 450 | 480 | 480 |
| Tensile Stress at 100% Modulus | ASTM D412 | kgf/cm² | 60 | 65 | 75 | 100 |
| Tensile Stress at 300% Modulus | ASTM D412 | kgf/cm² | 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™

| |
|-------------------|
| Characteristics |
| Processing |
| Main Applications |

HM (Polyester based)

| |
|--------------------|
| Hotmelt adhesives |
| Extrusion |
| 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/cm³ | 1.19 | 1.16 | 1.19 |
| Tensile Strength | ASTM D412 | kgf/cm² | 250 | 250 | 200 |
| Tensile Stress at 100% Modulus | ASTM D412 | kgf/cm² | 30 | 45 | 40 |
| Tensile Stress at 300% Modulus | ASTM D412 | kgf/cm² | 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

A leader in the development, production and supply of specialty chemicals, SONGWON's products touch your life every day, everywhere. Since 1965, we've been driving innovation, partnering for progress and paving the way for a better more sustainable tomorrow with 360° customized solutions.

Headquartered in South Korea, SONGWON is the 2nd largest manufacturer of polymer stabilizers worldwide. With Group companies and world-class manufacturing facilities across the globe, we are dedicated to providing customers in over 60 countries with high-performance products that meet their individual needs and the best levels of service.

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official website



Check out our
WeChat account

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