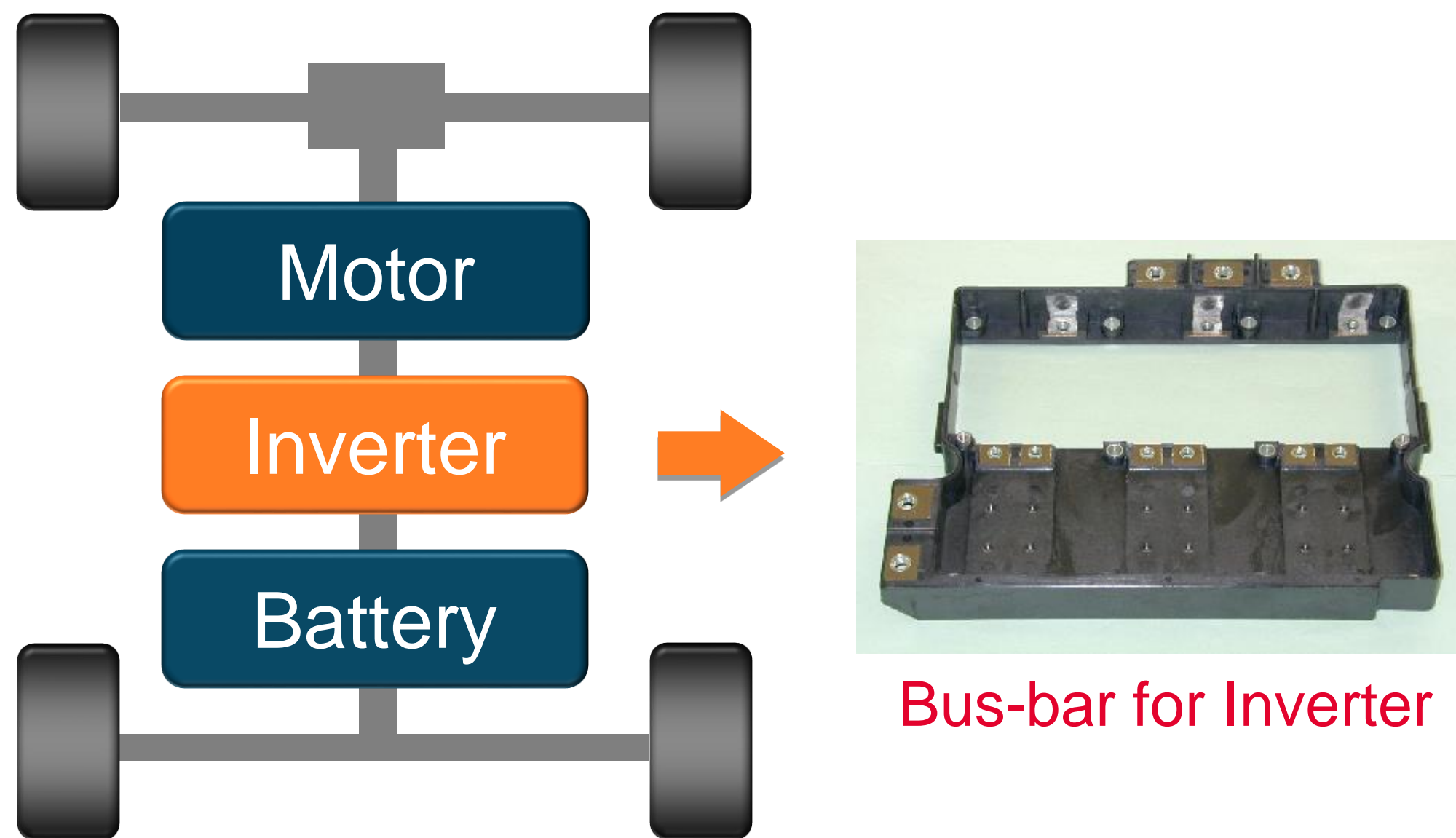


Super - tough PPS

EV Core Parts



Benefits

High weld strength

▶ High design flexibility

Thermal shock resistance

▶ Thin-wall and light weight mold products

Low gas during molding

▶ Void-free and good surface products

Low mold stain

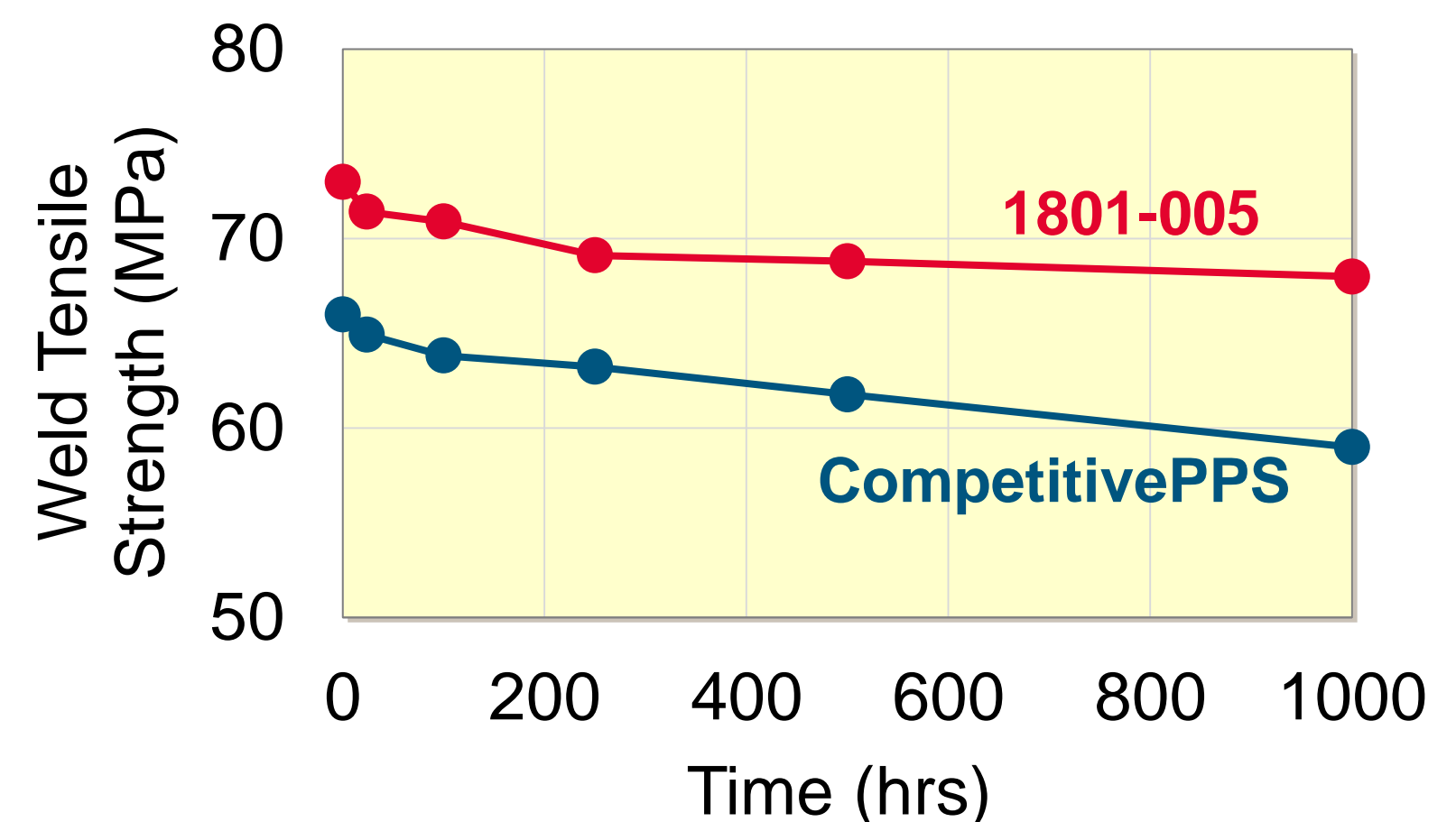
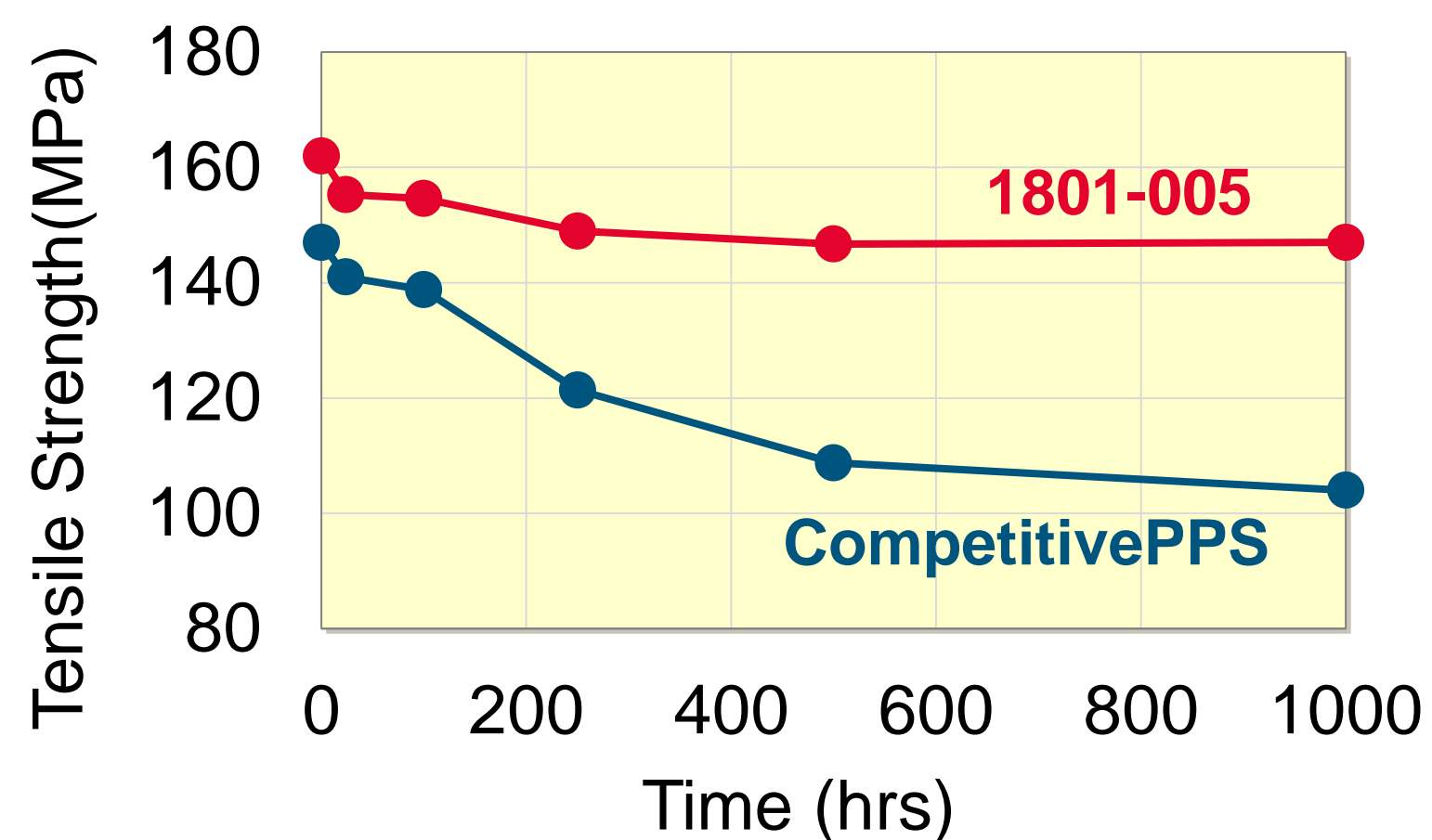
▶ Mold maintenance reduction

Data sheet

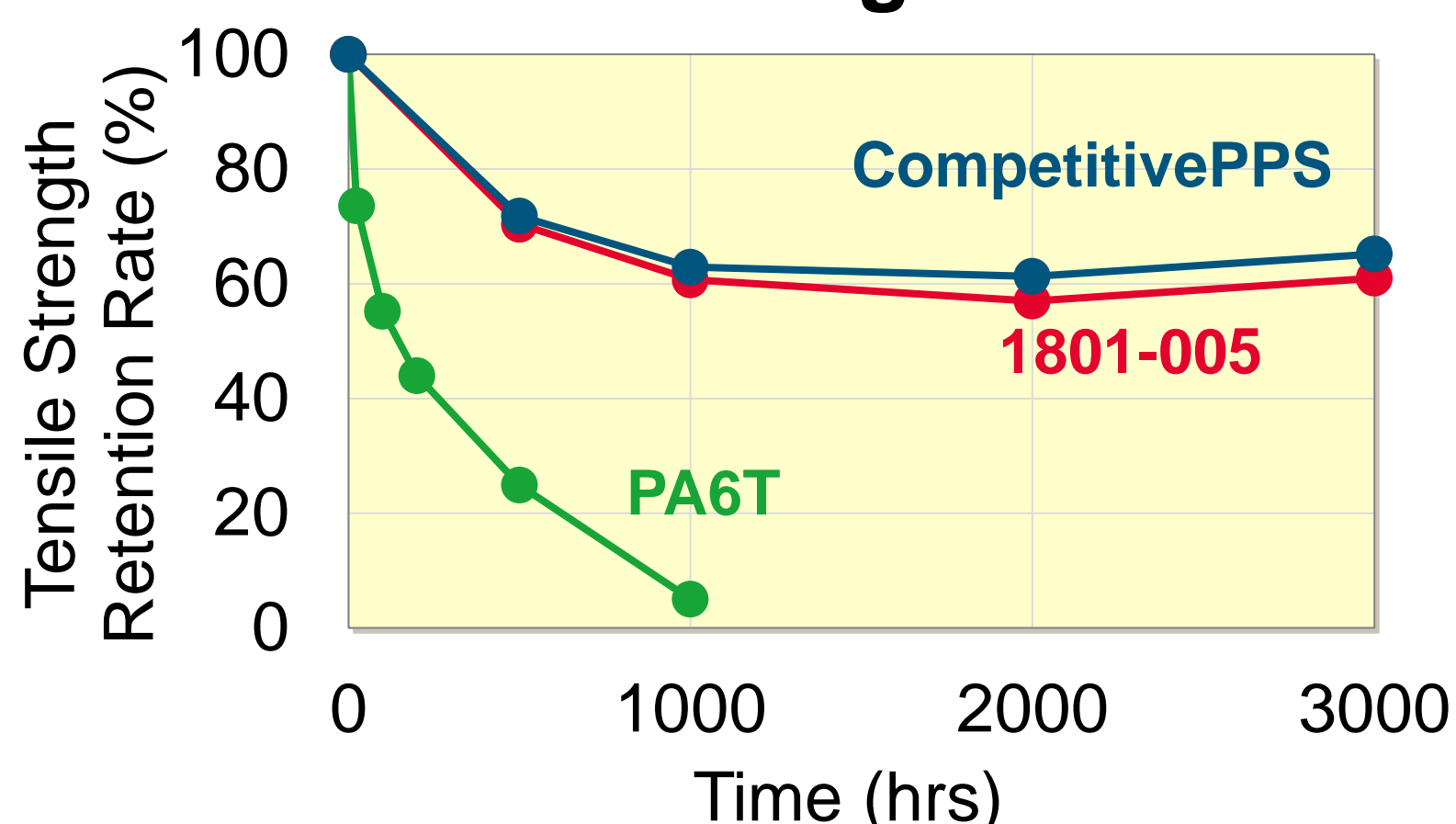
Test	Unit	Method	Tosoh Susteel® 1801-005	Tosoh Susteel® 1901-002	Competitive PPS	PA6T
			>PPS-I-GF30<	>PPS-I-GF30<	>PPS-I-GF30<	>PA6T-GF35<
Weld strength	MPa	ASTM D638	70	78	67	79
Thermal shock ¹⁾	Times	TOSOH	700	470	320	30
Gas emission ²⁾	ml/g	TOSOH	0.9	0.7	1.3	2.1
Stain ²⁾	%	TOSOH	0.02	0.02	0.05	0.11

1)-40°C×30min⇔150°C×30min 2)350°C×30min

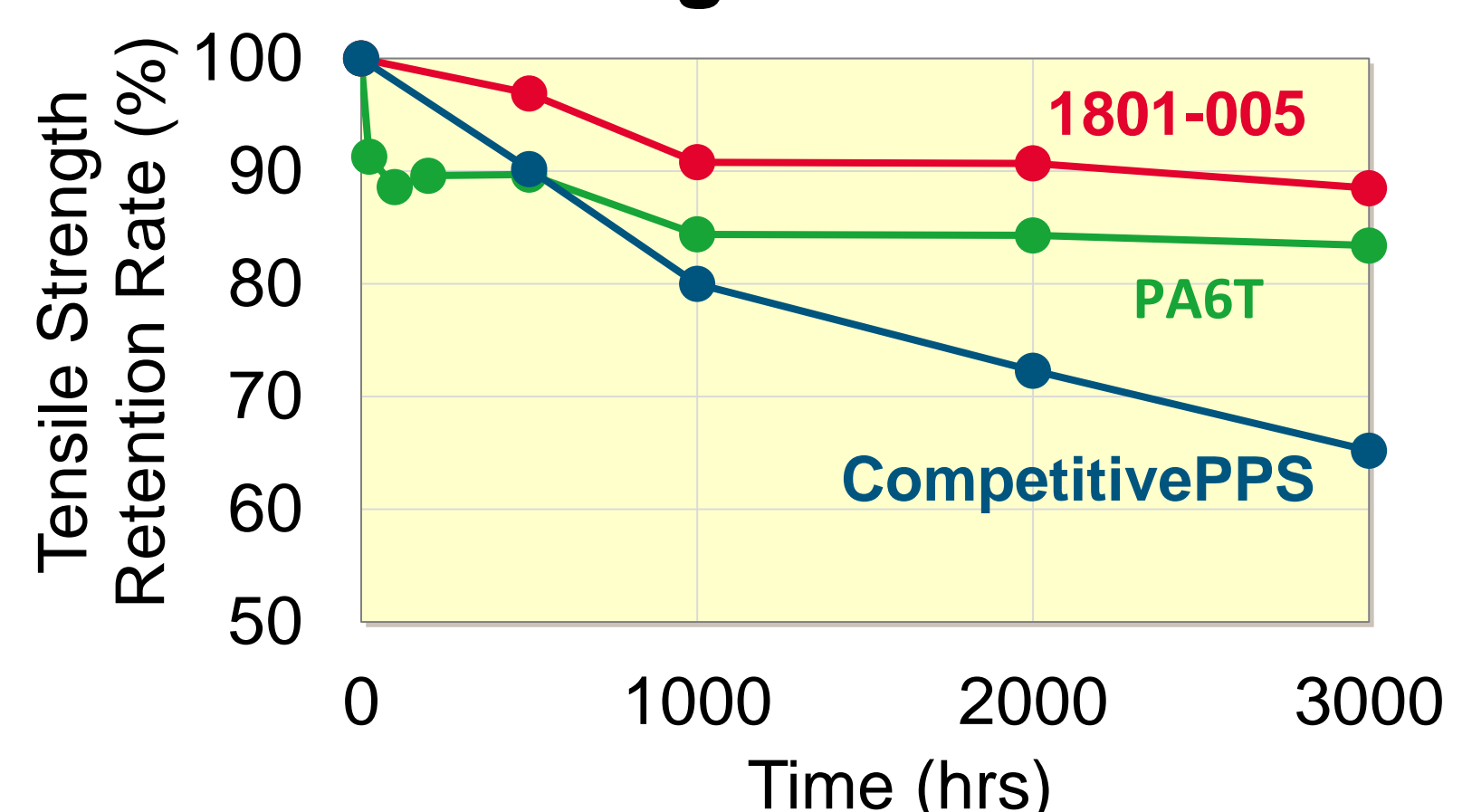
90 degC Hot Water



250 degC Air

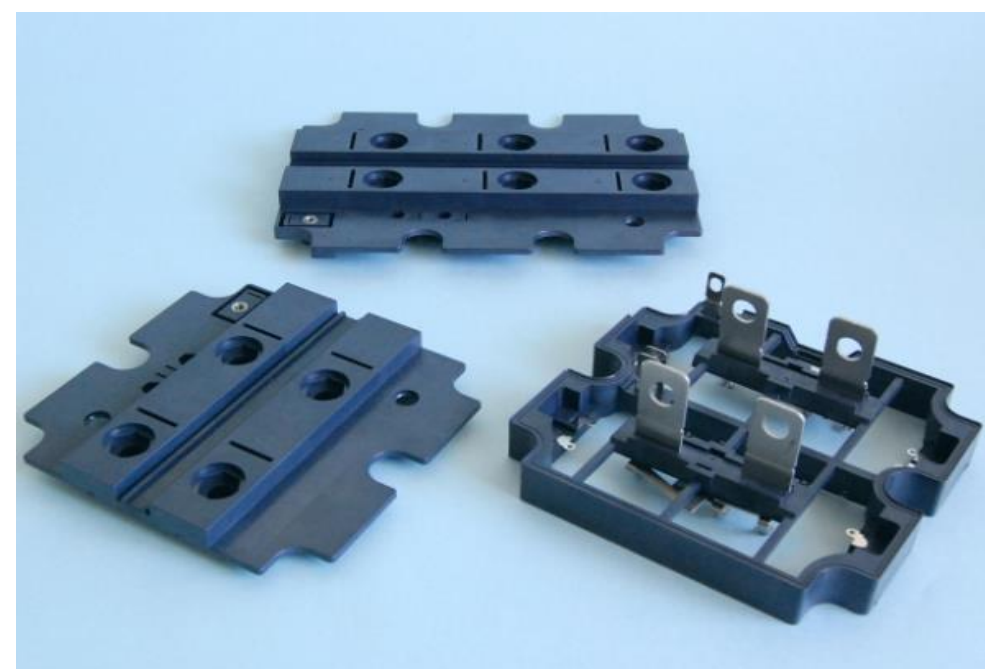


85degC * 85%RH



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Tracking - resistant PPS Applications



Power Module

Rated Voltage (V)	Rated Current (Amp)	Market Field	Applications
600 ~ 3600	≥ 15	Telecommunication	Emergency power systems
		Automotive	Inverters for EV, HEV
		Railway	Inverters
		Energy	Wind-power generation
≤ 600	5 ~ 15	Industry	Motors, Elevators
		Home	Refrigerators, Microwave ovens
		Automotive	Automotive air conditioners
		Industry	Motors

Benefits

Creepage distance reduction of insulation parts

Voltage Rating (V)	Minimum creepage distance of insulation (mm)	
	Tracking-resistant PPS	Normal PPS
500	6	8
1000	12	16
1600	20	25

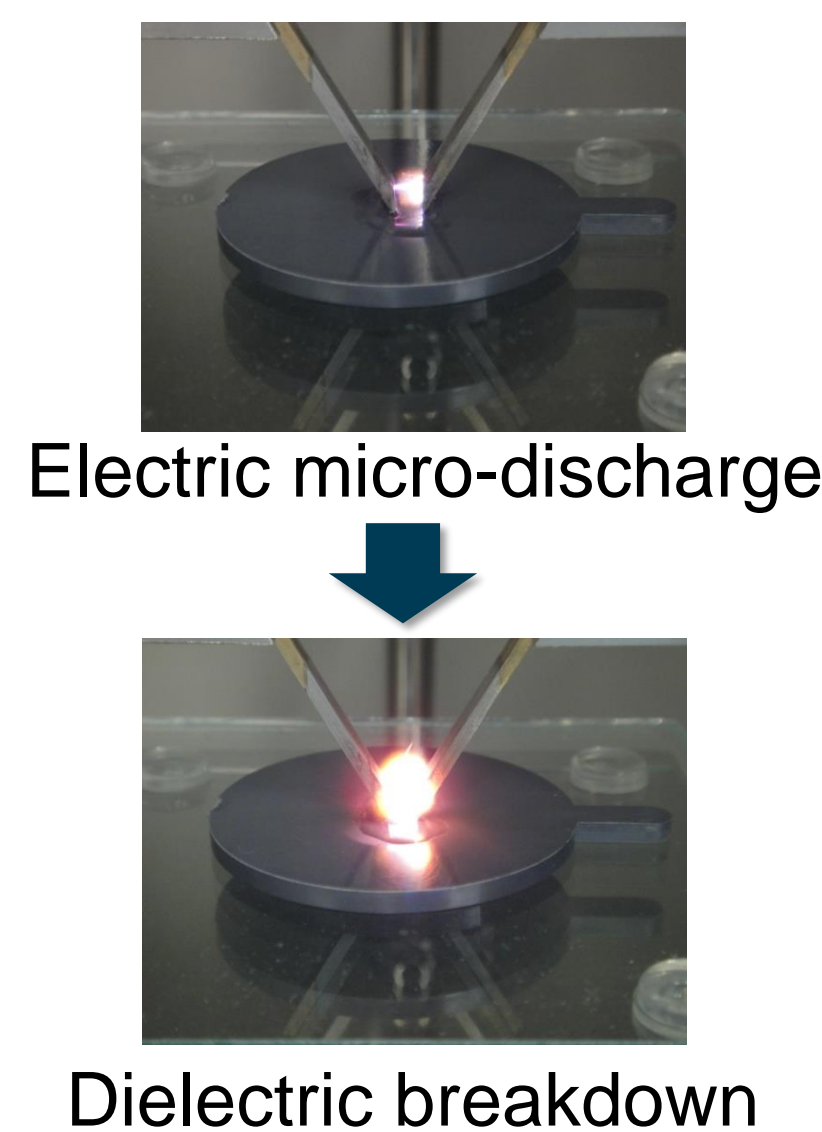
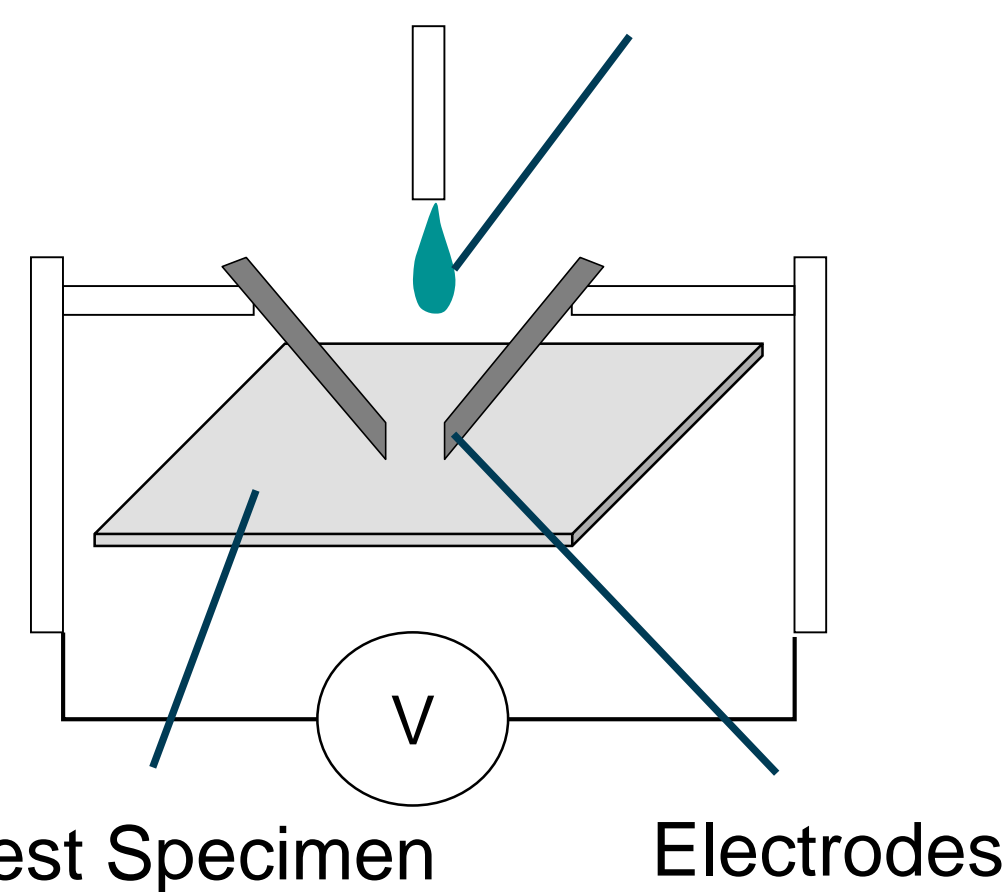
PLC*	CTI (V)	PPS
0	CTI ≥ 600	Tracking-resistant PPS
1	600 > CTI ≥ 400	
2	400 > CTI ≥ 250	Normal PPS
3	250 > CTI ≥ 175	
4	175 > CTI ≥ 100	
5	100 > CTI ≥ 0	

* PLC: Performance level category

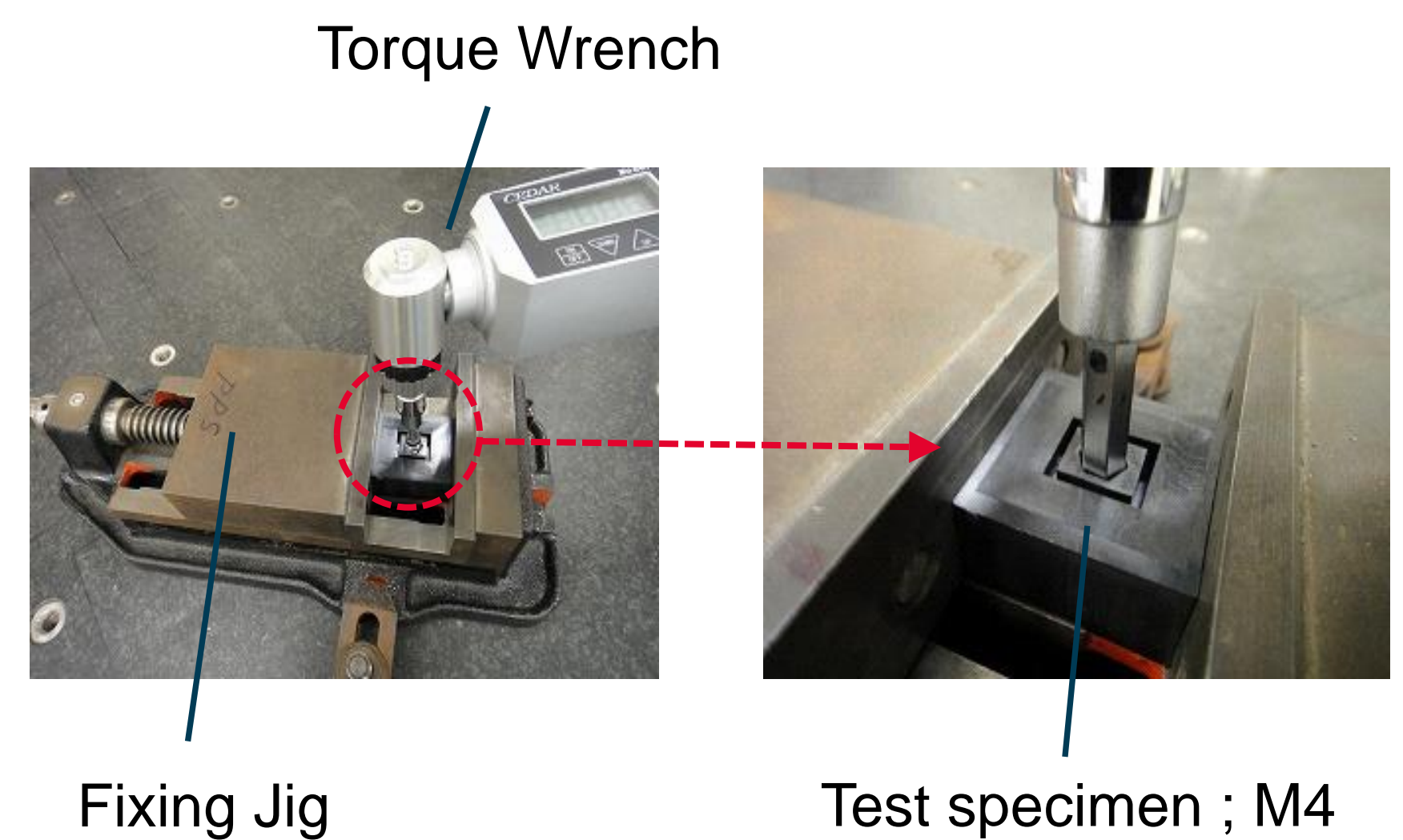
Measurement

CTI ; IEC 60112

Aqueous electrolytic solution (0.1% NH₄Cl aq.)



Bolt tightening torque

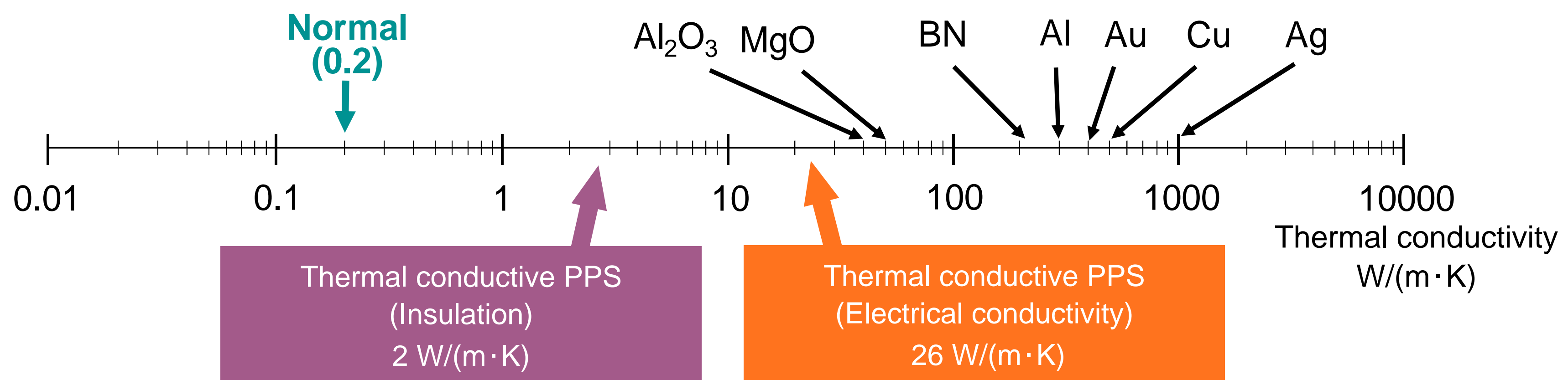


Data sheet

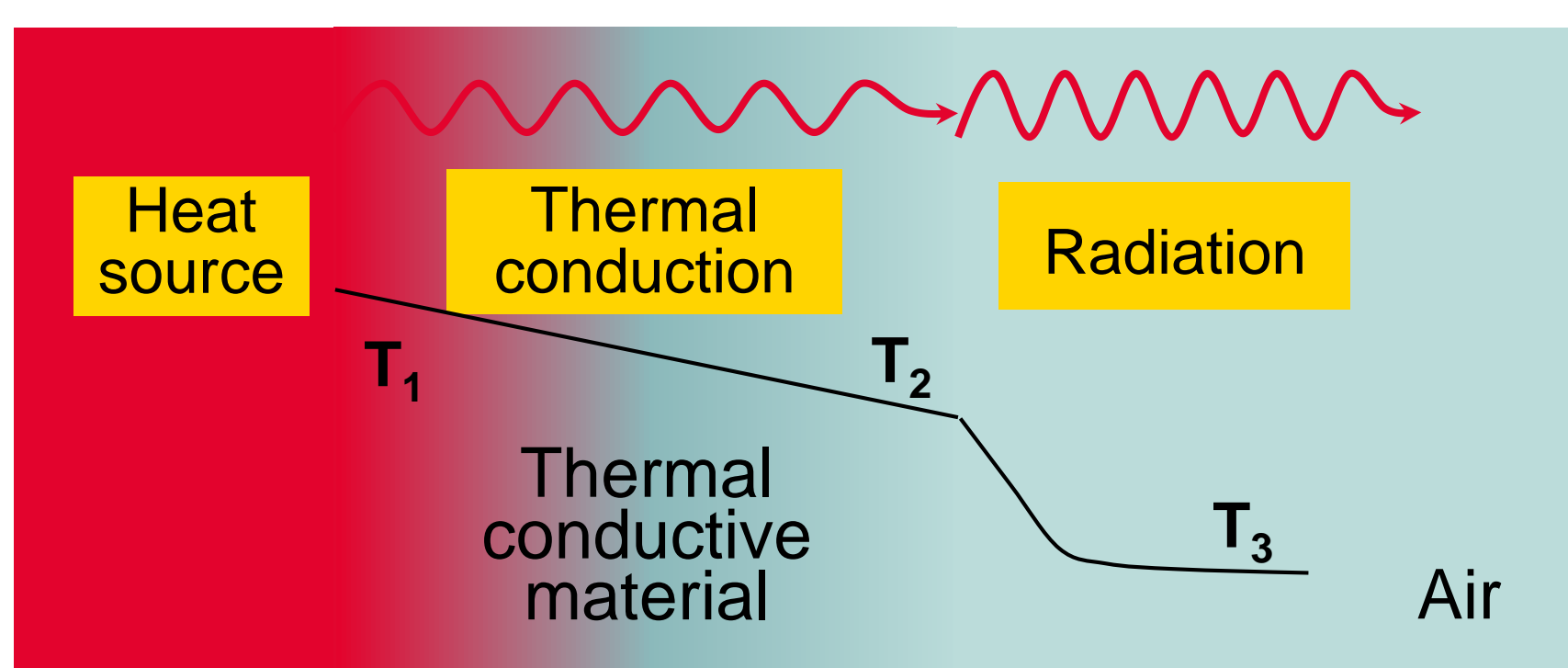
Test	Unit	Method	Tosoh Susteel® TR-65-12	Tosoh Susteel® TR-60-E2	Normal PPS	PA6T
			>PPS-(GF+MD)65<	>PPS-I-(GF+MD)60<	>PPS-(GF+MD)65<	>PA6T-GF35<
CTI	V	IEC 60112	650	600	200	600
Bolt tightening torque	N·m	TOSOH	1.6	2.4	2.1	-
Tensile elongation	%	ISO 527	0.5	2.1	1.0	2.3
Water absorption	%	ISO 62	0.03	0.03	0.02	0.4
Mold shrinkage (MD/TD)	%	TOSOH	0.3 / 0.4	0.3 / 0.6	0.3 / 0.6	0.3 / 0.7

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Thermal conductive PPS



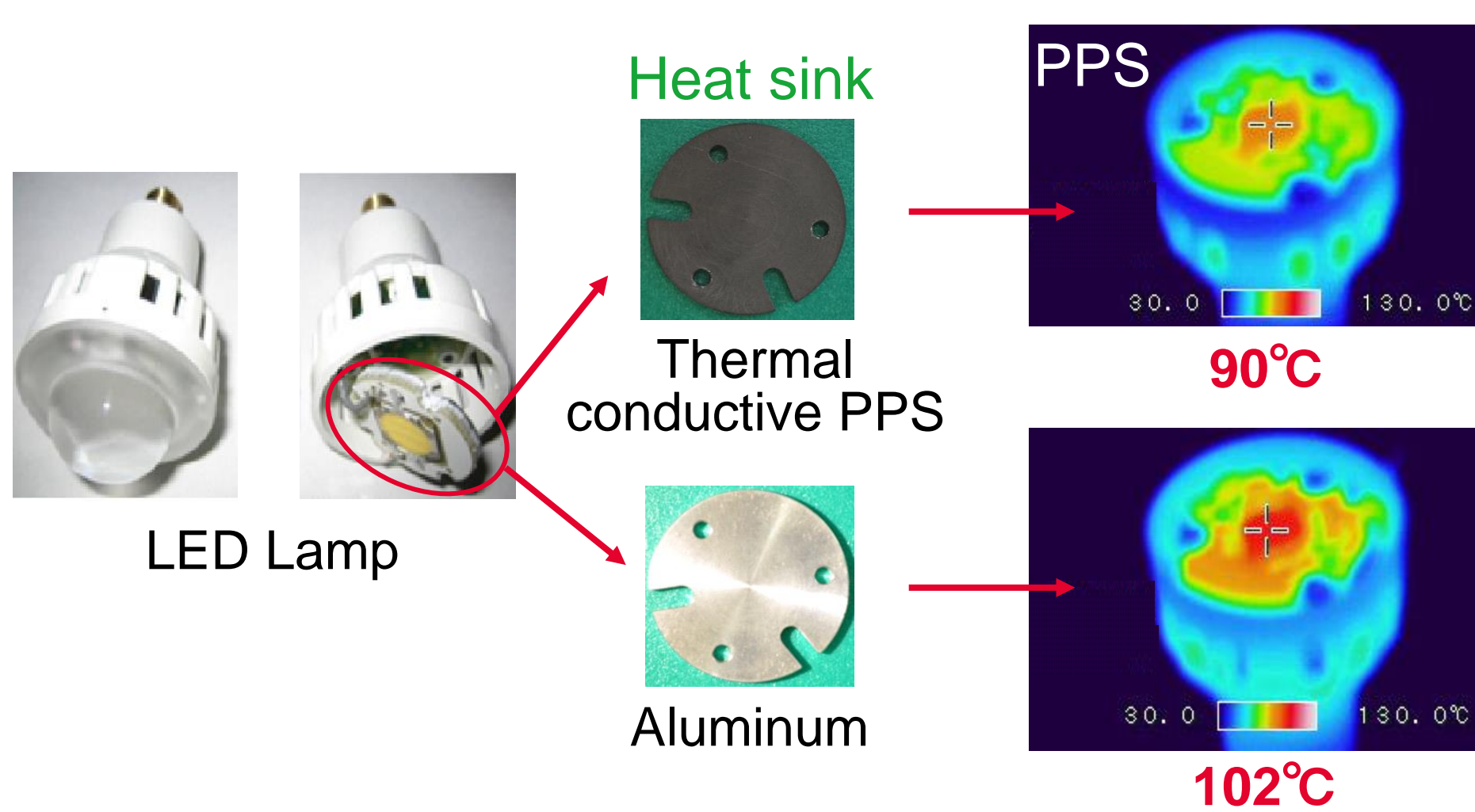
Heat Radiation Mechanism



Heat radiation correlates with thermal conduction of thermal conductive material and radiation in air.

Thermal conductive material	Thermal conductivity (W/(m·K))	Emissivity (-)
Aluminum	230	0.1
Thermal conductive PPS	20	>0.8
Normal PPS	0.3	>0.8

Heat Radiation Test



Applications

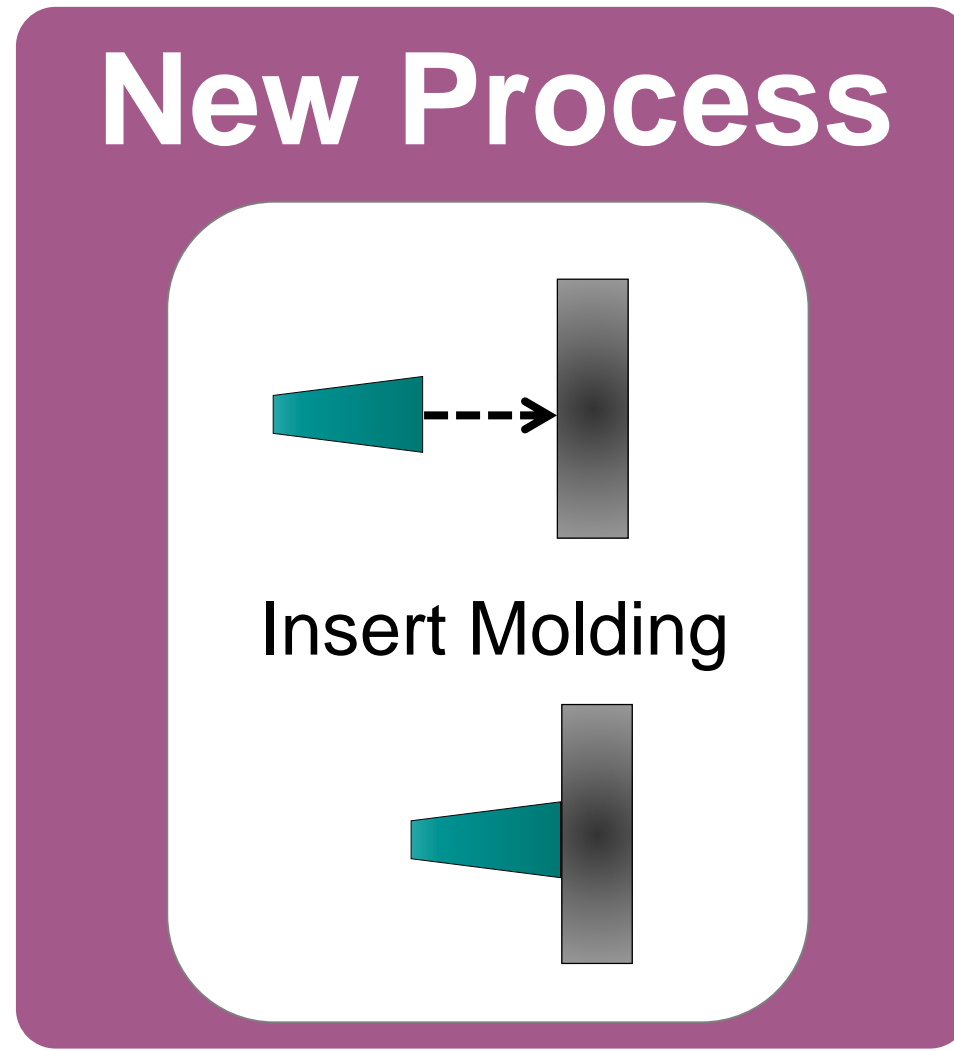
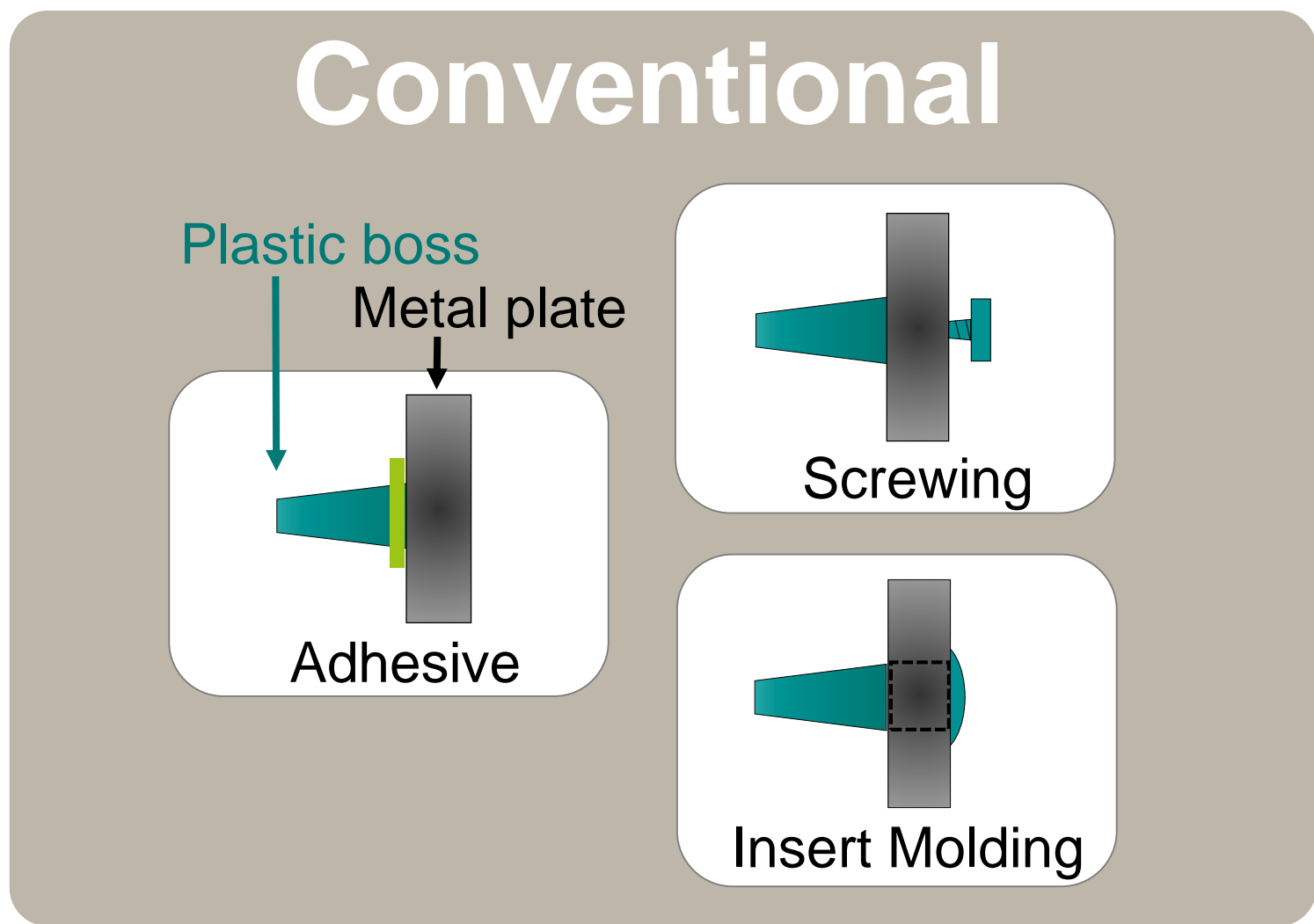
- Inverter case
- Motor insulator
- Electronic Control Unit case
- Connector

Data sheet

Test	Unit	Method	Tosoh Susteel® TCX-250 (12)	Tosoh Susteel® TCX-150 (12)	Tosoh Susteel® TC-70(12)	Normal G-10(12)
			Electrical conductivity	Electrical conductivity	Insulation	Insulation
Thermal conductivity (in-plane)	W/(m·K)	Laser Flash	26	16	2	0.2
Thermal conductivity (through plane)	W/(m·K)	Laser Flash	5	3.5	0.9	-
Electrical conductivity	Ohm·cm	Tosoh	10 ⁰	10 ¹	10 ¹⁵	10 ¹⁶
Molding flow length (1mm)	mm	Tosoh	53	135	158	130
Mold shrinkage (MD/TD)	%	Tosoh	0.03/0.5	0.05/0.6	0.3/0.5	0.3/0.6

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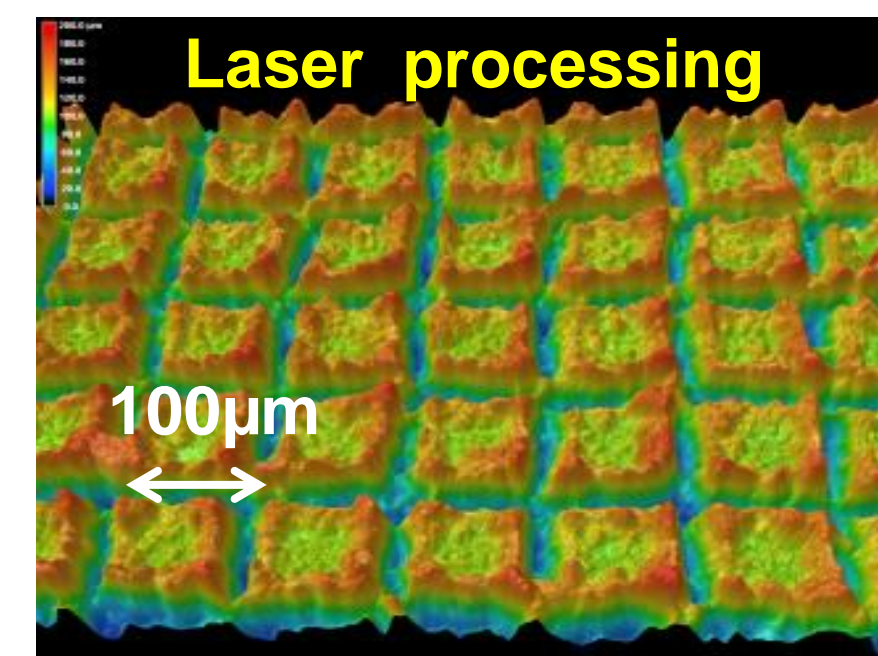
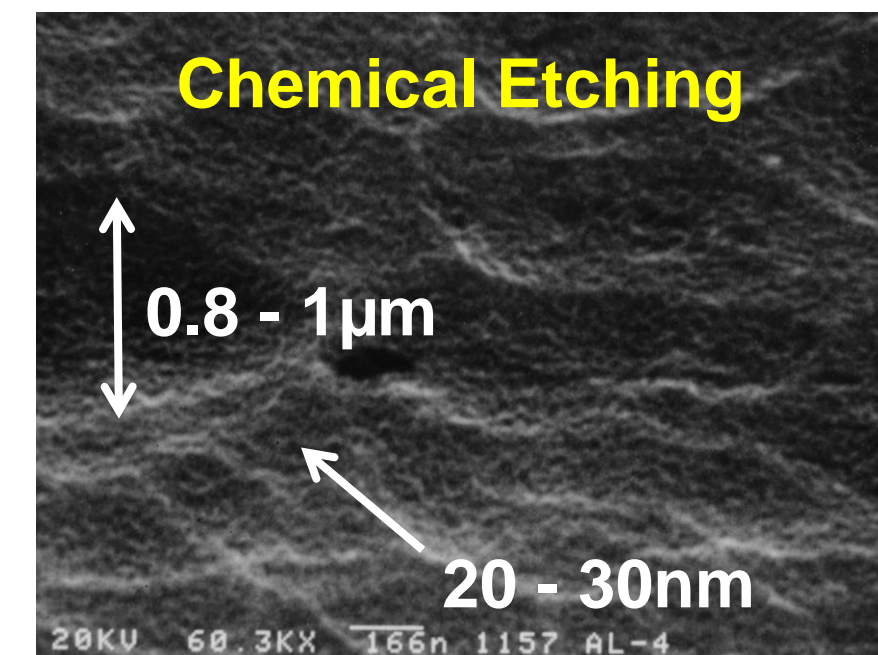
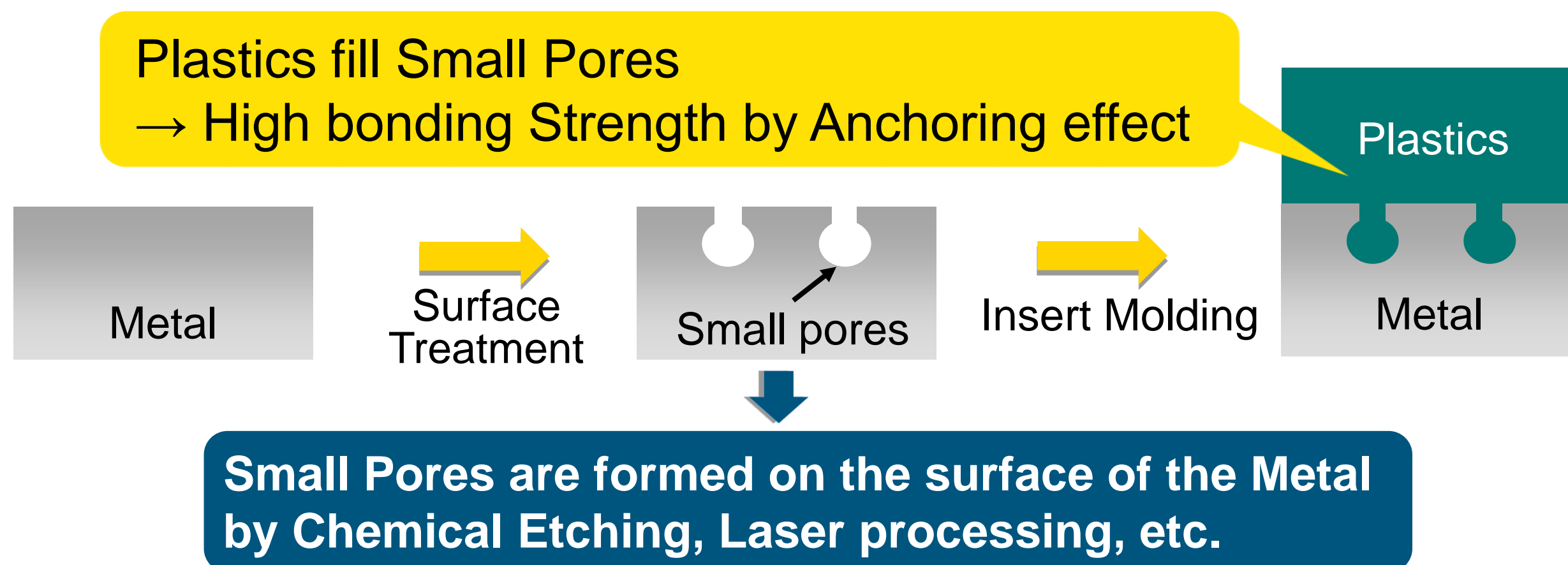
Plastic-Metal Bonding



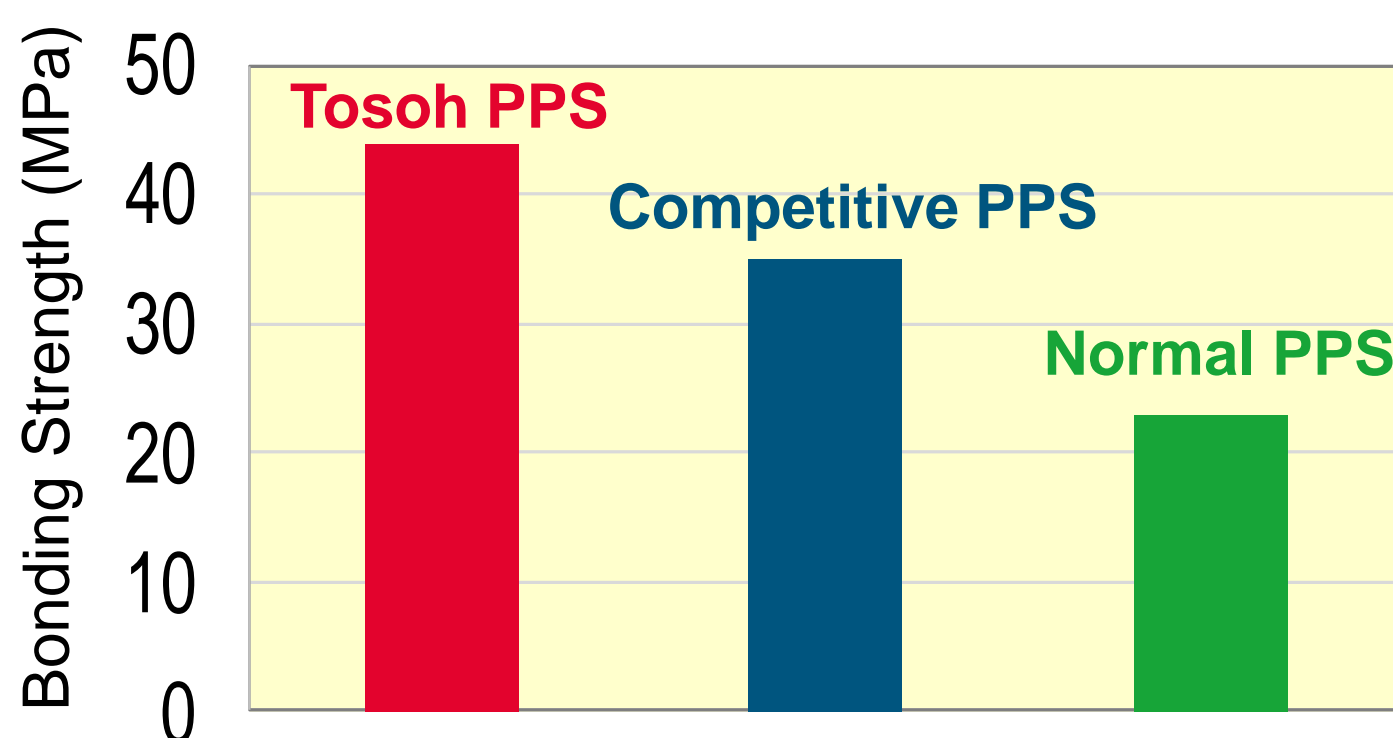
Benefits

- Lightweighting
- Screw-free, Flat surface
- Simple process
- High-bonding Strength
- Excellent sealing performance

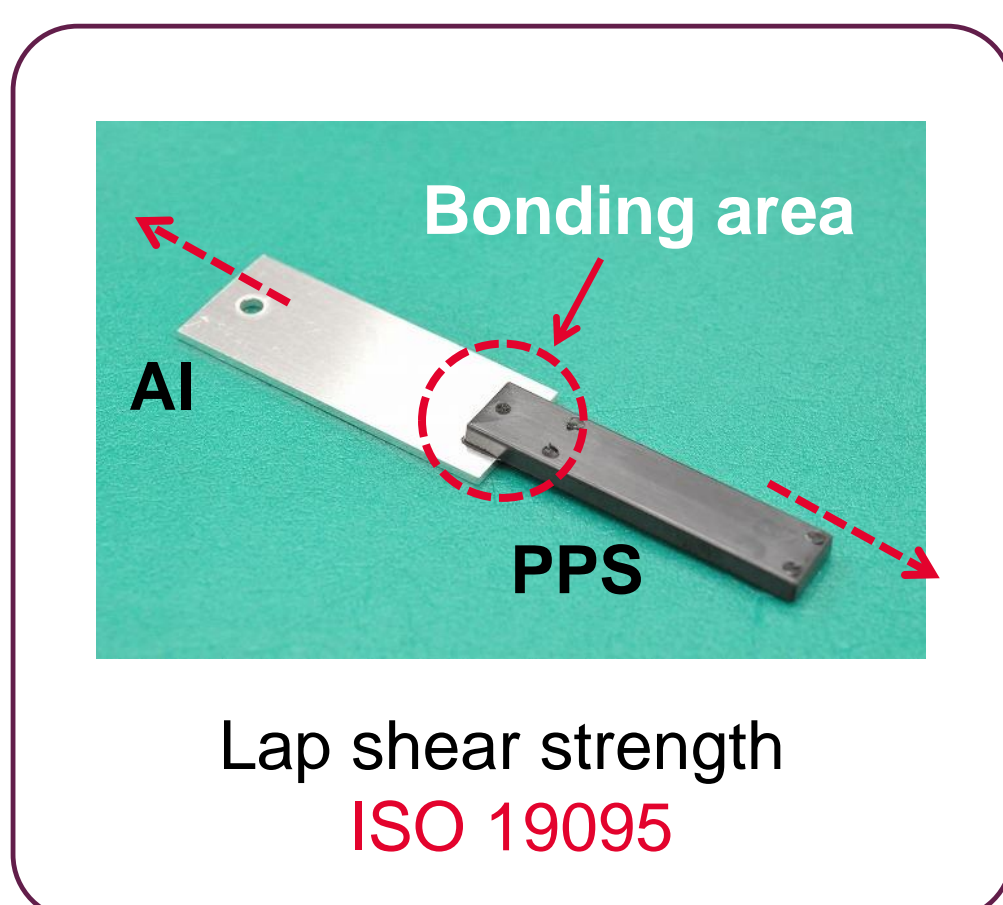
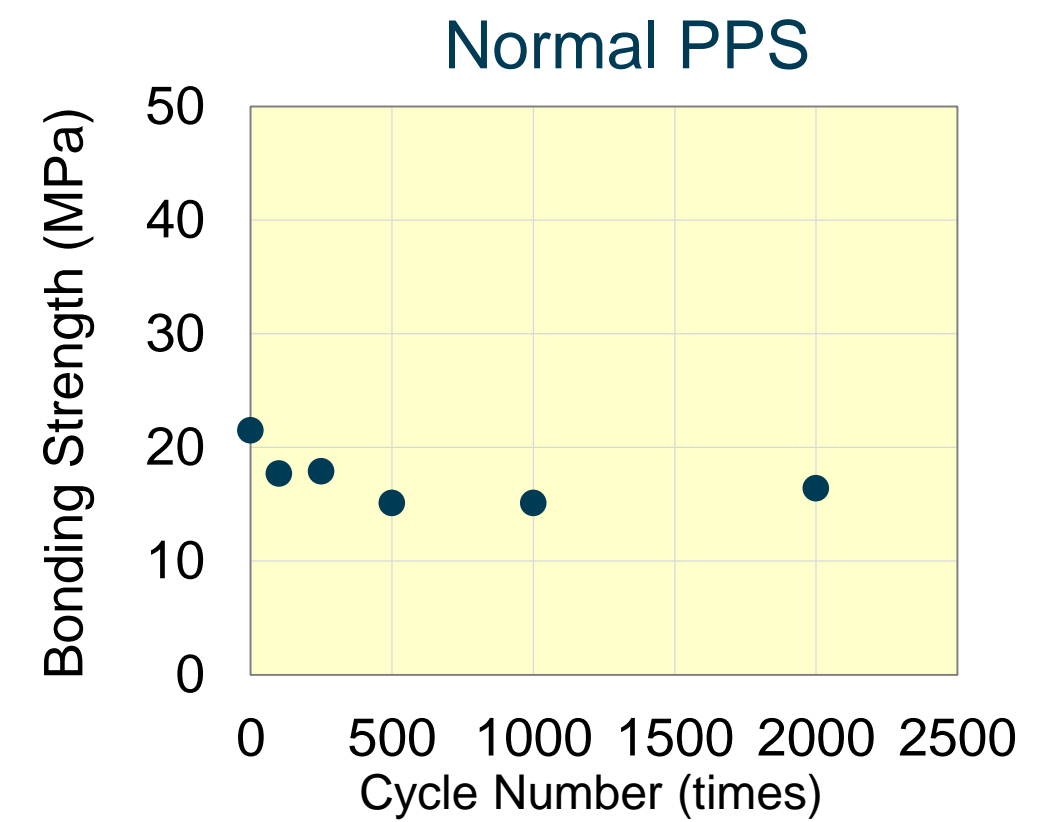
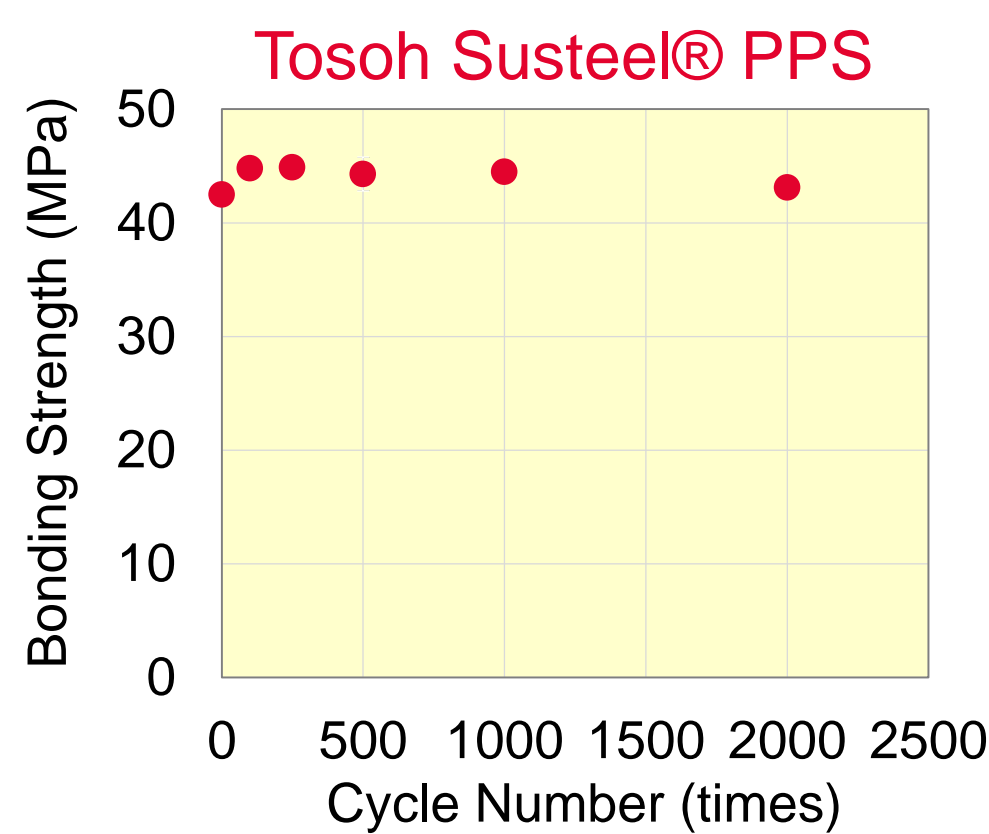
Bonding Mechanism



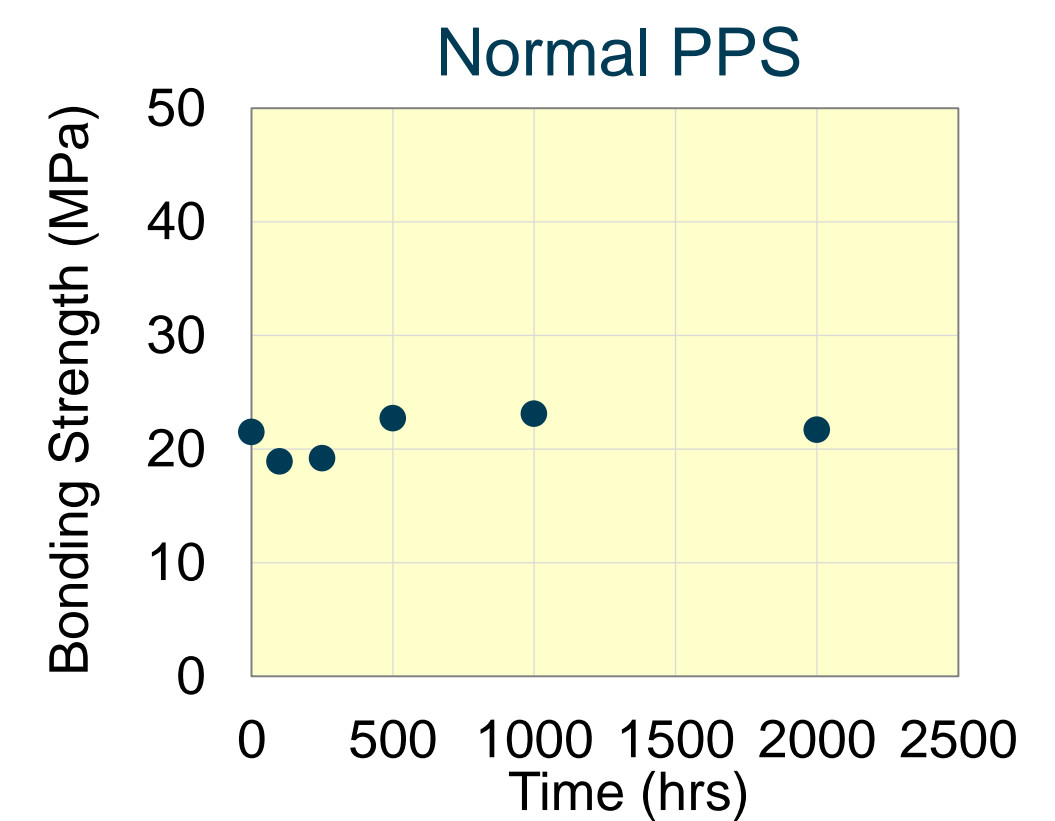
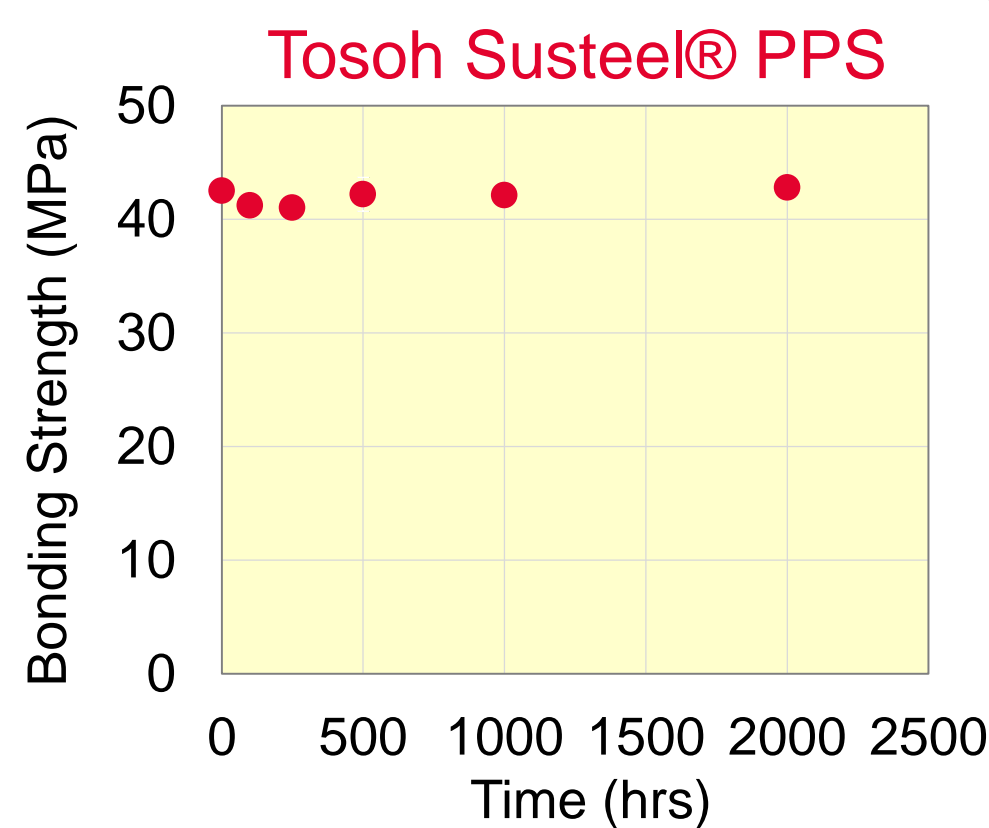
Bonding Strength



-40 degC*30min ↔ 150 degC*30min



85deg-C * 85%RH



Applications



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