Technical Information

TPE 1671

Version 1

General Information

TPE 1671 is a two-component, water and solvent free room temperature-curing Epoxy.
The adhesive is designed for use when high temperature resistance is required (up to +230°C).

Storage Temperature and Shelf-life

Storage	Temperature
Recommended temperature	0°C to +10°C
Min storage temperature	-20°C
Max Storage temperature	+25°C

Shelf-life:

6 months from date of manufacturing in the unopened, original packaging stored between 0 and +10°C.

2 years from date of manufacturing in the unopened, original packaging stored at -18°C.

Curing of the Product

General guidelines:
The product cures at room temperature after component A and B are thoroughly mixed in the right mix ratio. Higher temperatures will shorten the cure time.

Properties of the uncured product

Properties	**TPS 1671 – Part A**	**TPS 1671 – Part B**
Chemical type	Toughened epoxy	Modified amine
Appearance	White	White
Density	1.26 g/cm³	0.82 g/cm³
Viscosity @ 23°C Shear rate 200/s	Non sagging paste	Non sagging paste
Mix ratio by weight	100	32
Mix ration by volume	100	50

Properties	**TPS 1671 (mixed)**
Chemical type	Toughened epoxy
Appearance	White
Viscosity @ 23°C Shear rate 200/s	Non sagging paste
Work life @ 23°C, 5g	60 - 80 minutes
Work life @ 23°C, 10g	45 - 60 minutes
Work life @ 23°C, 20g	35 - 40 minutes
Full cure @ 23°C	24 hours

Properties of the cured product

Properties	Method	Result
Temperature range of use		-55°C to +230°C Other temperatures need to be tested.
Tensile lap shear strength Aluminum to aluminum 23°C for 24 hours	SAD-TM-004	28 MPa
Tg, glass transition temperature	SAD-TM-015	+150°C

Overlap Shear Strength (MPa)

Test conditions	Cure cycle 1	Cure cycle 2	Cure cycle 3
- 55 ± 3°C	19.4 (C)	17.4 (C)	21.9 (C)
23 ± 2°C	28.2 (C)	29.1 (C)	30.4 (C)
80 ± 2°C	24.1 (C)	24.2 (C)	25.9 (C)
120 ± 2°C	16.2 (C)	16.1 (C)	15.4 (C)
150 ± 2°C	10.4 (C)	11.9 (C)	10.3 (C)
175 ± 3°C	7.6 (C)	7.3 (C)	7.5 (C)
205 ± 3°C	4.9 (C)	5.2 (C)	5.3 (C)
230 ± 3°C	2.9 (C)	3.0 (C)	3.5 (C)

Test method EN 2243-1

Overlap shear specimens were constructed using 1.6 mm thick 2024 T3 clad aluminum with the surface prepared using the optimized FPL etch.

Overlap Shear Strength (MPa)

Conditions	Test results
Control (23°C / 50% RH)	28.8 (Cohesive)
D.I. water at 23°C	29.1 (Cohesive)
150°C dry heat	21.4 (Cohesive)
JP4 fuel at 23°C	28.9 (Cohesive)
Engine oil at 23°C	27.8 (Cohesive)
Hydraulic oil at 23°C	27.2 (Cohesive)
50°C ; ≥ 95 % relative humidity	24.9 (Cohesive)
5 % salt spray at 35°C	28.1 (Cohesive)*
* Denotes no corrosion under the glue line	

Test method EN 2243-1

Compression strength (MPa)	Young's modulus (MPa)
23 +/- 2°C : 78.8	23 +/- 2°C : 5972
80 +/- 2°C : 48.7	80 +/- 2°C : 4930
120 +/- 2°C : 36.8	120 +/- 2°C : 3633
150 +/- 3°C : 24.2	150 +/- 3°C : 2350

Additional Instructions:

- Make sure the substrates are clean and free from dust, water, grease, fingerprints, oil, release agents, silicones or other chemicals.
- Substrates can be cleaned with Isopropanol (> 99.5% pure)
- To improve adhesion, durability or bonding difficult substrates (PP, PE, silicone, POM and Teflon) a pretreatment can be done with plasma, corona, flame or Pyrosil.
- Avoid direct contact with the skin, wear protective clothing (gloves). See material safety data sheet (MSDS) for safety instruction.
- Do not store the product together with other adhesives and avoid contact with amines, amides and reducing agents.
- When products are stored in the fridge or freezer, put then first at room temperature for a few hours (2-3 hours at 20-25°C) before using. Otherwise water drops can be formed on the adhesive.
- When heat sensitive products (dual cure products or filled products) are not used in production, it is recommended to store them in the fridge or freezer.
- A save temperature range to work with adhesives is between 15 – 25°C. Keep in mind a temperature increase or decrease of 10°C can reduce or increase the viscosity by a factor of 2. Heat sensitive products like dual cure products (UVAPLUS range) can cure in the packaging or with filled products the resin can separate from filler at temperatures of 30°C and higher. So avoid temperature of 30°C and higher for a longer time.

Note: