Technical Information

SPE 1539

Version 1

General Information

The SPE 1539 is a one-component, water and solvent free heat curing epoxy adhesive.
Semi thixotropic product.

Application/Properties:

It can be used for bonding metals, plastics, rubber, ceramics and glass.
The product is semi-thixotropic (flow–control)

The main properties are:
Low shrinkage, good heat resistance, electrically insulation, the product is gap filling, curing tack free (dry surface).

Due to its toughening it has a good impact, shock and vibration resistance.
The product is durable in humid climates and thermal cycling resistant.

The product is RoHS and Reach compliant

Storage Temperature and Shelf-life

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

When the temperature in production is above 25°C the shelf-life can be effected and limited to a few days.

Shelf-life: 6 months from date of manufacturing in the unopened, original packaging.

Curing of the Product

General guidelines:
The product needs to be cured with heat. This can be done in an oven or with infrared.
A minimum temperature and time is required to start the reaction. Higher temperatures will shorten the cure time.
The cure time mentioned below does not include the time to heat up the substrates to the required temperature.

Heat cure	110°C for 30 minutes

Properties of the uncured product

Properties	Method	Result
Chemical type		Epoxy
Appearance	Visual	Black, fluorescent
Density	SAD-TM-012	1.05 g/cm³
Viscosity @ 23°C Shear rate 200/s	SAD-TM-001	35000 mPa.s Range: 28000 – 42000 mPa.s

Properties of the cured product

Properties	Method	Result
Temperature range of use		-40°C to +180°C
Adhesive Tensile Strength	SAD-TM-005	13 MPa
Elongation at break	SAD-TM-005	1.5%
Complex modulus, G* @ 23°C	SAD-TM-006	8.7 MPa
Tensile lap shear strength Aluminum to aluminum 135°C for 60 minutes	SAD-TM-004	12 MPa
E-modulus		1000 MPa
Thermal conductivity		0.2 W/mK
Volume resistivity (Ω·m)		1 x 10E13
Dielectric strength (kV/mm)		16
Dielectric constant, 1MHz @ 23°C		4
Dielectric constant, 1GHz @ 23°C		3.2

Dispensing of the product

Equipment	Picture
Hand dispenser for 30g cartridge	
Time/pressure dispenser for 30g cartridge	
Pressure vessel for 1kg bottle or cartridge	

Automated dispensing are possible on request

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: