ELANTAS

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EN

Preliminary Technical Data Sheet

# ELAN-tim®

## CS15AV0032/CS15AV0043

100:100

2 Part - Addition cure
Silicone Potting Compound - High Thermal Conductivity


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## Product description

ELAN-tim CS15AV0032 with ELAN-tim CS15AV0043 is a 2-part addition heat cure system. It is a highly filled silicone compound to enhance thermal conductivity maintaining electrical insulation properties. Thermally conductive materials act as a thermal potting material for electrical and/or electronic device for improving the overall efficiency. A 1:1 mixing ratio allows easy and safe processing of the system.

Key Properties:

- Good thermal conductivity
- Excellent dielectric properties
- Elasticity properties
- High tensile strength
- Low volatility
- Very low shrinkage
- High temperature stability
- Temperature range -50°C to 200°C
- accelerated curing
- excellent adhesion to metals and plastic achievable by heating

## Areas of application

This type is specifically designed for protection of electronic components against mechanical stress and vibration when thermal conductivity is also needed. Thanks to its elastic properties and long term thermal resistance this system is successfully used for protection and encapsulation of electronic sensitive devices, electronic components and circuits as well as high-performance semiconductors, LED's and displays, outdoor or harsh environment lighting housings & power modules. Possibility of accelerated cure at high temperatures allows use in mass production manufacturing lines.

## Processing methods

**Pre-treatment:** The components to be treated should be clean dry and free from grease. Compatibility between the resin and all materials of the component should be checked prior to use. ELAN-tim CS resin as well as the Hardener contain filler materials which tend to settle and must be stirred in the original containers to restore the homogenous composition before processing.
All vessels, pipes and equipment used must be thoroughly cleaned because the Pt catalyst of this system may be easily poisoned by traces of sulphur compounds, amines or tin salts. This would seriously inhibit the cross-linking reaction.

**Mixing:** The two components should be mixed in the prescribed ratio. Care should be taken because air may be entrapped during mixing. Application of vacuum can be used to remove air bubbles to obtain a bubble free elastomer. Equipment must be kept clean and care is needed to avoid cross-contamination of components, which may cause hardening in the equipment after days or weeks of use.

**Application:** Viscosity will start to build up after mixing. The working time is about 60 minutes. It is recommended to prepare only the quantity of product that can be applied in this timeframe of the working time at room temperature. This system can be applied either manually or with suitable mixing and dosing equipment.

## Curing/Post-curing

Cure will be completed at room temperature in 12 to 25 hour or in 1h at 120°C. To achieve good adhesion, one hour at 120°C is recommended.

## Storage and stability

Products should be stored in their original sealed containers to avoid any potential contamination at a temperature between 5°C till 30°C. Store accordingly to any specific instruction listed on the product label. Products should be used prior to the expiring date marked on the label.

## Handling precautions

Refer to the safety data sheet and comply with regulations relating to industrial health and waste disposal.

## Sales specifications

### CS15AV0032

| Properties | Conditions | Test Method | Value | M/U |
|---|---|---|---|---|
| Appearance | | Visual method | White | |

### CS15AV0043

| Properties | Conditions | Test Method | Value | M/U |
|---|---|---|---|---|
| Appearance | | Visual method | White | |

### CS15AV0032 / CS15AV0043

| Properties | Conditions | Test Method | Value | M/U |
|---|---|---|---|---|
| Hardness Shore A/1 | 23 °C | ISO 868 (Internal Test M30b) | 35 ÷ 55 | Shore A |

## Typical propieries of the resin

| Properties | Conditions | Test Method | Value | M/U |
|---|---|---|---|---|
| Shelf life | Unopened container months | Internal Test | 6 | months |
| Density | 23 °C | ISO 2811-1 (Internal Test S12) | 2,6 ÷ 2,8 | g/cm³ |
| Viscosity | 23 °C | DIN 53019 (Internal Test V18/b/c) | 3000 ÷ 5000 | mPa·s |

## Typical properties of the hardener

| Properties | Conditions | Test Method | Value | M/U |
|---|---|---|---|---|
| Shelf life | Unopened container months | Internal Test | 6 | months |
| Density | 23 °C | ISO 2811-1 (Internal Test S12) | 2,5 ÷ 2,7 | g/cm³ |
| Viscosity | 23 °C | DIN 53019 (Internal Test V18/b/c) | 700 ÷ 1300 | mPa·s |

## Typical properties of the liquid mix

| Properties | Conditions | Test Method | Value | M/U |
|---|---|---|---|---|
| Appearance | | Visual method | white and flowable | |
| Mixed Viscosity | 25 °C | DIN 53019 | 2500 | mPa·s |
| Gel time | 90 °C | DIN 16945 (Internal Test H17B1) | 5 | min |
| Mix ratio by weight | | --- | 100 : 100 | |

## Typical mechanical properties of the cured product

| Properties | Conditions | Test Method | Value | M/U |
|---|---|---|---|---|
| Tensile Strength | 23 °C | ISO 37 (Internal Test 29) | 1,15 | N/mm² |
| Nominal strain at Break | | ISO 37 (Internal Test 29) | 75 | % |
| Hardness Shore A/1 | 23 °C | ISO 868 (Internal Test M30b) | 50 | Shore A |
| Tear resistance | 23 °C | DIN 53504,5307&53515 (Internal Test M76) | 10 | kN/m |

## Typical thermal properties of the cured product

| Properties | Conditions | Test Method | Value | M/U |
|---|---|---|---|---|
| Flammability | 3,2 x 13 x 125 mm | IEC 60707/IEC 60695-11-10 (Internal Test M25c) | V - 0 | |
| Linear expansions coefficient | From -40 to +160 °C | TMA (Internal Test M56) | 93 | ppm/K |
| Thermal conductivity | 50 °C | ASTM D5470 (Internal Test M98a) | 1,5 | W/(m·K) |
| Thermal conductivity | | THB-100 (Internal Test M98b) | 1,8 | W/(m·K) |

## Typical dielectric properties of the cured product

| Properties | Conditions | Test Method | Value | M/U |
|---|---|---|---|---|
| Volume resistivity | 21 °C - Initial Value | IEC 60464 -2 (Internal Test M5) | $2 \times 10^{13}$ | Ω·cm |
| | 23 °C - After 7d of water emission | | $6 \times 10^{12}$ | Ω·cm |
| Dielectric Strength | 23 °C - 1mm foil - sphere against plate | IEC 60455-2 (Internal Test M31) | 19 | kV/mm |
| Comparative tracking index (CTI) | Disc D=50mm H=10cm, test solution B | IEC 60112 (Internal Test M26) | > 600 | V |
| Dielectric constant at 10 kHz | 21 °C | IEC 60250 (Internal Test M03b) | 6,5 | |
| | 200 °C | | 5,9 | |
| Dielectric dissipation at 10 kHz | 21 °C | IEC 60250 (Internal Test M03b) | < 0,02 | |
| | 200 °C | | < 0,02 | |