HUNTSMAN

Enriching lives through innovation

## Advanced Materials

| | | |
|---|---|---|
| **Araldite® CW 2250-1** | **100** | **pbw** |
| **Aradur® HY 2251** | **13** | **pbw** |

**Optimally filled casting and impregnating systems for processing and curing at room temperature or slightly higher temperatures.**

| | |
|---|---|
| **Application** | Small transformers, filters, capacitors, coils, electronic circuits. |
| **Processing Methods** | Casting / vacuum casting. |
| **Key Properties** | Good dielectric properties.<br>Excellent thermal shock resistance.<br>High thermal conductivity.<br>Flammability UL 94 V-0 (4 mm). |

# Product Data (Guideline Values)

## Araldite® CW 2250-1

Modified, solvent free epoxy resin with inorganic filler.

| | | | |
|---|---|---|---|
| Viscosity at 25°C | ISO 2555 | mPa*s | 5000 – 10000* |
| Specific gravity at 25°C | ISO 2811 | g/cm³ | 1.61 – 1.66* |
| Appearance | Visual | | Beige liquid* |

## Araldite® CW 2250-1 Yellow

Modified, solvent free epoxy resin with inorganic filler.

| | | | |
|---|---|---|---|
| Viscosity at 25°C | ISO 2555 | mPa*s | 5000 – 10000* |
| Specific gravity at 25°C | ISO 2811 | g/cm³ | 1.61 – 1.66* |
| Appearance | Visual | | Yellow to brown liquid* |

## Aradur®HY 2251 Blue

Formulated, low viscosity amine hardener.

| | | | |
|---|---|---|---|
| Viscosity at 25°C | ISO 2555 | mPa*s | 25 – 70* |
| Specific gravity at 25°C | ISO 2811 | g/cm³ | 0.98 – 1.01* |
| Appearance | Visual | | Clear blue liquid* |

*Specified range

# Processing Data (Guideline Values)

## Mix Ratio

| | | Parts by weight | Parts by volume |
|---|---|---|---|
| CW 2250-1 | Resin | 100 | 100 |
| HY 2251 | Hardener | 13 | 20 |

## Gel Time, Viscosity and Curing

| | | | | |
|---|---|---|---|---|
| Mix viscosity at 40°C | CW 2250-1/HY 2251 | Rheomat | mPa*s | 1700 |
| Gel time at 25°C | | Gelnorm | min | 135 |
| Gel time at 40°C | | | min | 80 |
| Gel time at 60°C | | ISO 9396 | min | 33 – 45* |
| Pot life at 40°C<br>(Time to reach 15000 mPa*s) | | Rheomat | min | 60 |
| Standard curing cycle | | 24 hours at RT + 6 hours at 60°C | | |
| Minimum curing cycle | | 24 hours at 25°C | | |

*Specified range

# Processing and Storage (Guideline Values)

## Preparation

CW 2250-1 contains fillers, which tend to settle over time. It is therefore recommended to carefully homogenize the complete contents of the container before use.
In the storage vessels of the production equipment, the pre-filled products should be stirred up from time to time to avoid sedimentation and irregular metering.

## Mixing

The casting mix is best prepared by heating the resin up to 40 – 50 °C before stirring in the hardener.
Brief degassing of the mix under 5 – 10 mbar vacuum improves the mixture homogeneity and enhances the dielectric properties of the castings.

## Curing

To determine whether cross-linking has been carried to completion and the final properties are optimal, it is necessary to carry out relevant measurements on the actual object or to measure the glass transition temperature. Different gel and cure cycles in the customer's manufacturing process could lead to a different degree of cross-linking and thus a different glass transition temperature.

## Storage Conditions

Store the components in a dry place according to the storage conditions stated on the label in tightly sealed original containers. Under these conditions, the shelf life will correspond to the expiry date stated on the label. After this date, the product may be processed only after reanalysis. Partly emptied containers should be tightly closed immediately after use.
For information on waste disposal and hazardous products of decomposition in the event of a fire, refer to the Material Safety Data Sheets (MSDS) for these particular products.

## Mechanical and Physical Properties (Guideline Values)

Determined on standard test specimen at 23℃. Cured for 24h/RT + 6h/60℃.

| | | | | |
|---|---|---|---|---|
| Glass transition temperature | ISO 6721 | ℃ | | 54 |
| Modulus in torsion G' at RT | ISO 6721 | MPa | | 3200 |
| Thermal class | IEC 60085 | | | B |
| Tensile strength | ISO 527 | MPa | | 45 |
| Elongation at break | ISO 527 | % | | 1.45 |
| Flexural strength | ISO 178 | MPa | | 77 |
| Thermal linear coefficient | ISO 11359-2 | ppm/K | | 65 |
| Thermal conductivity | ISO 8894-1 | W/mK | | 0.67 |
| Hardness | DIN 53505 | Shore D | | 88 |
| Flammability | UL 94 | GN | E96722 | V-0 (4 mm) |
| Test of fire reaction | NF F 16-101 | | Classification | I3 / F1 |
| Glow-wire test (850℃) | IEC 60695-2 | GN (green) | VDE 0471 | passed |
| Water absorption | ISO 62/80 | | | |
| 1 day at 23℃<br>30 min at 100℃ | | % by wt. | | 0.15<br>0.47 |

## Electrical Properties (Guideline Values)

Determined on standard test specimen at 23℃. Cured for 6h/RT + 6h/60℃.

| | | | | |
|---|---|---|---|---|
| Dielectric strength (2 mm specimen) | IEC 60243-1 | kV/mm | | 28 |
| Dielectric loss factor (tan δ, 50Hz, 25℃) | IEC 60250 | % | | 3.5 |
| Dielectric constant (εr, 50Hz, 25℃) | IEC 60250 | | | 4.6 |
| Volume resistivity (ρ, 25℃) | IEC 60093 | Ω cm | | $10^{14}$ |
| Tracking resistance CTI | UL 746 A | PLC | E96722 | 0 (600 ≤ TI) |

# Legal Notice

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