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## Advanced Materials

# Araldite® CW 5853 Resin
# Aradur® HY 5853 Hardener

UL RECOGNIZED COMPOUND FOR 180°C APPLICATIONS

**GENERAL:**

Araldite® CW 5853 resin US with Aradur® HY 5853 hardener US is a two-component, heat curing epoxy based impregnation system, which cures to a tough, electrically stable thermosetting polymer that exhibits high thermal endurance. This product is recommended for the trickle impregnation of generator rotors and motor windings. It is also recommended for transformer coils dip and bake applications.

**ADVANTAGES:**

- Low viscosity
- Low run-off in trickle impregnation applications
- Good working life at room temperature
- Rapid cure at moderately elevated temperatures
- Good adhesion to most substrates including copper
- UL® recognized insulation component with Thermal Index of 180°C by UL 1446 by twisted pair and 200°C by helical coil tests

**APPLICATIONS:**

- Impregnation motors and transformers
- Filament windings
- Laminations
- Dielectric barrier boards
- Stator, rotors, armatures and field coil impregnation

**TYPICAL PROPERTIES*:**

**Araldite® CW 5853 Resin**

| | |
|---|---|
| Appearance | Cloud liquid |
| Specific Gravity | 1.17 – 1.19 |
| Viscosity, cPs @ 25°C<br>Spindle 6 @ 20rpm | 11,000 – 16,000 |
| Flash Point, Closed Cup, °F | >200 |

**Aradur® HY 5853 Hardener**

| | |
|---|---|
| Appearance | Clear amber liquid |
| Specific Gravity | 1.18 – 1.28 |
| Viscosity, cPs @ 25°C<br>Spindle 6 @ 20rpm | 50 – 150 |
| Flash Point, Closed Cup, °F | 329 |
| Vapor pressure, mbar @ 25°C | 0.01 |
| Vapor pressure, mbar @ 60°C | 0.1 |

* Typical properties are based on Huntsman's test methods. Copies are available upon request.

## MIX RATIO:

| | Parts by weight |
|---|---|
| Araldite® CW 5853 Resin | 100 |
| Aradur® HY 5853 Hardener | 90 |

## CURE CYCLE:

Excellent impregnation is achieved with the 5853 system by using a typical cure schedule of 6 hours @ 80°C + 2 hours @ 150°C. Optimum impregnation and cure schedules depend on part size. For trickle impregnation of large machines special circumstances apply.

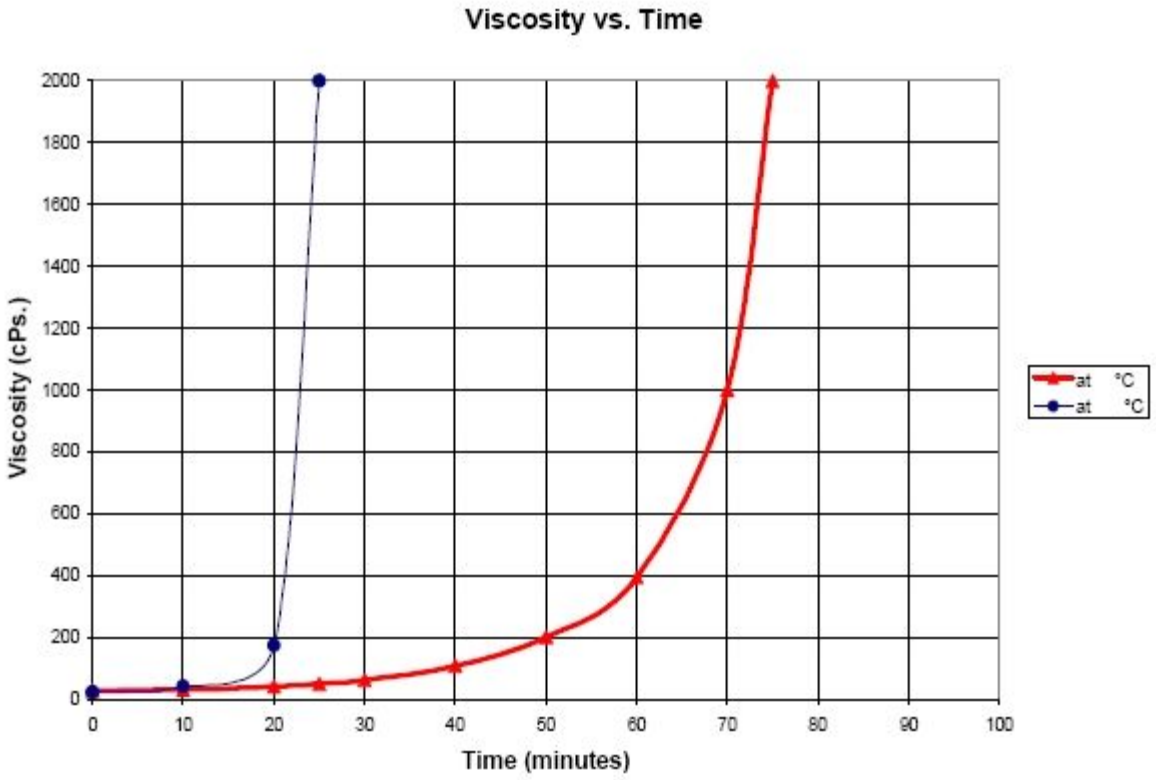
## HANDLING:

Reseal in original containers, if only part of container is used, re-close to prevent contamination. Contact customer service for packaging information.

## REACTIVITY CHARACTERISTICS:

| | |
|---|---|
| Sunshine gel time, 140°C (10 grams) | 5 – 6 minutes |
| Viscosity vs, Time, Brookfield HATDV<br>Spindle 21 a 100 rpm | See Figure 1 |

Figure 1.




**MECHANICAL PROPERTIES:**
**(typical values)**

| Property | ASTM Test Method | Test Value |
|---|---|---|
| Tensile strength, psi | ASTM D-638 | 7,000 – 10,000 |
| Tensile modulus, psi | ASTM D-638 | $4.3 – 4.5 \times 10^{5}$ |
| Tensile elongation, % | ASTM D-638 | 2.0 – 3.0 |
| Flexural strength, psi | ASTM D-790 | 16,000 – 19,000 |
| Flexural modulus, psi | ASTM D-790 | $4.0 – 4.2 \times 10^{5}$ |
| Hardness, Shore D | ASTM D-2240 | 88 – 92 |
| Glass transition temperature, °C | ASTM E-381 | 125 – 135 |
| Coeff. Thermal expansion, in/in-°C | ASTM E-381 | $55 – 60 \times 10^{-6}$ |
| Water absorption, 100°C/2 hours, % | ASTM D-570 | 0.02 – 0.03 |

**ELECTRICAL PROPERTIES:**
**(typical values)**

| | | |
|---|---|---|
| Dielectric constant, 60Hz | | |
| @ 25°C | 3.47 | ASTM D-150 |
| @ 50°C | 3.53 | |
| @ 75°C | 3.60 | |
| @ 100°C | 3.74 | |
| @ 125°C | 4.01 | |
| @ 150°C | 4.48 | |
| Dissipation factor, 60Hz | | |
| @ 25°C | 0.0095 | ASTM D-150 |
| @ 50°C | 0.0140 | |
| @ 75°C | 0.0257 | |
| @ 100°C | 0.0484 | |
| @ 125°C | 0.0761 | |
| @ 150°C | 0.0950 | |
| Dielectric Strength | | |
| V/mil @ 3mm | 450 | ASTM D-149 |

**STORAGE:**

Araldite® CW 5853 resin with Aradur® HY 5853 hardener should be stored in a dry place, in the sealed original container, at temperatures between +2°C and +40°C (+35.6°F and 104°F). Under these storage conditions, the shelf life is 1 year. The product should not be exposed to direct sunlight.

**PRECAUTIONARY STATEMENT:**

Huntsman Advanced Materials Americas LLC maintains up–to-date Material Safety Data Sheets (MSDS) on all of its products. These sheets contain pertinent information that you may need to protect your employees and customers against any known health or safety hazards associated with our products. Users should review the latest MSDS to determine possible health hazards and appropriate precautions to implement prior to using this material.

**First Aid!**
Refer to MSDS as mentioned above.

**KEEP OUT OF REACH OF CHILDREN**

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