

Permabond TA439 Toughened Acrylic Adhesive

Category : Polymer , Adhesive , Thermoset , Acrylic/Cyanoacrylate Adhesive

Material Notes:

Permabond® TA439 is a two component structural acrylic adhesive designed primarily for bonding metals, ferrites, ceramics and some plastics. The typical fixture time of is 10-30 seconds. The fast fixture time of TA439 makes it an ideal adhesive for high speed production lines. This product provides high strength, tough, durable bonds with good impact resistance and performs well in drop tests. TA439 is methacrylic acid free, this means it is suitable for use on sealed electric motors and will not cause corrosion to sensitive components. Use TA439 with Initiator 43. Mix ratio 10:1.5 (adhesive:initiator). Features & Benefits: Adhesion to a wide variety of substrates Fast cure at room temperature No mix application High shear strength Good peel and impact strength Good chemical resistance Non-corrosive formulation Information provided by Permabond.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Permabond-TA439-Toughened-Acrylic-Adhesive.php

| Physical Properties | Metric | English | Comments |
|---------------------|---------------------------------------|---------------------------------------|----------|
| Specific Gravity | 1.03 g/cc | 1.03 g/cc | Uncured |
| Viscosity | 800 - 1200 cP @Temperature 25.0 °C | 800 - 1200 cP @Temperature 77.0 °F | Uncured |
| Storage Temperature | 5.00 - 25.0 °C | 41.0 - 77.0 °F | |

| Mechanical Properties | Metric | English | Comments |
|------------------------|------------------|-----------------|---|
| Tensile Strength | 25.0 - 30.0 MPa | 3630 - 4350 psi | DIN 53288 |
| Adhesive Bond Strength | 4.00 MPa | 580 psi | Steel to Ferrite after 3 minutes, Shear |
| | >= 14.0 MPa | >= 2030 psi | Substrate Failure, Steel to Ferrite after 24 hours, Shear |
| | 12.0 - 18.0 MPa | 1740 - 2610 psi | Zinc, Shear |
| | 20.0 - 25.0 MPa | 2900 - 3630 psi | Steel, Shear |
| Impact | 10 - 20 | 10 - 20 | kJ/m^2 Adhesive Impact Strength; ASTM D950 |
| Peel Strength | 1.80 - 3.60 kN/m | 10.3 - 20.5 pli | ISO 4578 |

| Thermal Properties | Metric | English | Comments |
|----------------------|---|---|-----------|
| CTE, linear | 80.0 $\mu\text{m/m} \cdot ^\circ\text{C}$ | 44.4 $\mu\text{in/in} \cdot ^\circ\text{F}$ | ASTM D696 |
| Thermal Conductivity | 0.100 W/m-K | 0.694 BTU-in/hr-ft ² -°F | ASTM C177 |

| Electrical Properties | Metric | English | Comments |
|-----------------------|--------|---------|----------|
|-----------------------|--------|---------|----------|

| Electrical Properties | Metric | English | Comments |
|-----------------------|-----------------------|-----------------------|-----------|
| Dielectric Constant | 4.6 | 4.6 | ASTM D150 |
| | @Frequency 1.00e+7 Hz | @Frequency 1.00e+7 Hz | |
| Dielectric Strength | 30.0 - 50.0 kV/mm | 762 - 1270 kV/in | ASTM D149 |

| Processing Properties | Metric | English | Comments |
|-----------------------|-------------------|------------------------|--------------------------------|
| Cure Time | 0.167 - 0.500 min | 0.00278 - 0.00833 hour | fixture time with initiator 43 |
| | 20.0 - 40.0 min | 0.333 - 0.667 hour | working strength |
| | 1440 min | 24.0 hour | full cure |
| Shelf Life | 12.0 Month | 12.0 Month | |

| Descriptive Properties | Value | Comments |
|------------------------|--------------|-----------------|
| Appearance | Amber | Uncured |
| Maximum Gap Fill (mm) | 0.5 | |
| Strength Retention | 100% at 0°C | Relative to 0°C |
| | 30% at 150°C | Relative to 0°C |
| | 5% at 200°C | Relative to 0°C |
| | 85% at 100°C | Relative to 0°C |
| | 95% at 50°C | Relative to 0°C |

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