Technical Data Sheet

LOCTITE® 510™

June 2022

PRODUCT DESCRIPTION

LOCTITE® 510™ provides the following product characteristics:

Technology	Acrylic
Chemical Type	Dimethacrylate ester
Appearance (uncured)	Opaque pink paste[LMS]
Components	One component - requires no mixing
Viscosity	High
Cure	Anaerobic
Application	Gasketing and sealing
Strength	Medium

LOCTITE® 510™ cures when confined in the absence of air between close fitting metal surfaces. This product is a general gasketing product suitable for hand dispensing or screen printing.

NSF International

Registered to NSF Category P1 for use as a sealant where there is no possibility of food contact in and around food processing areas. **Note:** This is a regional approval. Please contact your local Technical Service Center for more information and clarification.

Approved by the Australian Gas Association Certificate number 2590 Class II rated working pressure 500 kPa, working temperature -10 to 200°C. **Note:** This is a regional approval. Please contact your local Technical Service Center for more information and clarification.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.1
Flash Point - See SDS	
Viscosity, Brookfield - HBT,25°C,mPa·s (cP):	
Spindle TC, speed 2.5 rpm, Helipath	200,000 to 750,000[LMS]
Spindle TC, speed 20 rpm, Helipath	40,000 to 140,000[LMS]

Instant Sealing Capability

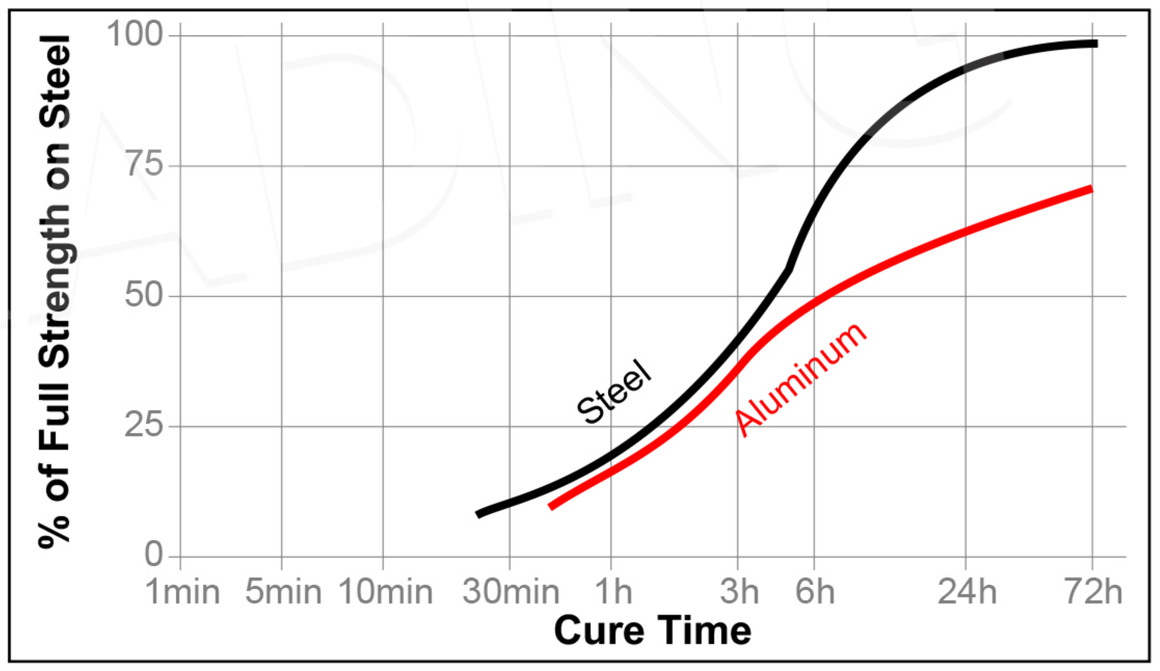
Anaerobic sealants have the ability to resist low on-line test pressures while uncured. This test was performed with uncured product immediately after assembly of an annular polycarbonate sealing surface with an internal diameter of 50 mm and an external diameter of 70 mm.

Pressure Resistance, MPa:	
Induced Gap 0 mm	0.02
Induced Gap 0.125 mm	0.01
Induced Gap 0.25 mm	0.01

TYPICAL CURING PERFORMANCE

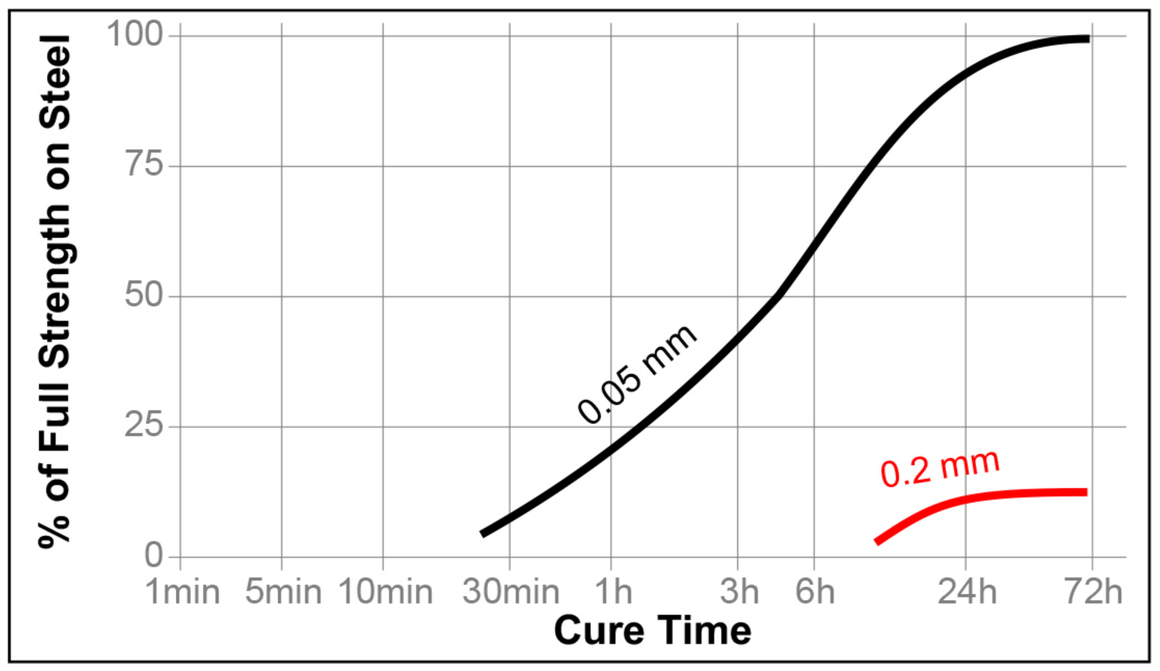
Cure Speed vs. Substrate

The rate of cure will depend on the substrate used. The graph below shows the shear strength developed with time on grit blasted steel lap shears compared to different materials and tested according to ISO 4587.



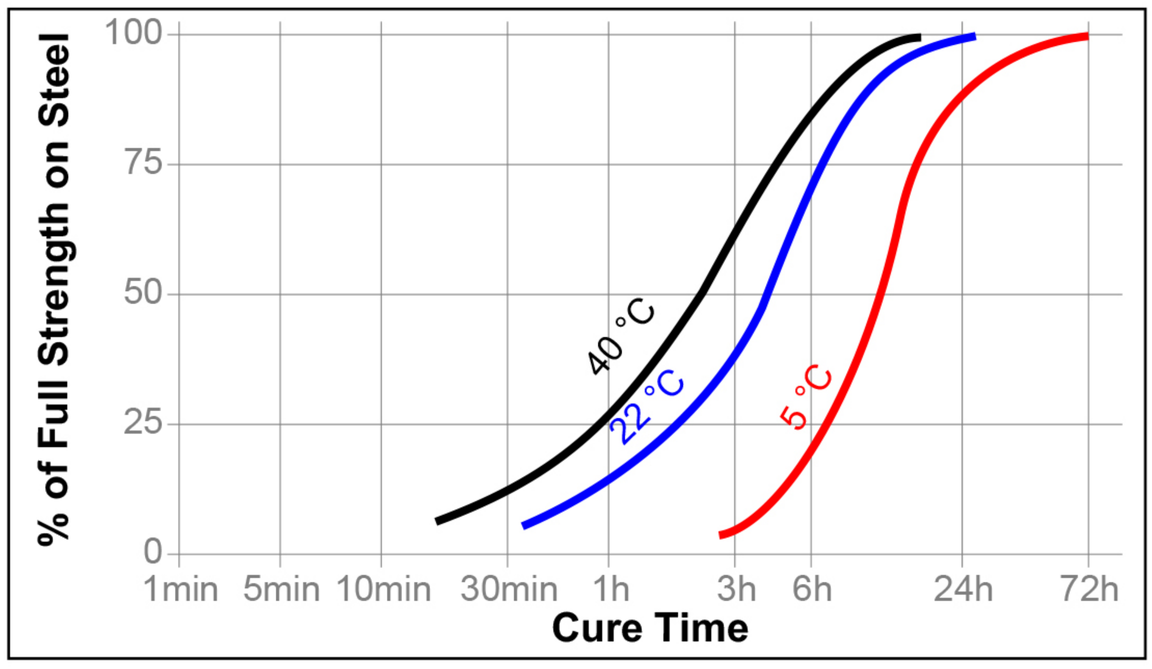
Cure Speed vs. Bond Gap

The rate of cure will depend on the bondline gap. The graph below shows the shear strength developed with time on grit blasted steel lap shears compared to different controlled gaps and tested according to ISO 4587.



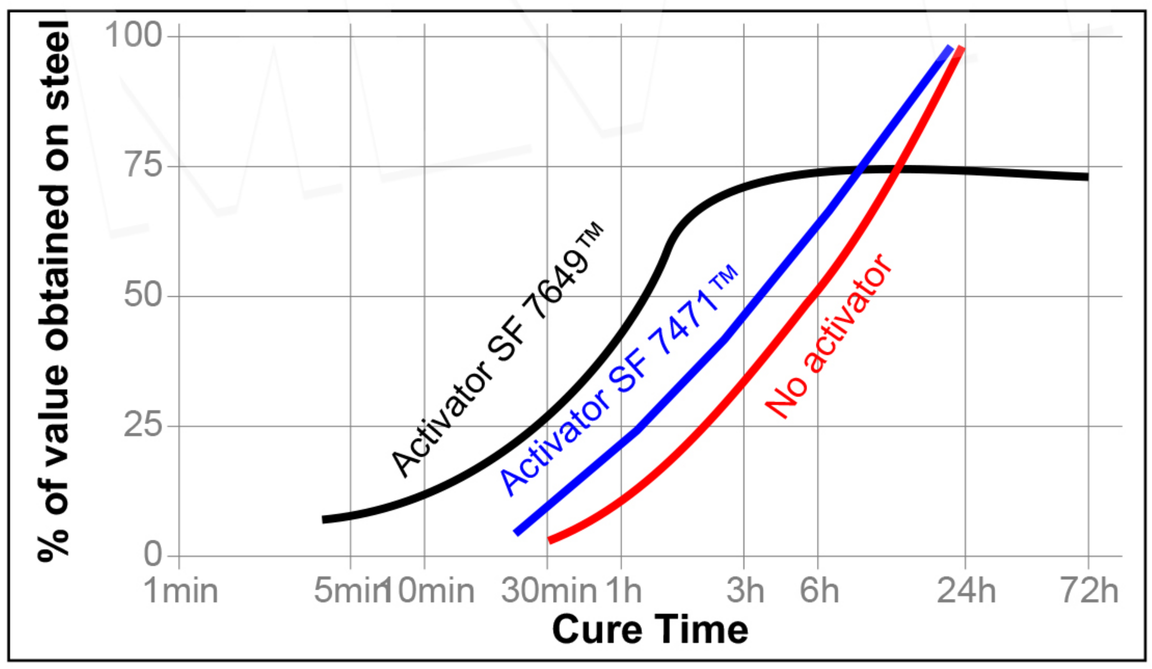
Cure Speed vs. Temperature

The rate of cure will depend on the temperature. The graph below shows the shear strength developed with time at different temperatures on grit blasted steel lap shears and tested according to ISO 4587.



Cure Speed vs. Activator

Where cure speed is unacceptably long, or large gaps are present, applying activator to the surface will improve cure speed. The graph below shows the shear strength developed with time on grit blasted steel lap shears using Activator SF 7471™ or SF 7649™ and tested according to ISO 4587.



TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Coefficient of Thermal Expansion, ISO 11359-2, K^{-1}	80×10^{-6}
Coefficient of Thermal Conductivity, ISO 8302, W/(m·K)	0.1
Specific Heat, kJ/(kg·K)	0.3

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured for 1 hour @ 22 °C

Compressive Shear Strength, ISO 10123:

Steel pins and collars (degreased)	N/mm² (psi)	≥1 LMS (≥145)

Cured for 24 hours @ 22 °C

Compressive Shear Strength, ISO 10123:

Steel pins and collars (degreased)	N/mm² (psi)	≥7.5 LMS (≥1,085)

Lap Shear Strength :

Steel (grit blasted)	N/mm² (psi)	5 (725)

Tensile Strength, ISO 6922:

Steel (grit blasted)	N/mm² (psi)	7.5 (1,085)

Sealing Capability

An annular shaped gasket with an inner diameter of 50 mm and an external diameter of 70 mm was tested up to 1.3 MPa for leakage.

Sealed to Maximum Induced Gap, mm:

Mild steel	≤0.125
Aluminum 2011T3	≤0.125

TYPICAL ENVIRONMENTAL RESISTANCE

The following tests refer to the effect of environment on strength. This is not a measure of sealing performance.

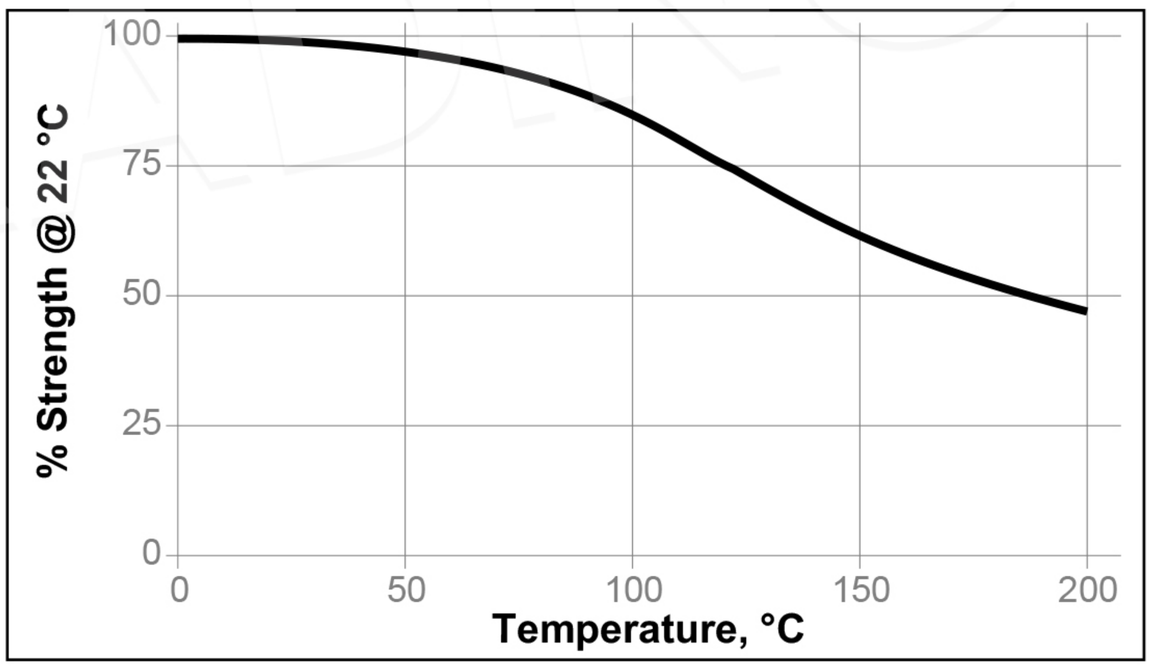
Cured for 1 week @ 22°C

Lap Shear Strength :

Steel (grit blasted)

Hot Strength

Tested at temperature

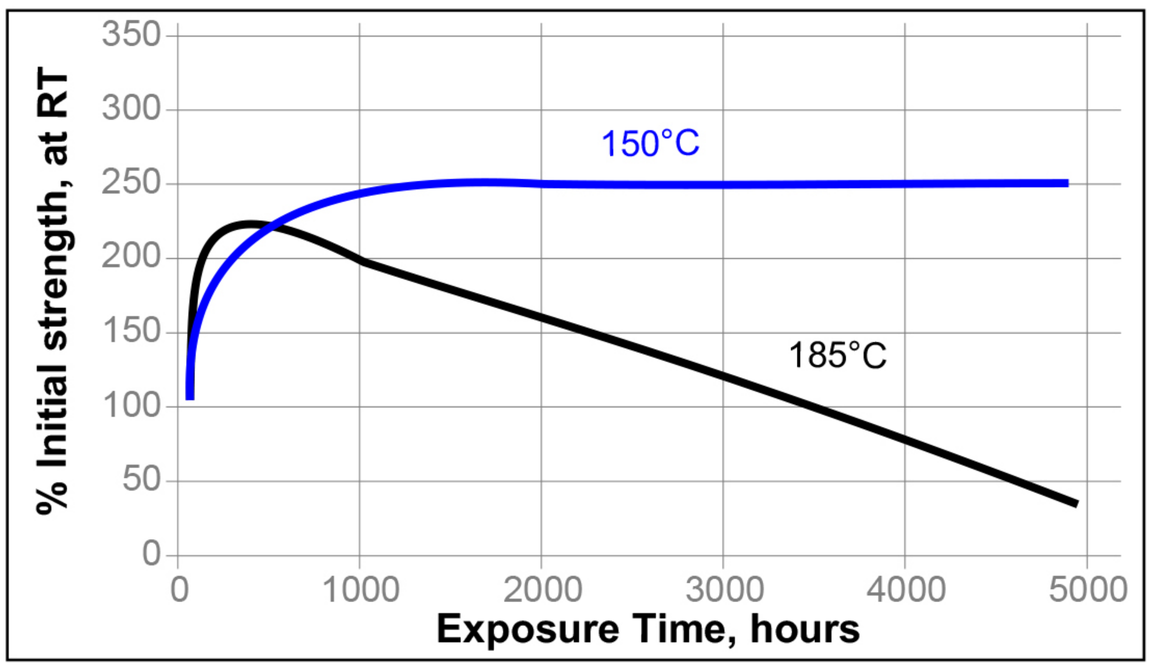


Cold Strength

This product has been tested to -75°C (-100 F). This product may work below this temperature, but has not been tested.

Heat Aging

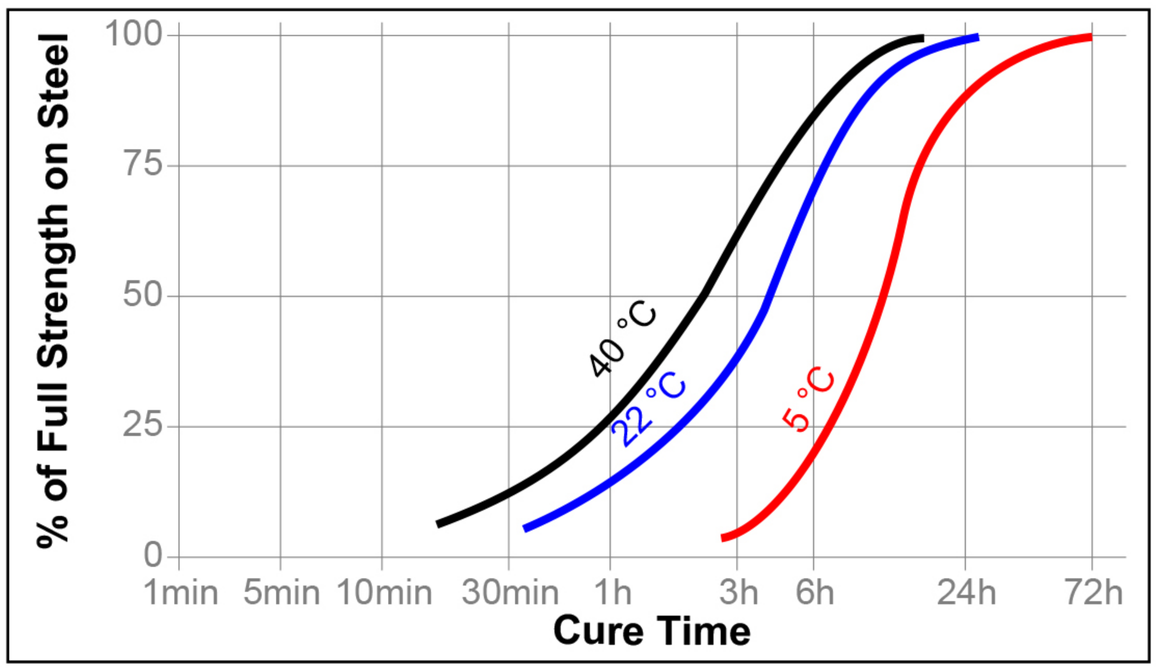
Aged at temperature indicated and tested @ 23 °C



Chemical/Solvent Resistance

Aged under conditions indicated and tested @ 22°C.

		% of initial strength		
Environment	**°C**	**100 h**	**500 h**	**1000 h**
Motor oil (MIL-L-46152)	125	100	100	100
Unleaded Petrol	22	95	60	60
Water/glycol 50/50	87	160	110	110



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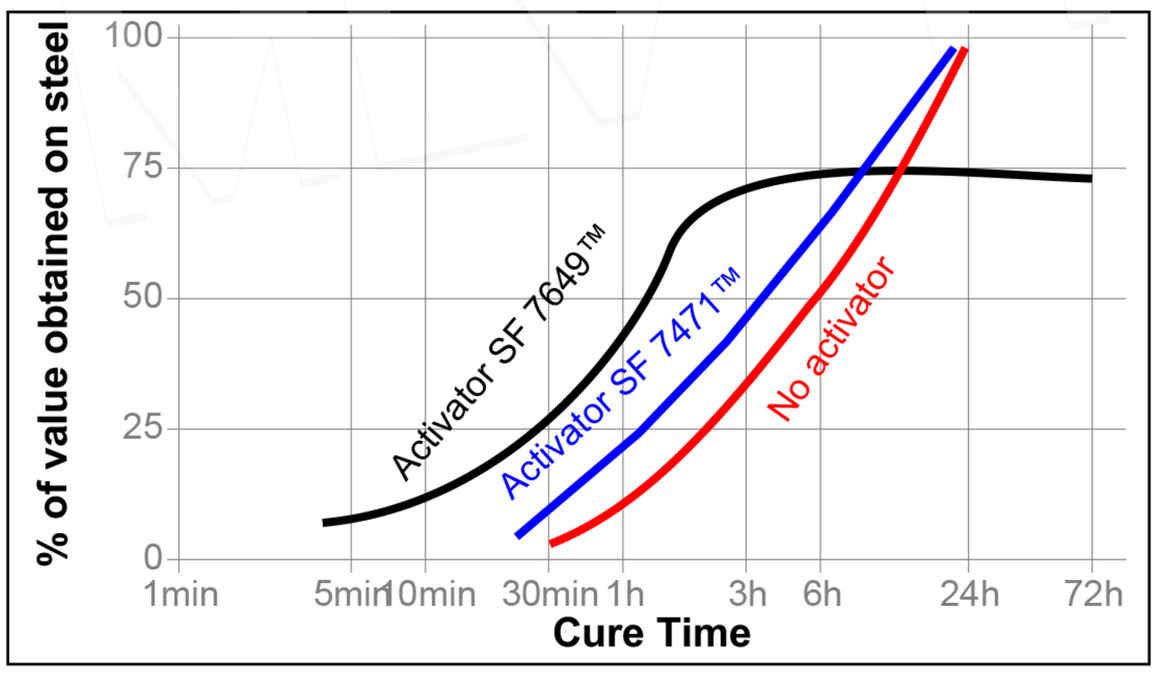

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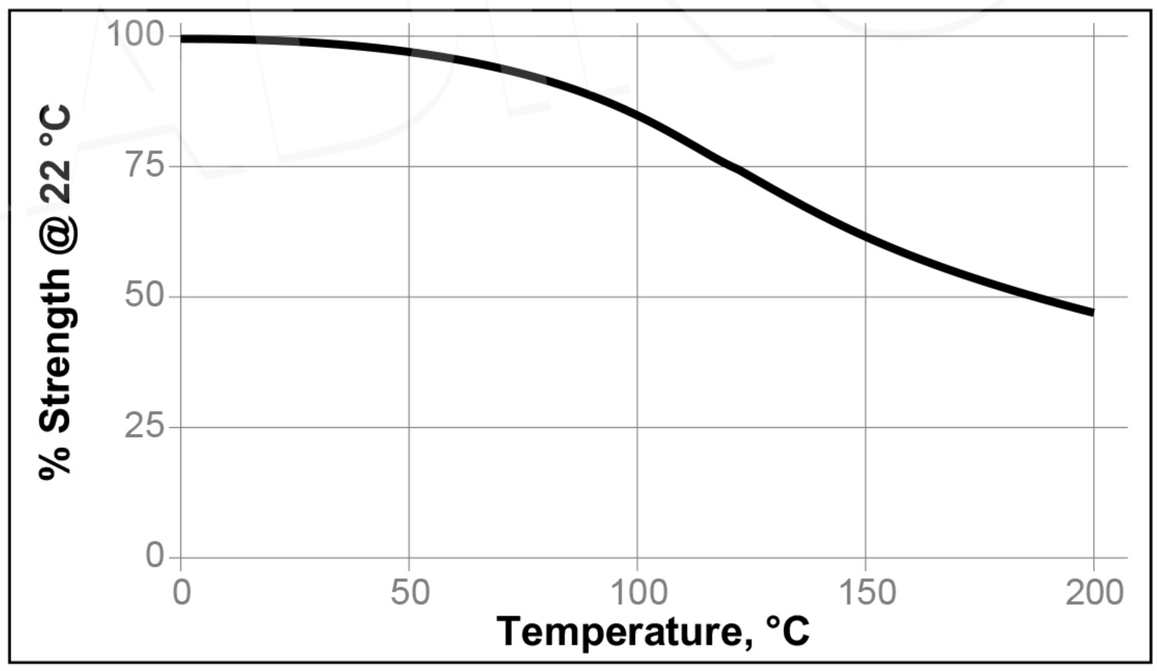

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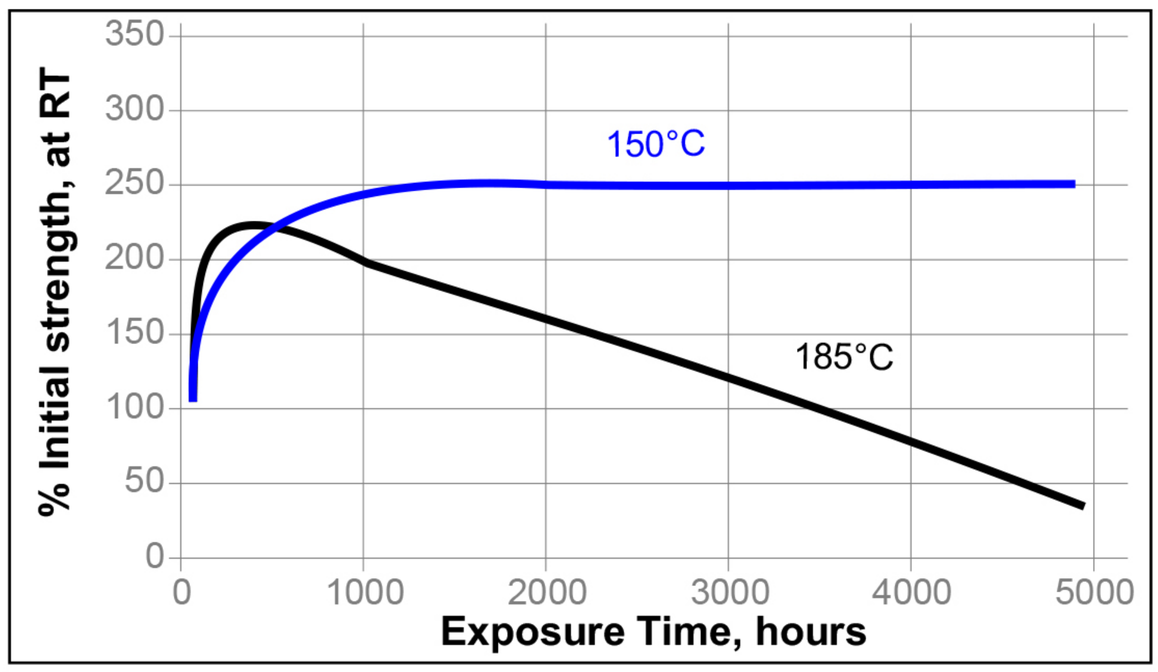

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