

LOCTITE® EA 4200

Known as Macroplast ESP 4200
January 2024

PRODUCT DESCRIPTION

LOCTITE® EA 4200 provides the following product characteristics:

Technology	Epoxy
Chemical Type	Epoxy
Appearance	Brown
Components	One component- requires no mixing
Viscosity	Low Thixotropic
Cure	Heat cure
Application	Bonding and potting

LOCTITE® EA 4200 is a one component heat curing epoxy adhesive which cures rapidly at elevated temperatures to provide bonds of high strength. The rheology has been engineered to provide rapid dispensing and controlled flow. The low temperature and fast setting characteristics are particularly useful when bonding plastics. Typical applications include bonding and potting with a wide variety of materials, including metals, ferrites, ceramics and plastics.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific gravity @ 23°C	1.25
Viscosity, Brookfield -RVT, 25°C, mPa·s (cP): Spindle 7, speed 2.5 rpm	18,000

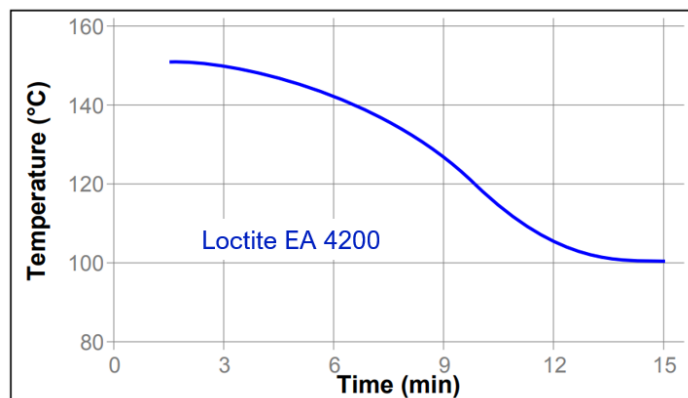
TYPICAL CURING PERFORMANCE

Cure cycle

Cure time at 100°C, minutes	15
Cure time at 120°C, minutes	10
Cure time at 150°C, minutes in an air circulating oven	2

Cure speed vs. temperature

The following graph shows the shear strength developed with time at different cure temperatures. In practice, total oven time will be longer to allow for heat up period. Shear strength is measured on grit blasted mild steel (GBMS) lap shears with 25.4 mm overlap and 0.05 mm bond gap tested at @ 23 °C according to ISO4587.



TYPICAL PERFORMANCE OF CURED MATERIAL

Physical properties

Coefficient of thermal expansion, mm/mm/°C	63×10^{-6}
Shore hardness, Durometer D, ISO 868	75

Adhesive properties

Cured for 30 minutes @ 150°C, tested at 23°C (0.05 mm bond gap)	
Lap shear strength, ISO 4587	
Mild steel (grit blasted), N/mm²	14

The recommended service temperature range for this product is -40°C to 160°C. Higher temperatures may be endured for short periods providing the adhesive is not unduly stressed.

GENERAL INFORMATION

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected as a sealant for chlorine or other strong oxidizing materials.

For safe handling information on this product, consult the Safety Data Sheet (SDS).

Directions for use

1. Remove product from refrigeration and allow to reach ambient temperature before use.
2. For best performance bonded surfaces should be clean, dry and free of oil, grease and any other contamination. For high strength structural bonds, special surface treatments can increase the bond strength and durability.
3. For maximum bond strength apply adhesive evenly to the surface to be bonded.
4. Excess uncured adhesive can be wiped away with organic solvent (e.g. Acetone).
5. It is recommended that this product is not cured in large quantities as excessive heat build-up and uncontrolled exothermal runaway can occur. Curing smaller quantities will minimize the heat build-up.
6. Cure adhesive as recommended in section 'Typical curing performance'. Some additional fillet may form due to lowering of product viscosity with temperature.
7. Keep the assembled parts from moving during cure. The joint should be allowed to develop full strength before subjecting to any service loads.

Handling precautions

LOCTITE® EA 4200 reacts quickly when exposed to temperatures above 100°C. This product evolves heat (exotherms) during the solidification reaction. Care should be taken to avoid the use of LOCTITE® EA 4200 in sections greater than 6 mm to avoid excessive heat build up during the exothermic reaction, which causes rapid expansion, blistering or cracking of the product.

STORAGE

Store product in an unopened container in a dry location. Storage information may be indicated on the product container labeling.

Optimal Storage: 5°C to 7°C. Storage below 2°C or greater than 8°C can adversely affect product properties.

Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Henkel representative.

Product specification

The technical data contained herein are intended as reference only and are not considered specifications for the product. Product specifications are located on the Certificate of Analysis or please contact Henkel representative.

Approval and certificate

Please contact a Henkel representative for related approval or certificate of this product.

Data Ranges

The data contained herein may be reported as a typical value. Values are based on actual test data and are verified on a periodic basis.

Temperature/Humidity Ranges: 23°C / 50% RH = 23±2°C / 50±5% RH

Conversions

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$
 $\text{kV/mm} \times 25.4 = \text{V/mil}$
 $\text{mm} / 25.4 = \text{inches}$
 $\mu\text{m} / 25.4 = \text{mil}$
 $\text{N} \times 0.225 = \text{lb}$
 $\text{N/mm} \times 5.71 = \text{lb/in}$
 $\text{N/mm}^2 \times 145 = \text{psi}$
 $\text{MPa} \times 145 = \text{psi}$
 $\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$
 $\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$
 $\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$
 $\text{mPa}\cdot\text{s} = \text{cP}$

Disclaimer

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