

LOXEAL 83-21

Description

Fast curing high strength anaerobic adhesive for locking and sealing threads, and retaining of cylindrical components. Highly resistant to heat, corrosion, vibrations, water, gases, oils, hydrocarbons and many chemicals. BAM tested as thread sealant with gaseous oxygen up to 20 bar at + 60°C.

Typical physical properties

Composition:	anaerobic methacrylate
Color:	green
Viscosity (+25°C - mPa s):	400 - 600
Specific weight (+25°C - g/ml):	1,05
Fluorescence:	under blue light
Flash point:	> +100°C
Shelf life +25°C:	1 year in unopened packaging
Max diameter of thread/ gap filling:	M 20 / 3/4" / 0,15 mm

Typical curing properties

Curing rate depends on the assembly clearance, material surfaces and temperature. Functional strength is usually reached in 1-3 hours and full curing takes 24-72 hours. In case of passive surfaces and/or low temperature, a faster cure can be obtained using Loxeal Activator 11, whose usage may however reduce final strength.

Tested on 1/2" thread specimens at +20°C:

Handling time:	
- Brass (naked OT 58):	< 1 minute
- Chromed and nickelled brass:	3-6 minutes
- Steel:	2-5 minutes
- Aluminum:	6-18 minutes

Results may change according to temperature and gap.

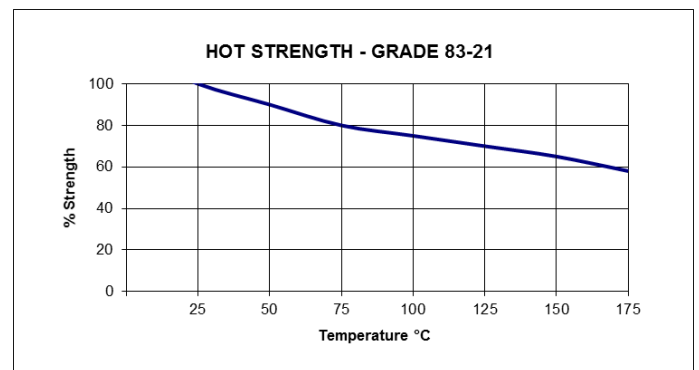
Bolts M10 x 20 Zn - quality 8.8 - nut h = 0,8 d at +25°C:	
Functional cure time:	1-3 hours
Full cure time:	24-72 hours

Typical properties of the cured adhesive

Shear strength (ISO 10123):	25-35 N/mm ²
Impact strength (ASTM D950):	5-12 kJ/m ²
Locking torque (ISO 10964):	
- breakaway:	25-35 N m
- prevailing:	50-70 N m
Temperature range:	-55°C/+175°C

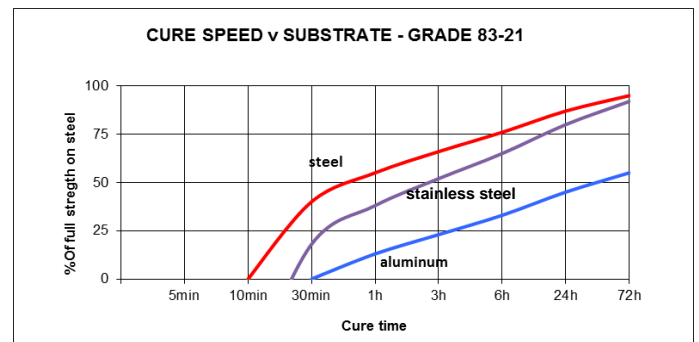
Environmental resistance Hot strength

The graph below shows the mechanical strength vs. temperature. Specimens – steel pin/collars tested in accordance with ISO 10123.



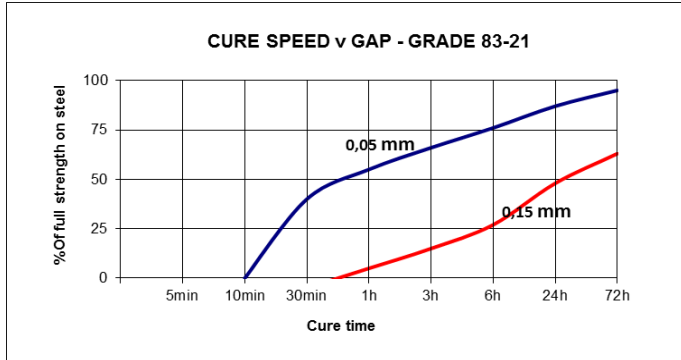
Cure speed v substrate

The graph hereunder shows the breakaway strength development of the product (with time) on steel pin/collars tested in accordance with ISO 10123, at +25°C.



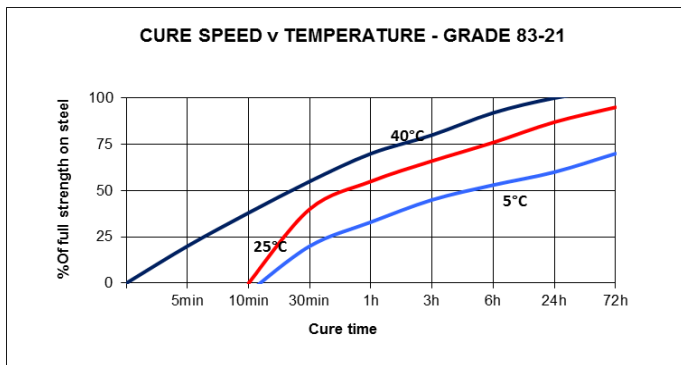
Cure speed v gap

The graph below shows the product shear strength (as %) at different increasing controlled gaps.
Specimens - Steel pins/collars, tested in accordance with ISO 10123, at + 25°C.



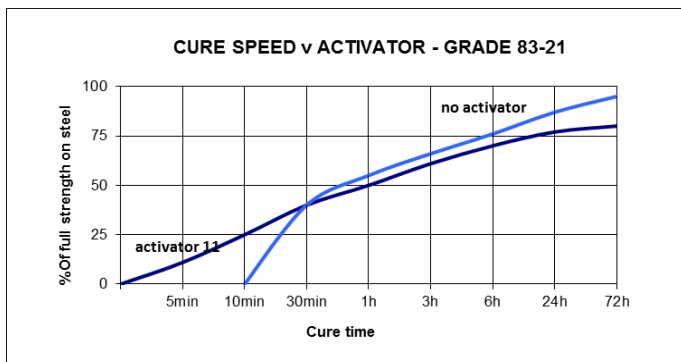
Cure speed v temperature

The following graph shows the breakaway strength of the product (as %) at different temperatures.
Specimens – steel pin/collars tested in accordance with ISO 10123.



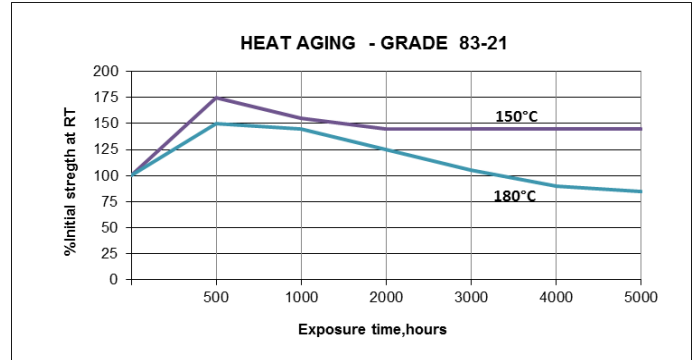
Cure speed v activator

Polymerization could be slowed down by substrate nature, large gaps; cure speed can be improved by applying appropriate activator to the substrate(s).
The following graph shows the breakaway strength of the product (as %) and the cure speed developments using our activator 11, compared to the ones with no activator.
Specimens – steel pin/collars tested in accordance with ISO 10123.



Heat aging

The graph below shows the strength resistance behavior as a function of temperature/time.
Specimens – steel pin/collars tested in accordance with ISO 10123, at + 25°C.



Chemical resistance

Aged under conditions below after one week from full cure and tested at +25°C, in accordance with ISO 10123.

Substance	°C	Resistance after 100 h	Resistance after 500 h	Resistance after 1000 h
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Motor oil	125	excellent	excellent	excellent
Gear box oil	125	excellent	excellent	excellent
Gasoline	25	excellent	excellent	excellent
Water/glycol 50%	87	excellent	good	discrete
Brakes oil	25	excellent	excellent	excellent

* For information on resistance with other chemicals, contact Loxeal Technical Service

Directions for use

- Clean the surfaces with Loxeal Cleaner 10 and allow to dry.
- Curing time may be slower if gaps are large and/or on inactive surfaces: the use of Loxeal Activator 11 can be considered to reduce it.
- Shrink fitted assemblies: to heat the collar, apply the adhesive to the pin. To cool the pin, apply the adhesive to the collar. If both heating and cooling are required, apply the adhesive to the cooled part avoiding condensation.
- Press fitting assemblies: apply the adhesive on the pin and collar and assemble to the required pressure using a press.
- Slip fitted assemblies: apply the adhesive on the leading edge of the pin and on the inside of the collar. Assemble with twisting action to ensure full coverage.
- Allow the parts to achieve functional strength before subjecting them to any service loads.

When used as a sealant: apply a bead of adhesive to 360° between the first and second male thread, screw the female giving the desired pre-torque. For large diameter fittings and threads, apply the adhesive on both parts.

Disassembly and cleaning

To disassemble the pieces, use conventional tools. When possible, disassembly is made easier by heating pieces at +150°C/+250°C and hot disassembling them.

Remove the cured product mechanically and finish cleaning with Acetone.

Warnings

This adhesive is not suitable for applications on plastics.

The liquid product may damage paints and elastomers. If the product gets in contact, even accidentally, with some thermoplastics, stress cracking of the plastics could happen.

Storage

Keep product in a cool and dry room at no more than +25°C.

To avoid contaminations do not refill containers with used product. For further information on applications, storage and handling contact Loxeal Technical Service

Safety, handling and disposal

Consult Material Safety Data Sheet before use.

Note

The data contained herein, obtained in Loxeal laboratories, are given for information only; if specifics are required, please contact Loxeal Technical Department.

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