LOXEAL®
ENGINEERING ADHESIVES
Registered Quality and Environment Management System Company
UNI EN ISO 9001 - UNI EN ISO 14001

# Technical Data Sheet

## LOXEAL 83-50

### Description

Fast-curing anaerobic adhesive for metals, with high mechanical resistance, designed to seal and lock threaded joints and cylindrical couplings. Loxeal 83-50 provides high resistance to temperature, vibration, chemical agents, and aging. Highly resistant to unscrewing on yellow brass, nickel-plated, and chromed fittings.
DVGW approved as threaded joints sealant for gas pipes. WRAS listed for contact with hot and cold potable water, up to +85°C.
Keeps the sealing property until the temperature of +200° C for short periods.

### Typical physical properties

| | |
|---|---|
| Composition: | anaerobic methacrylate |
| Colour: | green |
| Fluorescence: | fluorescent under UV light |
| Viscosity (+25°C - mPa s): | 400 - 1.000 |
| Specific weight (+25°C - g/ml): | 1,1 |
| max diameter of thread/ gap filling: | M 25 / ¾" /0,20 mm |
| Shelf life +25°C: | 1 year in original unopened packaging |

### Typical Curing performance

The curing rate depends on the assembly clearance, material surfaces and temperature. Functional strength is usually reached in 1-3 hours and full curing takes 24-36 hours. In case of passive surfaces and/or low temperature, a fast cure can be obtained using Loxeal Activator 11.

Handling cure time (tests performed at RT on standard 1/2" threaded connections, fluctuations are possible depending on temperature and tolerances):

| | |
|---|---|
| On brass (OT 58): | < 60 s |
| On nickel-plated and chromed: | 5-20 minutes |
| On steel: | 2-5 minutes |
| On Aluminium: | 6-18 minutes |
| Bolt M10 x 20 Zn - quality 8.8 - nut h = 0,8 d | |
| Handling time: | 2-5 minutes |
| Functional cure time: | 1-3 hours |
| Full cure time: | 2-4 hours |

### Typical Curing properties at +25°C

Bolt M10 x 20 Zn - quality 8.8 - nut h = 0,8 d

| | |
|---|---|
| Locking torque (ISO 10964): | |
| - breakaway: | 25-35 N m |
| - prevailing: | 40-50 N m |
| Shear strength (ISO 10123): | 25-35 N/mm$^2$ |
| Impact resistance (ASTM D950): | 5-12 kJ/m$^2$ |
| Temperature range: | -55°C/+200°C*** |

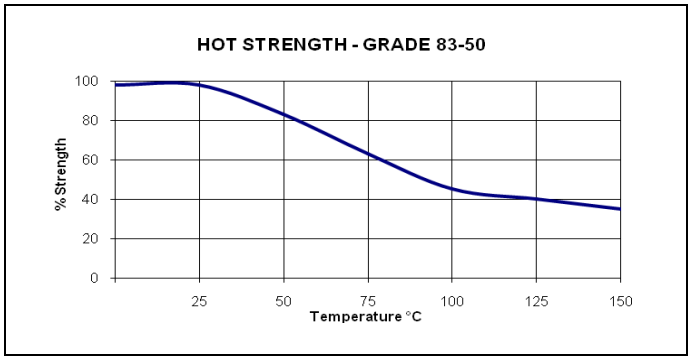
***Note: sealing properties are tested on specimens consisting of a set of fittings and 1 1/2" pipe tightened to 100 N m and subjected to the following thermal cycle after 24 hours from adhesive curing at room temperature:

1. Tests series are run for 24 hours from T =+150°C and leakage are checked at room temperature by inflate pressurized air into the pipe (at 7,5 bar) immersed in water (air bubbles detection mode)
2. Tests are carried out until temperature is affecting a leak in the sealing.

### Environmental resistance

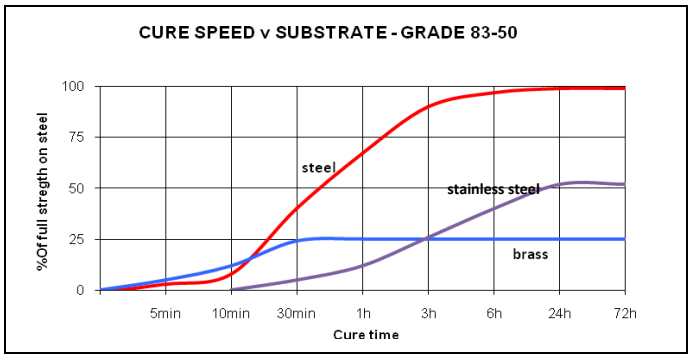
#### Hot strength

The graph below shows the mechanical strength vs. temperature.
ISO 10964 - Bolt M10 x 20 Zn - quality 8.8 - nut h = 0,8 d at +25°C - pre-torque 5 N m.




#### 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.





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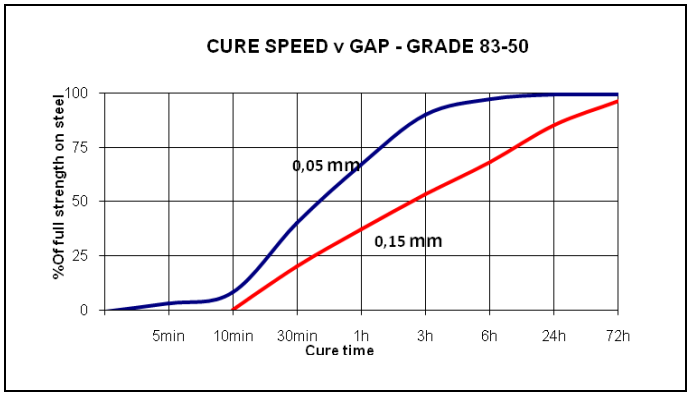
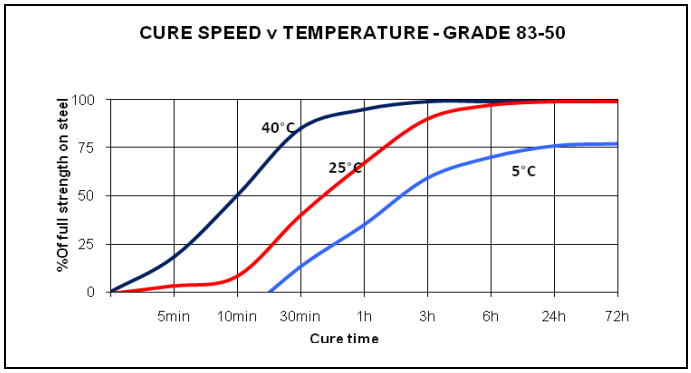
### Cure speed v gap

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.



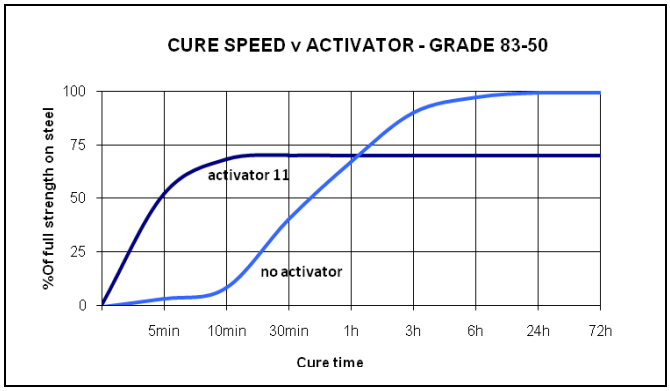

### Cure speed v temperature

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



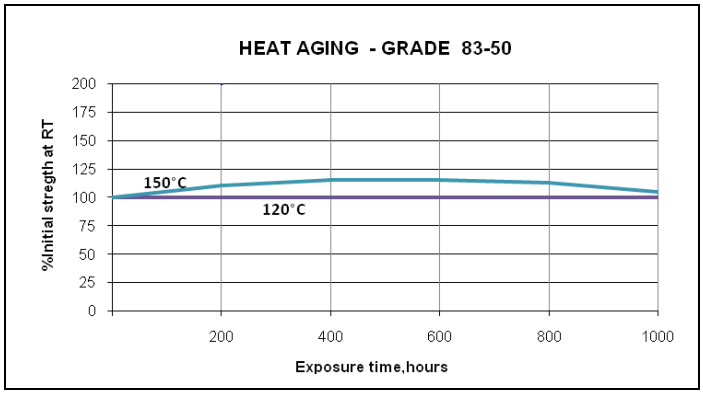

### Cure speed v activator

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 development using our activator 11 compared to the ones with no activator.
Specimens-steel pin/collar tested according to ISO 10123.



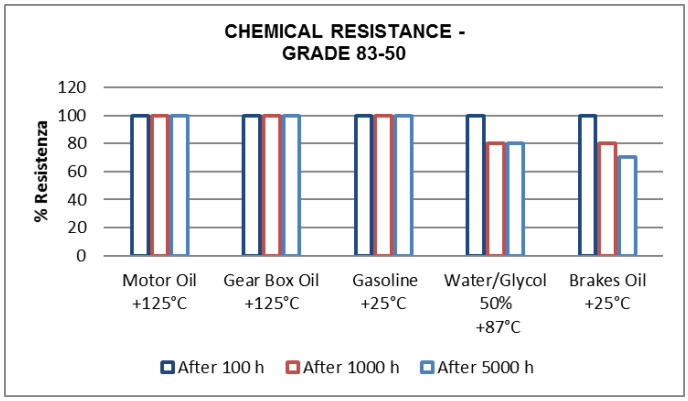

### Heat aging

The graph below shows the strength resistance behavior as a function of temperature/time.
ISO 10964 - Bolt M10 x 20 Zn - quality 8.8 - nut h = 0,8 d at +25°C - pre-torque 5 N m.




### Chemical resistance

Aged under conditions below after 24 hours from polymerisation at indicated temperature.




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

### 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.



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**Instructions for use**

The product is recommended for use on metal thread joints only.
Clean and degrease parts before bonding with Loxeal Pulitore 10.
Cut back the stepped nozzle to give the required bead size. Do not contaminate adhesive with metal.
Apply continuous bead circumferentially, 1-2 threads from the leading edge. Ensure sufficient is applied to give a complete seal.
Assemble and tighten the joint.
Wipe off any uncured excess adhesive from outside the joint.
Allow to cure. The time taken to reach a full cure will depend on the metals being used.
TIME TO CURE FOR USE WITH WHOLESOME (POTABLE) WATER
For Brass and Copper allow 24 hours at +20°C.
For Stainless Steel and Aluminium allow 7 days at +20°C.
WRAS Approval: for use with cold and hot water up to +85°C.
The liquid product can damage coatings, some plastics and elastomers and late stress-cracking events might be induced if used with some thermoplastics.
For application on no metal materials, contact Loxeal Technical Service.
For disassembly, use normal tools and eventually heat the pieces at +150°C/+250°C, remove any residue of cured product mechanically, and clean the parts with Acetone.

**Warnings**

This adhesive is not approved for usage with pure oxygen and/or oxygen reach systems. It is not suitable to be used as a sealant for chlorine and other strong oxidizing agents.

**Note**

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