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

Technical Data Sheet

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LOXEAL 55-03

Description

Medium strength anaerobic adhesive for thread locking of nuts and bolts of all types that require to be dismantled. It tolerates minor oil contamination of the parts.
Highly resistant to heat, corrosion, vibrations, water, gas, oils, hydrocarbons and many chemicals.
Proven unscrewing resistance at +200°C.
Approved as gas-tight sealant for threaded fittings according to the European norm EN 751-1 (DVGW and GAZ DE FRANCE).
WRAS approved, it is suitable for use in contact with potable water.
Compliant with UBA (Umweltbundesamt - German Environment Agency)
declaration for use with potable water.
NSF registered in cat. S4 as acceptable for useas an adhesive in and around food processing area.
It keeps sealing properties unchanged between -55°C/+200°C and up to +250°C for short time.

Physical typical properties

Composition:	anaerobic methacrylate resin
Colour:	blue
Viscosity (+25°C - mPa s):	1.700 - 9.000 thixo
Friction coefficient µ:	about 0,10
Specific weight (+25°C - g/ml):	1,07
Fluorescence:	under blue light
Shelf life +25°C:	1 year in original unopened packaging
Max diameter of thread/gap filling:	M36/0,25 mm

Typical curing performance at +25°C

Curing rate depends on the assembly gap, substrates 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, even if its use may reduce the final strength.

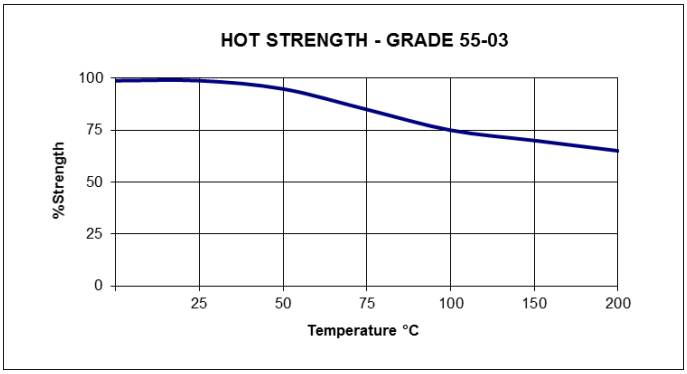
Typical Curing properties

Bolt M10 x 20 Zn - quality 8.8 - nut h = 0,8 d at +25°C
Handling cure time: 10 - 20 minutes
Functional cure time: 1 - 3 hours
Full cure time: 3 - 6 hours
Locking torque (ISO 10964)
- breakaway: 18 - 23 N m
- prevail: 9 - 16 N m
Shear strength (ISO 10123): 9 - 13 N/mm²
Temperature range: -55/+200°C

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.



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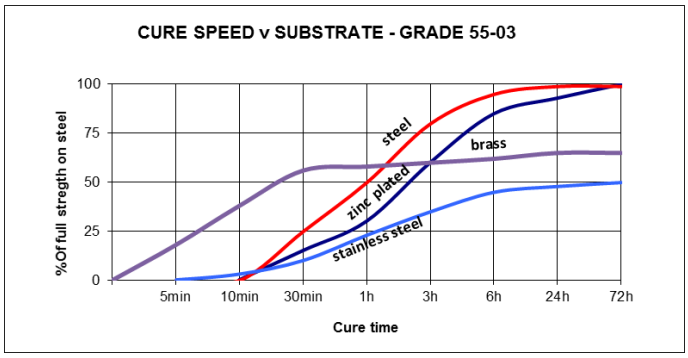
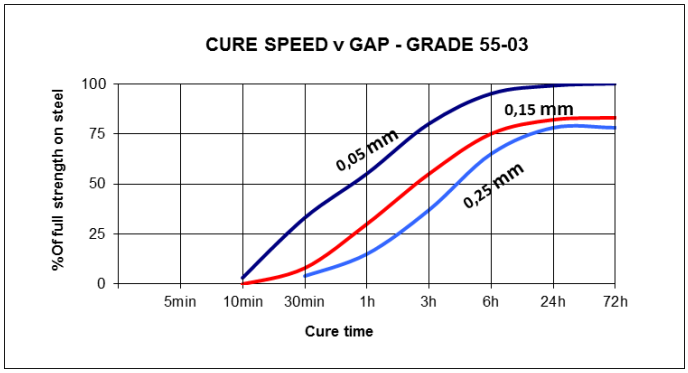
Cure speed v substrate

The graph hereunder shows the breakaway strength development of the product (with time) on steel nuts/bolts M10 x 20 in comparison with several substrates.
Tested in accordance with ISO 10964 at + 25°C.



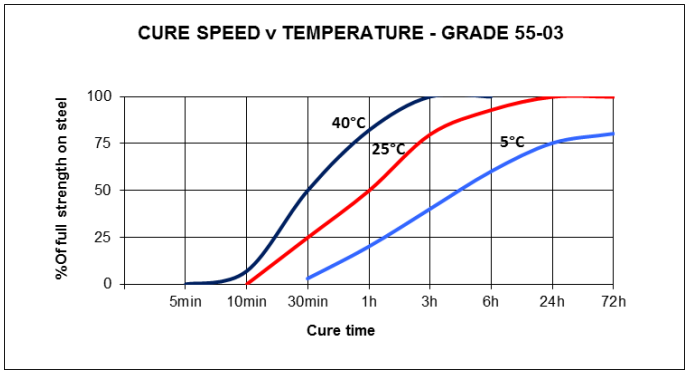
Cure speed vs gap

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



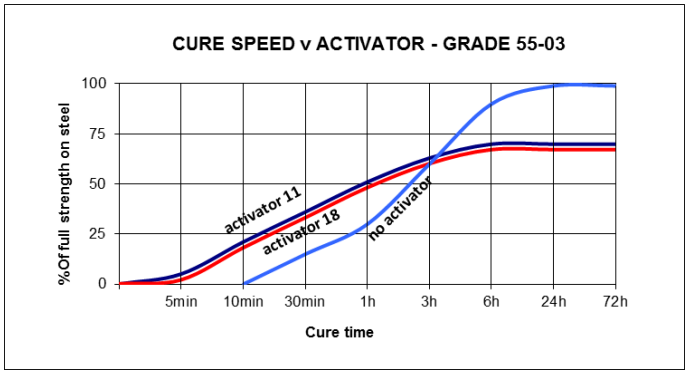
Cure speed v temperature

The following graph shows the breakaway strength of the product (as %) at different temperatures.
Steel nuts/bolts M10 x 20, tested according to ISO 10964.



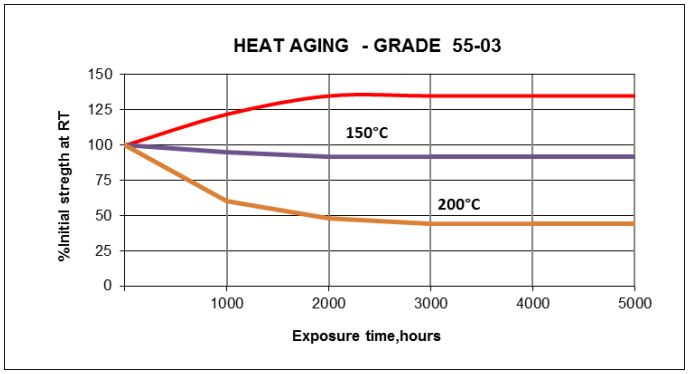
Cure speed v activator

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 and 18 respectively, compared to the ones with no activator.
Zn nuts/bolts M10 x 20, tested according to ISO 10964 at a temperature of + 25°C.



Heat aging

The graph below shows the strength resistance behavior as a function of temperature/time.
Zn nuts/bolts M10 x 20 - (pre-torque of 5 N m, cured 7 days at +25°C) - aged at temperature indicated and tested at +25°C according to ISO 10964.



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Chemical resistance

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

Substance	°C	Resistance after 100 h	Resistance after 500 h	Resistance after 1000h
Motor oil	125	Excellent	Excellent	Excellent
Gear box oil	125	Excellent	Excellent	Excellent
Gasoline	25	Excellent	good	good
Water/glycol 50%	87	Excellent	good	good
Brake fluid	25	Excellent	Excellent	good
Ethanol	25	Excellent	Excellent	Excellent
Acetone	25	good	good	good
Biodiesel	25	Excellent	Excellent	Excellent

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

General instructions for use

The product is recommended for use on metal substrates.
Clean and degrease parts before bonding with Loxeal Cleaner 10.
Apply product to fill completely the gap, assemble parts and hold on for curing time. Liquid product can damage coating, some plastics and elastomers and late stress-cracking events might be induced if used with some thermoplastics.
For application on non-metal materials, contact Loxeal Technical Service. For disassembly, use normal tools and eventually heat pieces at +150°C/+250°C, remove any residue of cured product mechanically and clean parts with Acetone.

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.

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.

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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