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

Technical Data Sheet
LOXEAL 55-03

Description

Medium strength anaerobic adhesive for thread locking of nuts and bolts of all types that require to be dismantled. Suitable to be used on oily surfaces.
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 nr. NG-5146AU0399 and GAZ DE FRANCE).
Approved for potable water (TZW - DVGW).
It keeps sealing properties unchanged between -55°C/+200°C and up to +250°C for short times.

Physical 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
Flash point :	> +100°C
Shelf life +25°C :	1 year in original unopened packaging
Max diameter of thread/gap filling :	M36/0,25 mm

Curing performance

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

Curing properties (typical)

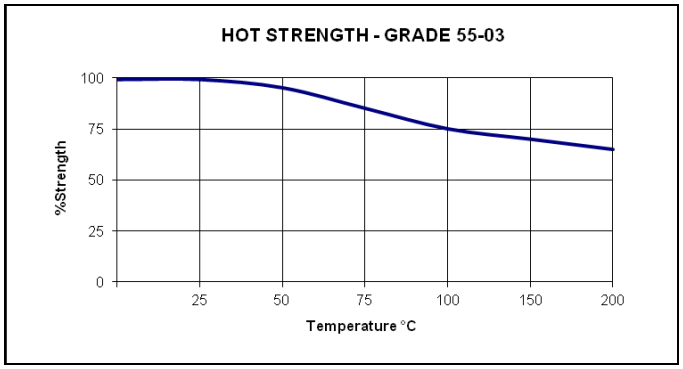
Bolt M10 x 20 Zn - quality 8.8 - nut h = 0,8 d at +25°C

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

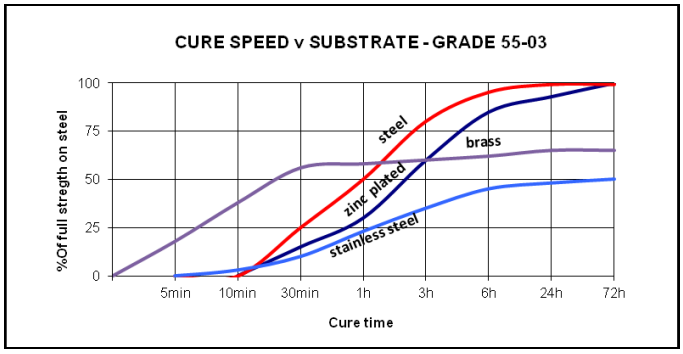
Hot strength

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



Cure speed v substrate

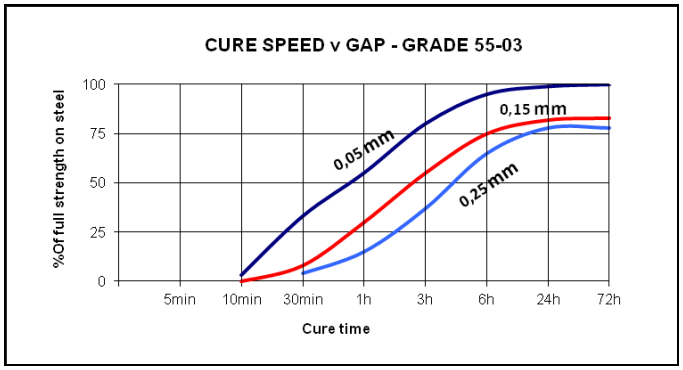
The graph hereunder shows the breakaway strength development of the product (with time) on steel nuts/bolts M10 x 20 in comparison with several substrates.
Tested in accordance with ISO 10964 at + 25°C.



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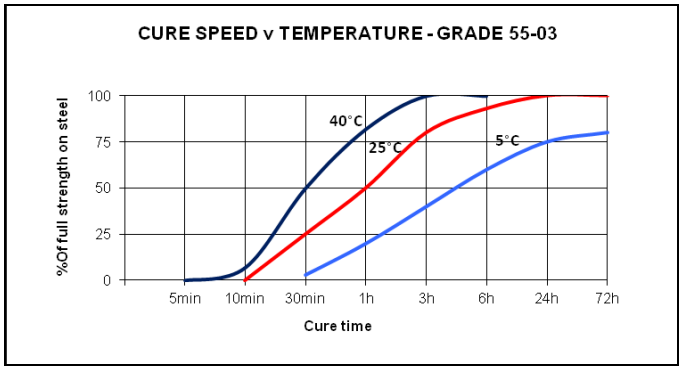
Cure speed v gap

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.



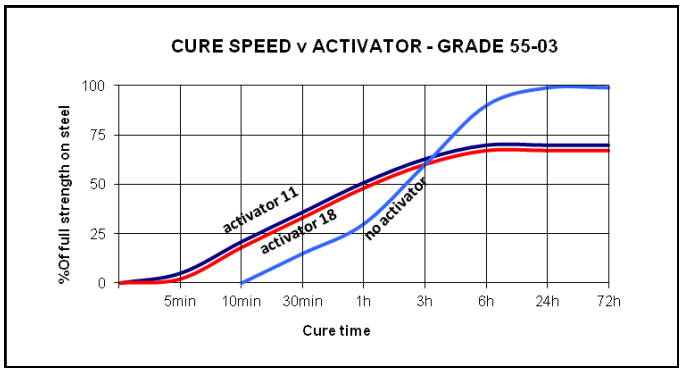
Cure speed v temperature

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



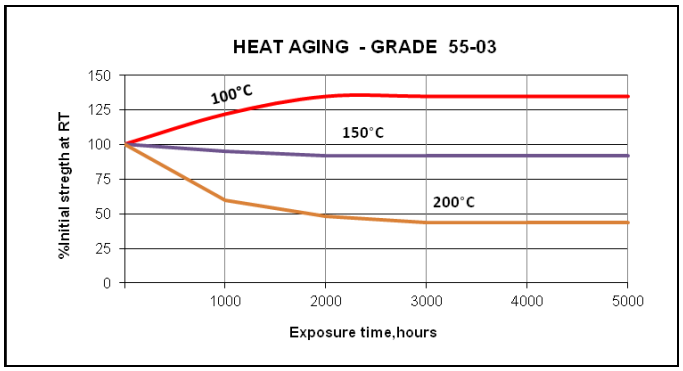
Cure speed v activator

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.



Chemical resistance

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

Substance	°C	Resistance after 100 h	Resistance after 1000 h	Resistance after 5000 h
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

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