

EMS FORCE® Retaining Compound RT-20

★ General information

EMS FORCE® anaerobic adhesive and sealants are advanced materials with single component and solvent free feature. The products are specifically formulated for sealing, retaining, locking and bonding of metal or metal plated assemblies.

Anaerobic adhesives are stable when in contact with oxygen in air. As the product is placed between two mating metallic surfaces, where oxygen contact is vanished, polymerization starts and forms strong, vibration and pressure proof polymer layer.

📄 Product description

EMS FORCE® RT-20 is a medium-high strength, removable, high viscosity, high temperature (250°C) retaining compound suitable for securing bearings on shafts or in housings or in heat exchanger applications.

Increases load-bearing characteristics of cylindrical joints.

Main constituent	:	Methacrylate ester
Appearance (uncured)	:	Liquid
Colour	:	Green
Viscosity	:	Medium, Thixotropic
Strength	:	High

🔪 Physical properties of uncured adhesive

Specific gravity Conditions: 22°C	:	1.12
Flash point Method: ASTM D56-05	:	>93°C
Temperature range	:	-50°C to 250°C (intermittent) -50°C to 230°C (continuous)
Corrosivity	:	Non-corrosive
Gap filling	:	up to 0.30mm
Viscosity Conditions: 22°C Method: ISO 2555 Apparatus: Brookfield RVT, spindle 3	:	5000 - 10000 cPs (@20 rpm)

🔒 Typical curing performance of adhesive

○ Curing time at room conditions

Various type of curing time of adhesive on several substrates are given as follows. Note that results can differ due to distance of bond gap and temperature.

Specimens	:	M10x25 bolt and proper nut
Conditions	:	22°C

Handling time

Material of specimen	Duration
Brass	<60 secs
Steel	4 to 6 mins
Stainless steel	2 to 8 mins
Zinc plated steel	5 to 10 mins
Aluminium	15 to 35 mins

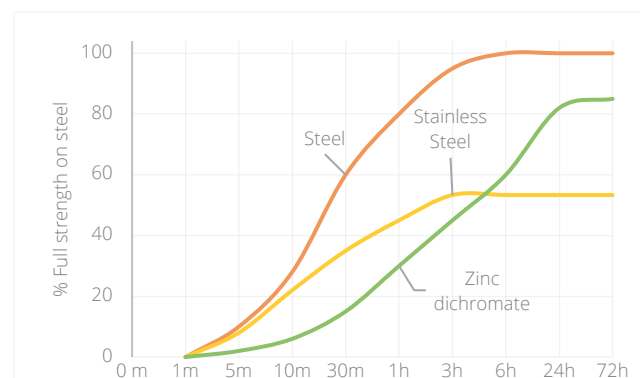
Average functional curing time: 1 to 2 hours

Average full curing time: 8 to 12 hours

○ Curing speed with different substrates

The curing rate of anaerobic adhesive greatly depends on type of surface material, substrate. The curing rate developed in time is determined by measuring breakaway torque of bolt and nut specimens. Test details and resultant graphs are given below.

Test method	:	ISO 10964
Bolt and nut specs.	:	M10x25
Conditions	:	22°C



✂ Typical cured performance of adhesive

Performance of cured anaerobic adhesive is examined and resultant torque values are given below.

Test method	:	ISO 10123
Conditions	:	22°C
Specimens	:	Different type of pins and collars

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24 hours curing

Type of specimen	Shear strength (N/mm ²)
Steel	20 N.m
Stainless steel	11 N.m
Aluminium	10 N.m

24 hours curing + 24 hours aging at 200°C

Type of specimen	Shear strength (N/mm ²)
Steel	25 N.m
Stainless steel	13 N.m
Aluminium	11 N.m



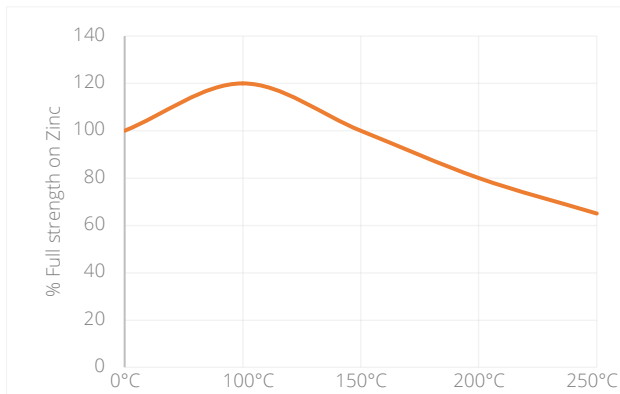
Environmental resistance of cured adhesive

Environmental resistance of cured adhesive is measured after curing by applying ISO 10123 test at different conditions.

Test method	:	ISO 10123
Pin and collar specs	:	Steel
Curing condition and duration	:	22°C, 1 week
Torque test conditions (exception is hot strength test)	:	22°C

Hot strength

Strength is examined at various temperatures. The reference value of '% Full strength on zinc plated' is taken from previous tables corresponding 24 hours curing.



Directions for use

- Clean male and female threads before assembly with an absorbent tissue paper to remove any cutting oil.
- Apply the adhesive to the surfaces.
- Use an absorbent tissue paper to wipe off excess jointing compound.
- Assembly parts and hold on for 24 hours at 22-24°C to ensure full curing of jointing compound.
- For disassembly, use hand tools to remove mating parts. When it is hard to disassemble at room temperature, apply local heat until reaching 250°C and

disassemble while hot. Then, remove any residual cured adhesive mechanically and clean parts with a proper solvent, acetone.



Packaging

Bottles: 15, 50mL and 250mL
Bulk: 1kg and 10kg



Storage and shelf life

Keep product in its original container at 22°C and avoid to contact with direct sunlight. Storage below 5°C and above 30°C can negatively affect product properties.

Material removed from its original container can be contaminated during usage which affects both adhesive performance and storage life. Therefore, do not return contaminated product to the original container.

Metsan cannot take any responsibility for product which has been contaminated or stored under conditions different than previously indicated.

Shelf life: 24 months at 22°C



Health and safety

The product contains methacrylate esters.

For further information, please consult Safety Data Sheet (SDS) before use.



Disclaimer

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