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PRODUCT DESCRIPTION

Anaerobic adhesive E-12 is a single component adhesive, which contains acrylic and methacrylic esters, organic peroxides.
The product cures when deprived of contact with oxygen in the presence of metal ions

APPLICATION

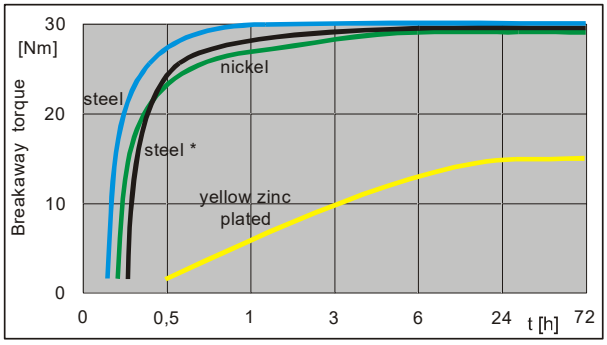
Retaining cylindrical metal assemblies (hub to shaft)
Sealing of threaded and fitted connections at high pressures
Prevention against self-loosening and corrosion of highly loaded threaded connections
Assembling bearings, gears and pulleys
Recommended for applications at high temperatures.

PROPERTIES

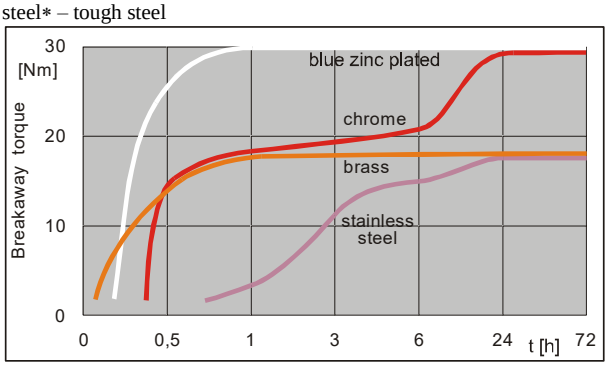
Form	liquid
Density [g/cm3] at 25 °C	1,13
Colour	violet
Viscosity [MPa] at 25 °C [spindle 3, 30 rpm (DIN 54453)]	2100 ÷ 3300

TYPICAL CURING PERFORMANCE

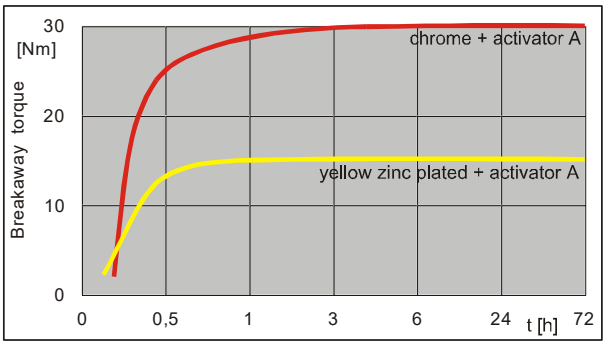
Cure speed vs. substrate
The graphs show the increase in breaking torque screw connection as a function of time for different types of substrate. The tests were performed in accordance with the standard
ISO 10964 using M10 bolts and nuts coarse thread



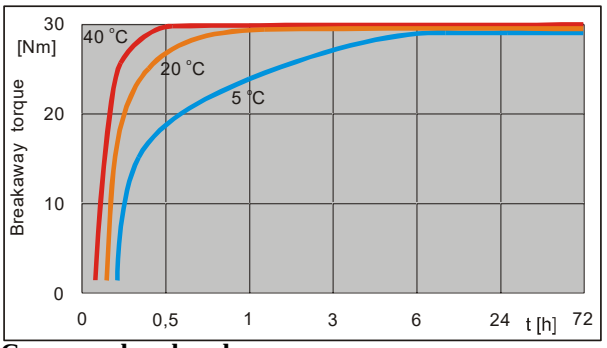
steel* – tough steel



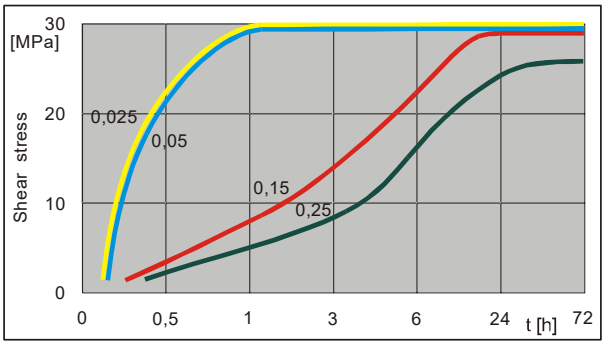
The graph shows the increase in the breaking torque of threaded connection as a function of time at using activator A. The tests were carried out in accordance with to ISO 10964 using M10 bolts and nuts coarse thread.



Cure speed vs. temperature
The graph shows the increase in the breaking torque of threaded connection as a function of time for different ambient temperature values. The tests were carried out in accordance with to ISO 10964 using M10 bolts and nuts coarse thread

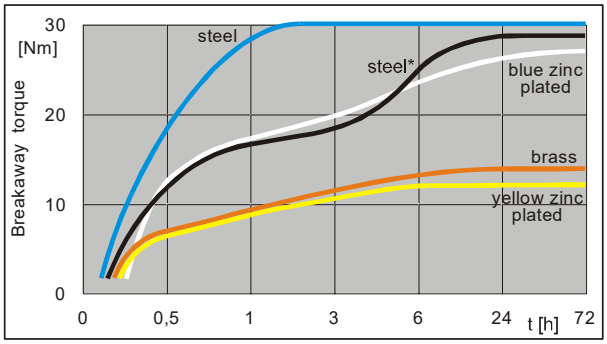


Cure speed vs. bond gap
The graph shows the increase in compression shear stress as a function of time for different size of bond gap. The tests were carried out in accordance with to DIN 54452



Cure speed on aluminum vs. bolt material
The graph below shows the increase in breakaway torque as a function of time for different bolt materials. Developed on M10 coarse thread bolts and tapped holes in aluminum alloy.
The tests were based on the ISO 10964

Curing speed when applied activator A



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PHISICAL PROPERTIES OF CURED MATERIAL

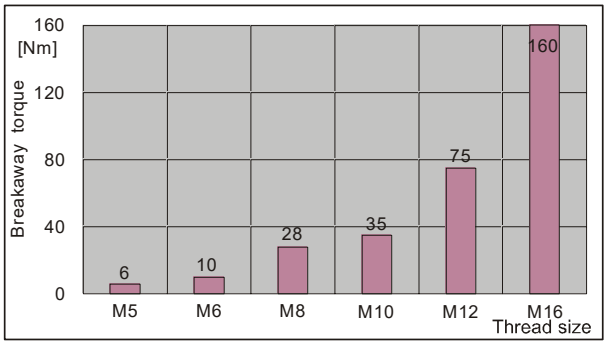
Coefficient of thermal expansion [1/K] ca. **8x10^{-5}**
Coefficient of thermal conductivity [W/mK] ca. **0,1**
Specific heat [J/kgK] ca. **300**

PERFORMANCE OF CURED MATERIAL

Breakaway torque [Nm] [ISO 10964 (3.3)]
Value: **30**
Range: 20-40
Prevail Torque [Nm] [ISO 10964 (3.5)]
Value: **45**
Range: 30-60
Shear strength [MPa] [DIN 54452]
Value: **30**
Range: 20-40
The above-mentioned parameters were determined after 72 h curing at the temperature of 22 °C using M10 steel coarse thread bolts and nuts and calibrated shaft and hubs pairs.

Breakaway torque vs thread size

The graph below shows the maximum breakaway torque for different sizes of connection threads. The tests were carried out on steel coarse thread bolts and nuts after 72h curing at 22°C. Tested according to ISO 10964.

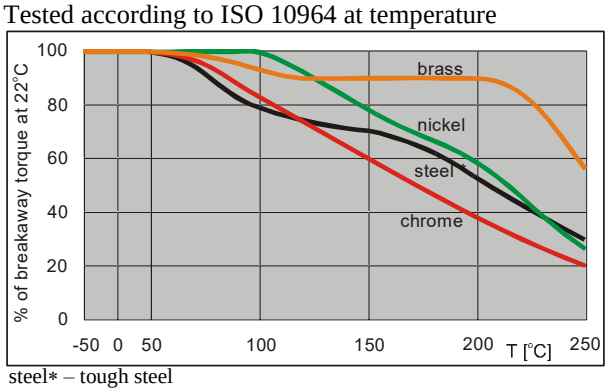


TEMPERATURE RESISTANCE

The tests were carried out after 72h curing at 22°C

Breakaway torque vs temperature

The graphic presentations show the change of breaking torque of a threaded connection as a function of temperatures for various types of substrate. The tests were carried out on M10 steel coarse thread bolts and nuts.
Tested according to ISO 10964 at temperature



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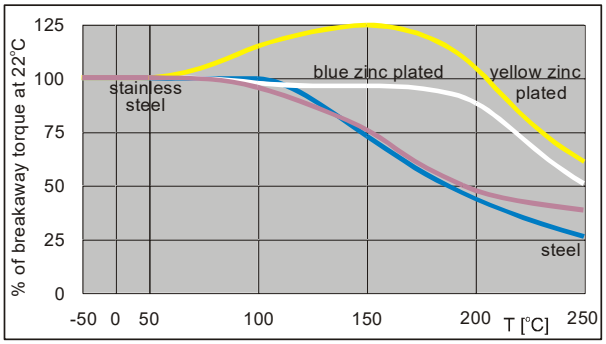
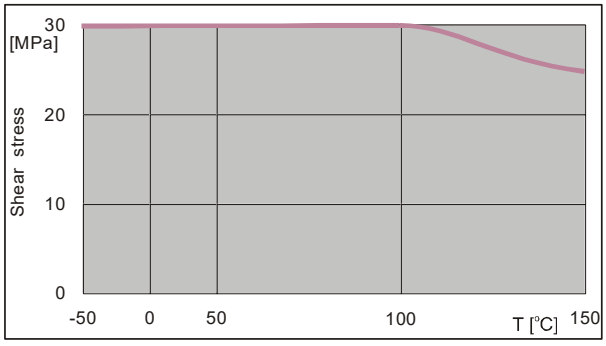


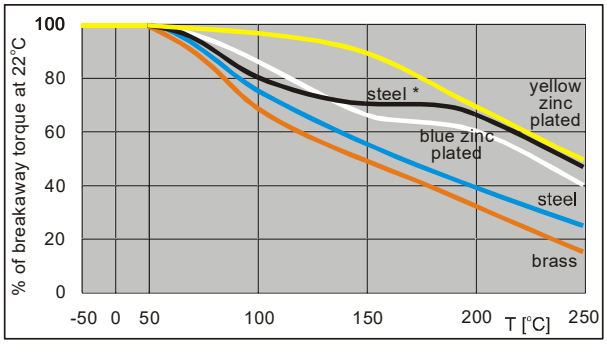
Shear strength vs temperature

The graph shows the change in shear strength as a function of temperature. Measurements were made in accordance with DIN 54452 using calibrated pairs of steel shafts and hubs at a given temperature



Breakaway torque vs temperature (for aluminum and various materials bolts)

The graphic presentations show the change of breaking torque of a threaded connection as a function of temperatures for various types of bolt substrate. The tests were carried out on M10 steel coarse thread bolts and nuts.
Tested according to ISO 10964 at temperature



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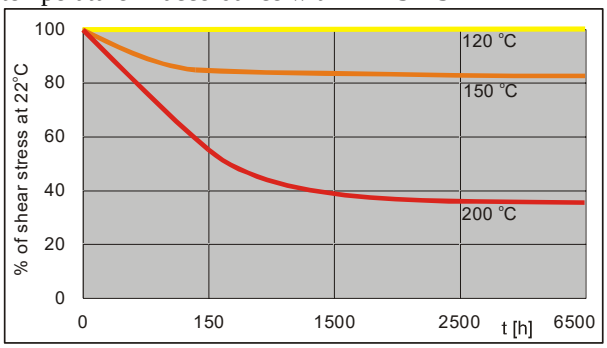
Shear strength at higher temperatures as a function of time (Heat Aging)

The graph shows the change in shear strength as a function of time at different temperatures. Calibrated pairs of steel shafts and hub were used
Aged at temperature indicated and tested at room temperature in accordance with DIN 54452

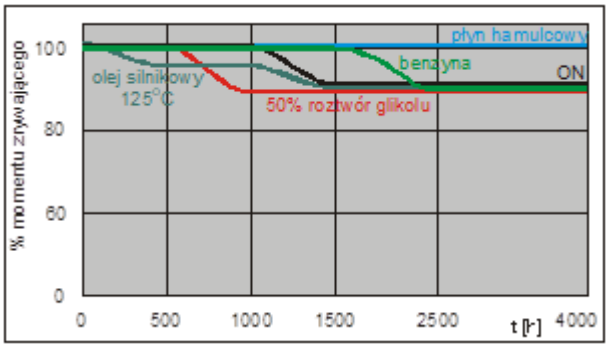


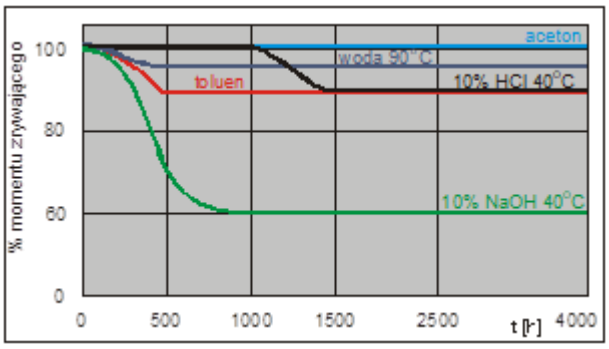
CHEMICAL RESISTANCE

The tests were carried out after 72h curing at 22°C

Breakaway torque of a threaded connection as a function of time

The tests were carried out with the use of coarse thread M10 galvanized bolts and nuts. The elements prepared in this way were immersed in a medium with a temperature of 22 ° C or indicated in the diagram. The graphs show the change of breakaway torque of a threaded connection as a function of time for various types of media. The breakaway torque of a threaded connection were tested according to ISO 10964 at 22 °C





Chemical resistance short table

Solvent	Chemical resistance
Sodium hypochlorite	+
Butanol	+
Methanol	+
Phosphoric acid 10%	+
Glicerine	+
Paraffin	+
Ethanol	+
Nitric acid 10%	+
Acetic acid 10%	+
Amine	+
Phenol	+
Hydroxyproprionic acid	+
Salt water	+
Ethanol	+
Natural gas	+
Ammonia	-
Chlorine	-
Oxygen	-

+ - can be used unreservedly
- - not recommended
The complete Resistance Table for CHESTER anaerobic materials can be find on our website

OTHER INFORMATION

Storage

Product should be stored in closed, original containers at a temperature between +5°C to+28°C.
Because of the curing mechanism anaerobic adhesives are delivered in packages partly filled with an adhesive. Air space in bottle is required to keep contents liquid. Keep in dry and clean place.

Instruction for use

The applied surfaces should be cleaned and free of grease. The adhesive should be spread only through the batching tip. Do not dip nuts, bolts, metal parts, paste brushes or any other things in the bottle with an adhesives. If the process of curing the adhesives is not satisfactory by reason of low temperature, big bond gap or inactive material, **Aktywator A** of Chester Molecular should be applied.