# LOXEAL®

## ENGINEERING ADHESIVES


## TECHNICAL INFORMATION

www.loxeal.com

# History

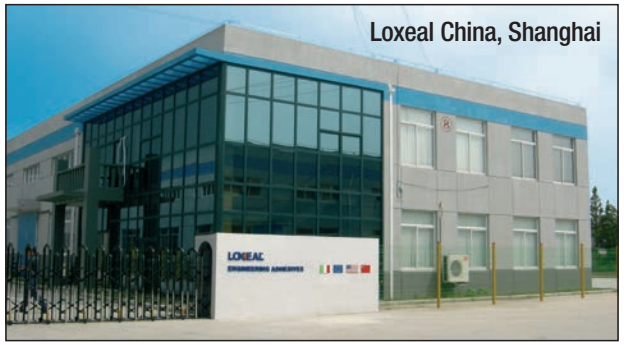
Loxeal Srl is an Italian family company supplying, locally and worldwide, high quality adhesives and providing industrial solutions since the early Eighties. Our commitment is certified since 1993, when Loxeal was one of the first Italian chemical companies to achieve UNI EN ISO 9001 certification, followed by UNI EN ISO 14001 in 2011. Many of our products are certified according to international standards and regulations. Today the main focus is to develop high quality products and innovative application technologies.

## Production facilities


Loxeal Italy - 20811 Cesano Maderno, MB - 20826 Misinto, MB

## Offices and facilities in America, Asia and Europe


Loxeal USA Pottstown, PA


Loxeal China, Shanghai


Loxeal Spain, Madrid

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## From production to distribution

Loxeal integrates vertically all stages of the production chain, working on them in order to customize the product according to the clients' needs. The process that allows to deliver a very high-quality product is made of different steps:

- Research and development, fundamental to grant continuous improvement.
- Production plants are in Italy with automated production lines and highly qualified technical personnel.
- Laboratory checks to ensure that products comply with quality standards.
- Distribution on B2B channels through agents, distributors and direct customers.

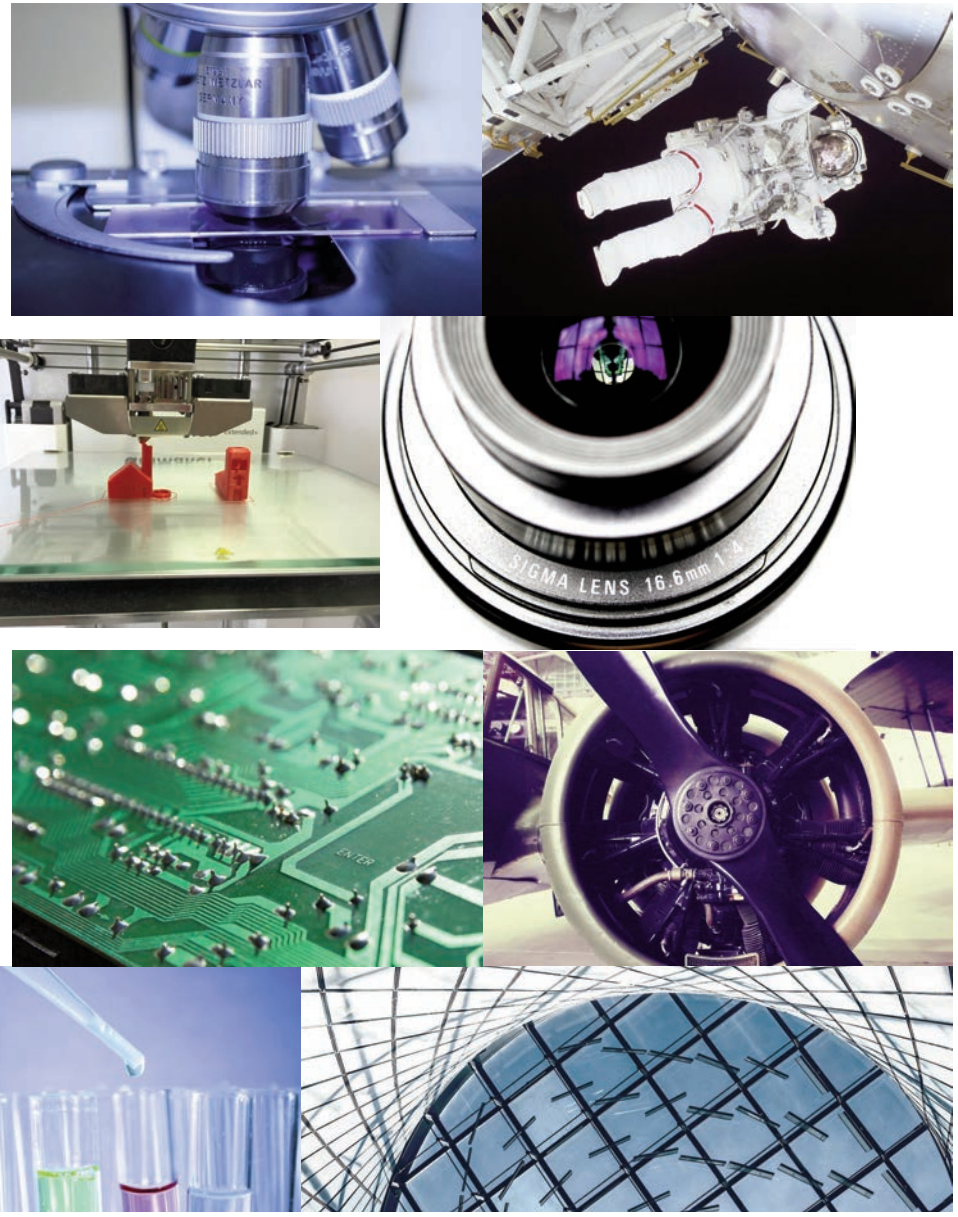
## Certificates and approvals

Certificates and approvals achieved over many years are the best warranty of our jobs and products quality.

**UNI EN ISO 9001** - Certificates that the continuous monitoring of production process, product quality and service are key elements in our company policy.

**UNI EN ISO 14001** - Certificates our commitment to environmental responsability.

Many of our products are certified according to international standards and approvals such as DVGW, TZW, Gaz de France, WRAS, BAM, NSF, ISO 10993.



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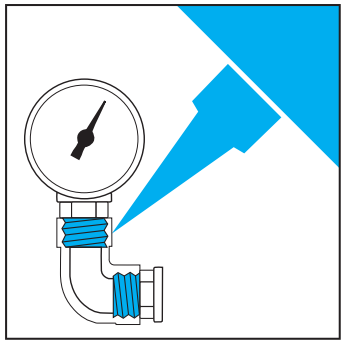
*****REMARK**

**BROOKFIELD VISCOSITY**
HT = HIGHT THIXOTROPY
MT = MEDIUM THIXOTROPY
LT = LOW THIXOTROPY

**LOCKING TORQUE**
BOLT M10 X 20 Zn - QUALITY 8,8
NUT = 0,8 d
STANDARD ISO 10964

**F = Fluorescent:** when exposed to UV light by wood lamp (black light).

**Thixotropy:** capability of an adhesive to reduce its viscosity when exposed to stress.



# Threadsealing

Threadsealings guarantee hydraulic tightness of the threaded connections.

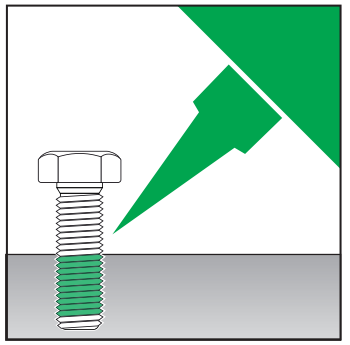
**SUBSTRATES:**

- Metal

**BENEFITS:**

- Replace hemp and PTFE tapes.
- Range of products with different curing time.
- Lubricate for easier assembly.
- Available in 3 grades of locking strength: low (easy to dismantle), medium (possible to dismantle), high (permanent locking).
- Maintain the initial applied torque.
- Seal to the burst pressure and to thermal expansion rates.
- Seal and lock threaded connections against pressure of gas, air, water, oils, hydrocarbons and many chemicals.
- Certified according to various international standards, e.g. DVGW, NSF, WRAS, TZW, BAM, GLOBAL MARK.

| | PRODUCT | MAX DIAMETER OF THREAD MAX GAP FILLING | *** VISCOSITY 25°C mPa s (LT-MT-HT) | COLOUR | CURING TIME | | *** LOCKING TORQUE N m (ISO 10964) | | SHEAR STRENGTH (ISO 10123) N/mm² | TEMPERATURE RANGE °C | APPROVALS | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | HANDLING (min.) | FUNCTIONAL (h) | BREAKAWAY | PREVAILING | | | | |
| LOW STRENGTH | 15-36 | 2" 0,30 mm | 3000-6000 LT | BLUE/F | 15 - 30 | 1 - 3 | 8 - 14 | 4 - 8 | 4 - 6 | -55 +180 | Gas DVGW | Fluid, high temperature. |
| | 18-10 | 2" 0,30 mm | 17000-70000 HT | WHITE | 20 - 40 | 1 - 3 | 6 - 11 | 2 - 5 | 4 - 6 | -55 +150 | Gas DVGW e AGA | PTFE paste, high viscosity, slow, elastic film. |
| | 23-18 | 3/4" 0,15 mm | 600-800 LT | BLUE/F | 15 - 30 | 1 - 3 | 5 - 8 | 2 - 5 | 3 - 5 | -55 +150 | | Fluid, for small threads. |
| MEDIUM STRENGTH | 53-14 | 3/4" 0,15 mm | 430-630 LT | BROWN/F | 10 - 20 | 1 - 3 | 12 - 18 | 10 - 20 | 8 - 12 | -55 +150 | Gas DVGW | Fluid. |
| | 55-14 | 2" 0,30 mm | 2500-12000 MT | RED/F | 10 - 20 | 1 - 3 | 12 - 18 | 20 - 30 | 8 - 12 | -55 +150 | | Medium viscosity, general purpose. |
| | 55-37 | 1 1/2" 0,25 mm | 2500-4500 LT | RED/F | 15 - 30 | 1 - 3 | 15 - 32 | 25 - 45 | 10 - 14 | -55 +150 | Gas DVGW | Flexible, high performances. |
| | 56-03 | 2" 0,30 mm | 5000-30000 MT | BLUE | 15 - 30 | 1 - 3 | 10 - 16 | 12 - 20 | 8 - 12 | -55 +150 | | Fill large gaps. |
| | 58-10 | 2" 0,30 mm | 25000-90000 HT | WHITE/F | 5 - 10 | 0,5 - 1 | 18 - 25 | 10 - 20 | 6 - 13 | -55 +150 | Gas Gaz de France | High viscosity, fast. |
| | 58-11 | 2" 0,30 mm | 20000-80000 HT | YELLOW/F | 15 - 30 | 1 - 2 | 18 - 24 | 7 - 14 | 6 - 13 | -55 +150 | Gas DVGW e AGA, Oxygen BAM, Potable water WRAS, Food NSF P1 | High viscosity. |
| | 58-12 | 2" 0,30 mm | 20000-80000 HT | YELLOW | 15 - 45 | 6 - 12 | 18 - 24 | 7 - 14 | 4 - 10 | -55 +150 | | High viscosity, green, no risk phrases, blank MSDS. |
| HIGH STRENGTH | 82-01 | 0,15 mm | 220-300 LT | GREEN | 2 - 5 | 1 - 3 | 20 - 35 | 50 - 70 | 20 - 30 | -55 +175 | | Sealant/retainer, fluid, fast. |
| | 83-05 | 3/4" 0,20 mm | 500-1000 LT | GREEN | 2 - 5 | 1 - 3 | 25 - 35 | 50 - 70 | 25 - 35 | -55 +200 | | Fluid, for stainless steel and passivated surfaces |
| | 83-50 | 3/4" 0,20 mm | 400-1000 LT | GREEN/F | 2 - 5 | 1 - 3 | 25 - 35 | 40 - 50 | 25 - 35 | -55 +200 | Gas DVGW, Potable water WRAS | High temperature. |
| | 84-90 | 1 1/2" 0,20 mm | 1000-1500 LT | GREEN | 15 - 30 | 3 - 6 | 20 - 30 | 30 - 40 | 10 - 20 | -55 +250 | | High temperature, up to +250°C. |
| | 85-21 | 1 1/2" 0,20 mm | 2600-3400 LT | GREEN/F | 2 - 5 | 1 - 3 | 30 - 40 | 55 - 70 | 25 - 35 | -55 +150 | Gas Gaz de France | Fast, allow working tolerances. |
| | 85-86 | 2" 0,30 mm | 2200-4000 LT | GREEN/F | 10 - 40 | 6 - 12 | 25 - 35 | 40 - 55 | 15 - 25 | -55 +200 | Gas DVGW, Oxygen BAM, Potable water TWZ, WRAS | High temperature. |
| | 86-55 | 2" 0,30 mm | 5000-8000 LT | RED/F | 60 - 90 | 12 - 24 | 15 - 35 | 15 - 45 | 10 - 20 | -55 +150 | | Delayed curing. |
| | 86-58 | 2" 0,30 mm | 5000-7000 LT | RED/F | 30 - 60 | 6 - 12 | 35 - 40 | 40 - 50 | 15 - 25 | -55 +150 | | High resistance, for brass. |



# Threadlocking

Loxeal anaerobic threadlocking adhesives enable you to lock bolts, studs nuts and screws and to avoid loosening caused by stress and vibration.

**SUBSTRATES:**

- Metal

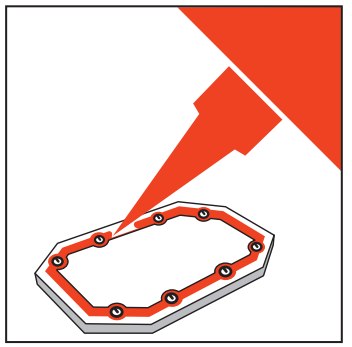
**BENEFITS:**

- Replace mechanical washers and fasteners.
- Prevent loosening caused by vibration, mechanical and thermal shock.
- Lubricate for easier assembly.
- Maintain the initial applied torque.
- Available in 3 grades of locking strength: low (easy to dismantle), medium (possible to dismantle), high (permanent locking).
- Certified according to international standards DVGW, TZW.

| | PRODUCT | MAX DIAMETER OF THREAD MAX GAP FILLING | *** VISCOSITY 25°C mPa s (LT-MT-HT) | COLOUR | CURING TIME | | *** LOCKING TORQUE N m (ISO 10964) | | SHEAR STRENGTH (ISO 10123) N/mm² | TEMPERATURE RANGE °C | APPROVALS | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | HANDLING (min.) | FUNCTIONAL (h) | BREAKAWAY | PREVAILING | | | | |
| LOW STRENGTH | 24-18 | M24 0,20 mm | 800-1400 MT | PURPLE/F | 15 - 30 | 1 - 3 | 5 - 8 | 2 - 5 | 3 - 5 | -55 +150 | | Anti-vibration, general purpose. |
| MEDIUM STRENGTH | 54-03 | M24 0,20 mm | 900-1500 MT | LIGHT BLUE/F | 10 - 20 | 1 - 3 | 14 - 20 | 4 - 9 | 8 - 12 | -55 +150 | | Fluid, general purpose. |
| | 55-02 | M36 0,25 mm | 2500-12000 MT | BLUE | 20 - 40 | 6 - 12 | 18 - 25 | 9 - 16 | 9 - 13 | -55 +150 | | Green, no risk phrases, blank MSDS. |
| | 55-03 | M36 0,25 mm | 1700-9000 MT | BLUE/F | 10 - 20 | 1 - 3 | 18 - 23 | 9 - 16 | 9 - 13 | -55 +200 | Gas DVGW, Gaz de France, Potable water TZW | High Temperature, for oily surfaces. |
| | 55-04 | M36 0,25 mm | 1500-8600 MT | RED/F | 10 - 15 | 1 - 3 | 20 - 25 | 40 - 50 | 10 - 15 | -55 +150 | | Fill large gaps, for large diameter studs. |
| HIGH STRENGTH | 70-14 | M5 0,07 mm | 10-20 LT | GREEN | 10 - 20 | 1 - 3 | 10 - 25 | 25 - 40 | 8 - 12 | -55 +150 | | Capillary penetration on pre-assembled parts, fast. |
| | 83-52 | M20 0,15 mm | 450-650 LT | GREEN | 10 - 20 | 6 - 12 | 25 - 35 | 50 - 65 | 10 - 20 | -55 +150 | | Green, no risk phrases, blank MSDS. |
| | 83-54 | M20 0,15 mm | 450-650 LT | GREEN | 10 - 20 | 1 - 3 | 25 - 35 | 50 - 65 | 15 - 20 | -55 +200 | | General purpose, high temperature. |
| | 83-55 | M20 0,15 mm | 450-600 LT | RED/F | 10 - 20 | 1 - 3 | 25 - 35 | 50 - 65 | 15 - 20 | -55 +150 | | Sealant/retainer, for oily surfaces. |
| | 85-56 | M56 2" 0,30 mm | 2500-4500 LT | BLUE/F | 15 - 30 | 3 - 6 | 30 - 40 | 40 - 50 | 15 - 25 | -55 +150 | | General purpose, medium viscosity. |
| | 86-54 | M56 2" 0,30 mm | 8000-24000 MT | GREEN/F | 15 - 30 | 3 - 6 | 40 - 50 | 45 - 55 | 15 - 25 | -55 +150 | | High viscosity, fast curing, fill large gaps. |
| | 86-72 | M56 2" 0,30 mm | 5000-28000 MT | RED | 20 - 40 | 3 - 6 | 25 - 35 | 40 - 70 | 10 - 20 | -55 +230 | Gas DVGW | High Temperature up to +230°C. |



LOXEAL ENGINEERING ADHESIVES



# Gasketing

Gasketing Loxeal adhesives seal flat mating surfaces and join flanges on pumps, gearboxes and differential housings of any shape and dimension in an easy and effective way directly from the tube or the cartridge both vertically and horizontally.

**SUBSTRATES:**

- Metal, Plastic, Glass, Ceramic, Enamel, Wood

**BENEFITS:**

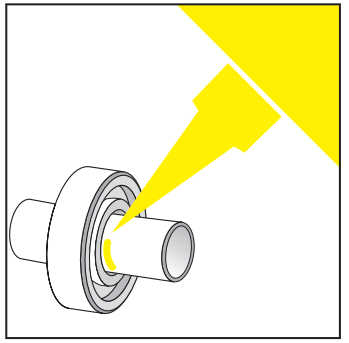
- Prevent leakage on aging (vs preformed paper, cork, or plastic gaskets).
- One adhesive replaces many pre-cut gasket shapes.
- Guarantee the parts sealing and enhance hydraulic tightness.
- Do not generate any thickness.
- Highly resistant against temperature, pressure, oils and chemicals.
- Prevent oxidation and fretting corrosion.
- Possible to dismantle with standard tools.
- Rapid cure speeds at low pressure and resistance to high temperature, up to +250°C.

## Liquid gasketing

| PRODUCT | CLASS OF LOCKING | MAX GAP FILLING | *** VISCOSITY +25°C Pa s | | COLOUR | CURING TIME | | ADHESIVE STRENGTH | | | TEMPERATURE RANGE °C | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | HANDLING (min.) | FUNCTIONAL (h) | SHEAR (ISO 4587) N/nm² | TENSILE (ISO 6922) N/nm² | IMPACT (ASTM D 950) KJ/m² | | |
| **28-10** | Low Strength | 0,30 mm | 17-60 | HT | GREEN/F | 20 - 40 | 3 - 6 | 4 - 6 | 2 - 4 | 2 - 4 | -55 +150 | Easy to dismantle, elastic film. |
| **58-14** | Medium Strength | 0,50 mm | 28-100 | HT | ORANGE | 15 - 30 | 3 - 6 | 5 - 10 | 5 - 8 | 3 - 5 | -55 +150 | General purpose. |
| **58-31** | Medium Strength | 0,50 mm | 70-600 | HT | RED/F | 10 - 20 | 1 - 3 | 8 - 13 | 7 - 10 | 4 - 7 | -55 +180 | Elastic film, high performances. |
| **59-10** | Medium Strength | 0,50 mm | 50-300 | HT | RED/ORANGE | 15 - 30 | 3 - 6 | 5 - 10 | 6 - 8 | 3 - 5 | -55 +200 | High temperature, fill large gaps. |

## Elastomeric & Plastic Gasket

| PRODUCT | VISCOSITY +25°C Pa s | COLOUR | CURING TIME | | ELONGATION AT BREAK % | TENSILE STRENGTH N/nm² | HARDNESS SHORE A | TEMEPERATURE RANGE °C | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | INITIAL STRENGTH MINUTES | BEAD ø 2 mm | | | | | |
| **59-20** | PASTY | TRANSPARENT<br>GREY/BLACK | 15 - 30<br>15 - 30 | 24 h<br>24 h | 400 - 600<br>400 - 600 | 0,8 - 2<br>0,6 - 1,5 | 20 - 30<br>20 - 30 | -55 +180<br>-55 +180 | Odourless neutral silicone, high oil resistance.<br>Odourless neutral silicone, high oil resistance. |
| **59-30** | PASTY | RED/BLACK | 10 - 20 | 24 h | 300 - 600 | 1,5 - 2,5 | 25 - 35 | -60 +250 | High temperature silicone. |
| **59-40** | PASTY | TRANSPARENT<br>GREY | 10 - 20<br>10 - 15 | 24 h<br>24 h | 80 - 150<br>150 - 350 | 1 - 2<br>1,2 - 1,8 | 40 - 50<br>40 - 60 | -40 +90<br>-40 +90 | MS polymer, odourless, paintable, UV rays resistant.<br>MS polymer, odourless, paintable, UV rays resistant. |



# Retaining

Retaining anaerobic Loxeal adhesives lock and fit cylindrical assemblies and increase the load carrying capacity.

**SUBSTRATES:**
- Metal

**BENEFITS:**
- Allow high strength cylindrical assemblies like: bearings, pulleys, pivots, bushes.
- Replace welding and mechanical retainers.
- Allow larger machining tolerances, reducing manufacturing costs.
- Lubricate for easier assembly.
- Seal the joint preventing fretting corrosion.
- Can seal together different materials.
- Ensure high transmission strength.
- High temperature resistance.

| | PRODUCT | MAX DIAMETER OF THREAD MAX GAP FILLING | *** VISCOSITY 25°C mPa s (LT-MT-HT) | COLOUR | CURING TIME | | *** LOCKING TORQUE (ISO 10964) N m | | SHEAR STRENGTH (ISO 10123) N/mm² | TEMPERATURE RANGE °C | APPROVALS | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | HANDLING (min.) | FUNCTIONAL (h) | BREAKAWAY | PREVAILING | | | | |
| MEDIUM STRENGTH | 53-11 | M20 0,12 mm | 400-650 LT | YELLOW/F | 10 - 20 | 1 - 3 | 11 - 20 | 15 - 25 | 8 - 12 | -55 +150 | | General purpose. |
| HIGH STRENGTH | 82-13 | M12 0,10 mm | 120-180 LT | GREEN/F | 30 - 60 | 12 - 24 | 15 - 25 | 35 - 45 | 15 - 30 | -55 +150 | | Fluid, for precise joints, slow curing. |
| | 82-21 | M12 0,10 mm | 120-180 LT | GREEN | 5 - 10 | 1 - 3 | 24 - 35 | 50 - 60 | 17 - 22 | -55 +150 | | Fluid, for precise joints, fast curing. |
| | 82-33 | M12 0,10 mm | 120-180 LT | GREEN | 2 - 5 | 1 - 3 | 20 - 30 | 45 - 55 | 17 - 22 | -55 +150 | | For oily surfaces. |
| | 83-03 | M20 3/4" 0,20 mm | 800-1200 LT | GREEN/NF | 2 - 5 | 1 - 3 | 25 - 35 | 50 - 70 | 25 - 35 | -55 +200 | Gas Gaz de France | Fluid, very fast curing, high temperature. |
| | 83-21 | M20 3/4" 0,15 mm | 400-600 LT | GREEN | 2 - 5 | 1 - 3 | 25 - 35 | 50 - 70 | 25 - 35 | -55 +175 | Oxygen BAM | General purpose, fast curing high temperature. |
| | 85-02 | M36 1 1/2" 0,20 mm | 3000-4000 MT | GREEN/F | 1 - 4 | 1 - 3 | 30 - 40 | 55 - 70 | 25 - 35 | -55 +175 | | Very fast curing, high temperature. |
| | 85-21 | M36 1 1/2" 0,20 mm | 2600-3400 LT | GREEN/F | 2 - 5 | 1 - 3 | 30 - 40 | 55 - 70 | 25 - 35 | -55 +150 | Gas Gaz de France | Fast, allow working tolerances. |
| | 85-61 UV | M36 1 1/2" 0,20 mm | 3000-4000 LT | BLUE/F | 5 - 10 | 1 - 3 | 30 - 40 | 50 - 60 | 20 - 25 | -55 +150 | | Double curing: anaerobic and UV. |
| | 86-21 | 2" 0,30 mm | 7000-30000 TIXO | GREEN/F | 1 - 4 | 1 - 3 | 30 - 40 | 50 - 70 | 25 - 30 | -55 +150 | | Hhigh viscosity, fill large gaps, fast curing. |
| | 86-86 | M56 2" 0,30 mm | 5000-35000 MT | GREEN/F | 20 - 40 | 3 - 6 | 25 - 35 | 40 - 70 | 10 - 20 | -55 +230 | Gas DVGW | High temperature. |
| | 89-51 | 2" 0,30 mm | 60000-720000 HT | SILVER | 15 - 30 | 3 - 6 | 40 - 45 | 15 - 20 | 25 - 30 | -55 +150 | | Repair damaged shafts. |



LOXEAL ENGINEERING ADHESIVES


# UV curing adhesives

Loxeal UV curing adhesives cure in a short time in presence of a UV light source, if at list one of the surfaces is transparent. They create a very tough plastic film.

**SUBSTRATES:**

- Glass/glass, Glass/metal, Transparent plastic (PC, ABS, PMMA)

**BENEFITS:**

- Usually colorless, they are designed to bond clean, transparent and not yellowing junctions.
- They're suitable for coating, potting and sealing.
- They are extremely reactive, they start curing as the sun UV light activates the photo initiators.
- Different kind of UV lamps are available for industrial use, such as mercury vapor lamps and led lamps.
- Some of Loxeal UV curing adhesives can be used for medical devices application.

| | PRODUCT | VISCOSITY (+25°C Pa s) | GAP FILLING mm | CURING TIME (seconds) | TENSILE STRENGTH (ASTM D 2095-69) N/mm² | DESCRIPTION |
|---|---|---|---|---|---|---|
| GLASS | 30-20 | 2200 - 2900 | 0,03 - 1,5 | 6 - 10 | 10 - 14 | Transparent, fast curing, general purpose, decorative objects. |
| | 30-21 | 600 - 1300 | 0,03 - 1,5 | 8 - 15 | 10 - 14 | Tough, bonding on edges. |
| | 30-22 | 5500 - 7500 | 0,03 - 2 | 6 - 10 | 8 - 12 | Transparent, high viscosity, general purpose. |
| | 30-23 | 50 - 100 | 0,03 - 1,5 | 8 - 15 | 10 - 14 | Very fluid, for plain surfaces. |
| | 30-24 | 2200 - 2900 | 0,03 - 2 | 6 - 10 | 12 - 16 | Rigid film, high resistance, decorative objects. |
| | 30-30 | 500 - 800 | 0,03 - 1,5 | 5 - 10 | 8 - 14 | Clarity overtime, adhesive excess easy to clean. |
| | 30-33 | 1000 - 2000 | 0,03 - 1,5 | 5 - 15 | 6 - 10 | Clarity overtime, tough. |
| | 30-34 | 2500 - 3500 | 0,03 - 1,5 | 6 - 10 | 8 - 14 | Clarity overtime, decorative objects. |
| | 30-35 | 5000 - 8000 | 0,03 - 1,5 | 5 - 10 | 8 - 12 | Clarity overtime, resistant to humidity. |
| | 30-36 | 5000 - 8000 | 0,03 - 2 | 5 - 10 | 8 - 12 | Clarity overtime, tough, fill large gaps. |
| | 30-37 | 2200 - 2900 | 0,03 - 1,5 | 6 - 10 | 6 - 10 | Flexible, for bonding glass with metallic platics. |
| | 30-38 | 20000 - 30000 | 0,03 - 2 | 5 - 10 | 5 - 10 | Clarity overtime, high viscosity, fill large gaps. |
| | 30-60 | GEL | 0,03 - 2,5 | 8 - 15 | 4 - 8 | Gel, transparent, for vertical bonding. |
| PLASTIC | 30-11 | 200 - 300 | 0,03 - 0,20 | 6 - 55 | - | Fluid for medical plastic, approved for medicals ISO 10993. |
| | 30-12 | 200 - 400 | 0,03 - 0,20 | 6 - 30 | - | Specific for thermoplastic. |
| | 30-14 | 1000 - 2000 | - | 120 - 240 | - | Specific for PMMA. |
| | 30-27 | 90 - 150 | 0,03 - 0,20 | 6 - 10 | - | Specific for medical needles, approved for medicals ISO 10993. |
| | 30-83 | 1000 - 1600 | 0,03 - 1 | 3 - 4 | - | Encapsulation, tack-free. |
| | 3355 | 80000 - 120000 THIXO | 0,03 - 0,20 | 3 - 5 | 5 - 10 | High viscosity, flexible film. |

# Cyanoacrylate adhesives - Istant

The Cyanoacrylate range Loxeal Istant is developed to bond quickly a huge variety of substrates. They cure by reacting to small traces of moisture on substrates' surfaces.

**SUBSTRATES:**

- Metal, Plastic, Rubber, Paper, Wood and Cork.

In combination with Primer 7:

- Polyethylene, Polypropylene, EPDM, Silicone rubber and PTFE.

| | PRODUCT | SPECIFIC GRAVITY | VISCOSITY (+25°C mPa s) | GAP FILLING (microns) | SPEED OF CURE (*) | TENSILE STRENGTH (ISO 6922) N/mm² | SHEAR STRENGTH N/mm² | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|
| METHYL | 14 | 1,10 | 80 - 150 | 10 - 100 | 2 | 25 - 30 | 20 - 25 (1) | Fluid, high resistance, delayed curing, for metals. |
| | 17 | 1,19 | 1200 - 1800 | 10 - 200 | 1 | 25 - 30 | 18 - 25 (1) | High viscosity, high resistance, delayed curing, for metals. |
| ETHYL | 23 | 1,06 | 40 - 80 | 10 - 60 | 3 | 12 - 25 | 13 - 18 (2) | Fluid, general purpose. |
| | 25 | 1,10 | 350 - 450 | 10 - 150 | 3 | 15 - 23 | 13 - 20 (1) | Medium viscosity, general purpose. |
| | 27 | 1,10 | 1200 - 1800 | 10 - 200 | 2 | 18 - 25 | 13 - 18 (1) | High viscosity, general purpose, fill large gaps. |
| | 32 | 1,10 | 5 - 10 | 10 - 40 | 5 | 12 - 25 | 13 - 18 (2) | Difficult to bond rubber and plastic, very fast curing. |
| | 34 | 1,10 | 10 - 30 | 10 - 100 | 5 | 12 - 25 | 13 - 18 (2) | Difficult to bond rubber and plastic, very fast curing. |
| | 41 | 1,10 | 5 - 10 | 10 - 40 | 5 | 18 - 25 | 13 - 18 (1) | Fluid, difficult to bond substrates, very fast curing. |
| | 43S | 1,06 | 80 - 150 | 10 - 150 | 5 | 15 - 25 | 15 - 20 (1) | Universal, high temperature, approved for Food NSF P1. |
| | 45 | 1,06 | 600 - 1200 | 10 - 150 | 4 | 12 - 25 | 12 - 20 (1) | High viscosity, difficult to bond substrates. |
| | 47 | 1,08 | GEL | 10 - 300 | 2 | 18 - 25 | 13 - 18 (1) | Gel, high temperature, approved for Food NSF P1. |
| | 48 | 1,05 | 2000 - 2500 THIXO | 0,5 mm | 2 | 18 - 25 | 13 - 18 (1) | Fluid gel, vertical bonding porous surfaces. |

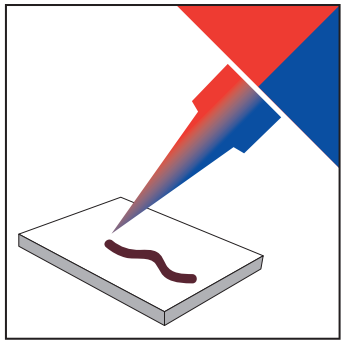
(1) ISO 4587 Standard (2) ISO 10123 Standard (*) Relative setting time (5= max, 1 = min.)

**BENEFITS:**

- Curing in seconds at room temperature.
- Allow high resistance in a short time.
- Solvent free.
- Allow neat assembly without mechanical means (rivets, screws, welding).
- Easy dispensing either manually or with dosing systems.
- Three different chemical bases for specific needs:
  - Methyl for metals
  - Ethyl as universal and in special modified versions
  - Alcoxy, no blooming - odour free
- Can resist to high temperature.

| | PRODUCT | SPECIFIC GRAVITY | VISCOSITY (+25°C mPa s) | GAP FILLING (microns) | SPEED OF CURE (*) | TENSILE STRENGTH (ISO 6922) N/mm² | SHEAR STRENGTH N/mm² | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|
| ALCOXY | 60R | 1,06 | 3 - 10 | 10 - 30 | 1 | 10 - 20 | 14 - 22 (1) | Delayed curing infiltrant for better penetration, for 3D printing. |
| | 61 | 1,06 | 10 - 20 | 10 - 40 | 1 | 10 - 20 | 14 - 22 (1) | Fluid, odourless, no blooming. |
| | 63 | 1,07 | 80 - 150 | 10 - 150 | 1 | 10 - 25 | 12 - 22 (1) | General Purpose, odourless, no blooming. |
| | 67 | 1,1 | 1000 - 1500 | 10 - 200 | 1 | 10 - 25 | 12 - 22 (1) | High viscosity, odourless, no blooming. |
| MODIFIED | 29 | 1,06 | 500 - 1500 | 10 - 200 | 1 | 18 - 25 | 13 - 18 (1) | Elastomeric, black, general purpose. |
| | 37 | 1,05 | 1000 - 2000 | 10 - 200 | 3 | 12 - 25 | 16 - 20 (1) | High viscosity, flexible, high impact resistant. |
| | 73 | 1,06 | 100 - 200 | 10 - 150 | 2 | 12 - 25 | 15 - 25 (1) | Tough and flexible, high temperature. |
| | 74 | 1,06 | 100 - 200 | 10 - 150 | 2 | 12 - 25 | 15 - 25 (1) | High temperature, black, tough and flexible. |
| | 75 | 1,10 | 4000 - 5000 | 10 - 250 | 2 | 12 - 25 | 15 - 25 (1) | High viscosity, tough, high performances, general purpose. |
| | 77 | 1,10 | 2000 - 4000 | 10 - 250 | 2 | 12 - 25 | 15 - 25 (1) | High viscosity, tough and flexible, black, high performances, general purpose. |
| HIGH TEMPERATURE | 52 | 1,06 | 80 - 110 | 10 - 150 | 2 | 18 - 25 | 18 - 25 (1) | Fluid, resistant up to180°. |
| | 55 | 1,06 | 600 - 1000 | 10 - 200 | 2 | 18 - 25 | 18 - 25 (1) | Medium viscosity, resistant up to130°. |

(1) ISO 4587 Standard (2) ISO 10123 Standard (*) Relative setting time (5= max, 1 = min.)



# Epoxy Adhesives

Loxeal Epoxy Adhesives are structural adhesives with high mechanical resistance. The 2k resins cure by mixing the two components (resin and hardener), usually at room temperature. The modified 2k epoxy resins are designed for applications that require flexible bonding and sealing. 1k epoxy resins are the highest performant adhesives as for mechanical, thermal and chemicals resistance, they cure by means of heating.

**SUBSTRATES:**

- Metal, Composite, Glass, Ceramic, Wood, Stone, Plastic.

**BENEFITS:**

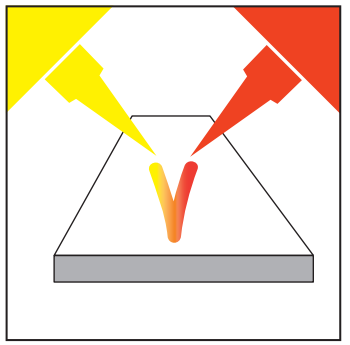
- High mechanical resistance.
- Can bond different materials.
- Different curing times available.
- Heating shorten the curing process.
- Fill large gaps.
- Highly resistant against humidity and chemicals.
- Available in a full color range: from transparent for glass and design to black for carbon fiber.

| | PRODUCT | COLOUR | VISCOSITY (+25°C Pa s) | HANDLING TIME (+25°C) MINUTES | FUNCTIONAL CURE TIME (+25°C) | SHEAR STRENGTH (ISO 4587) N/mm² | PEEL STRENGTH (ISO 4578) N/25 mm | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|
| TWO-PART<br>Viscosity = (1) Resin - (2) Hardener<br>(*) Time detected on a 2 g total mass mixture A + B<br>(**) With hot curing for 60 minutes at +80°C | 31-10 | AMBER | 12-18 (1) / 10-25 (2) | 90 - 150 (*) | 12 - 24 h | 12 - 14 | 10 - 25 | Tough, 120 minutes. |
| | 31-40 | COLOURLESS | 12-18 (1) / 15-30 (2) | 10 - 20 (*) | 30' - 40' | 10 - 12 | 4 - 20 | Tough, transparent, 15 minutes. |
| | 31-42 | COLOURLESS | 12-18 (1) / 15-30 (2) | 3 - 8 (*) | 20' - 30' | 12 - 14 | 4 - 20 | Tough, transparent, 5 minutes. |
| | 32-43 | TRANSLUCENT | 30-180 (1) / 50-200 (2) | 7 - 10 (*) | 10' - 20' | 10 - 14 | - | General purpose, fast curing even at low temperature. |
| | 34-15 | IVORY | 20-35 (1) / 20-50 (2) | 15 - 35 (*) | 12 - 24 h | 5 - 10 | 40 - 70 | Tough and flexible, general purpose, impact resistant, 30 minutes. |
| | 35-44 | COLOURLESS | 10-20 (1) / 14-24 (2) | 10 - 20 (*) | 40' - 60' | 5 - 9 | 25 - 60 | General purpose, tough and flexible, high peel resistant. |
| | 36-10 | AMBER | 14-28 (1) / 10-25 (2) | 90 - 150 (*) | 12 - 24 h | 12 - 18 | 25 - 40 | Flexible and tough, 120 minutes. |
| | 3636 | GREY | 50-100 TIXO (1) / 100-200 THIXO (2) | 50 - 80 (*) | 72 - 96 h | 15 - 25 | 60 - 80 | Tough, high viscosity, slow curing. |
| | 4401 | GREY | 60-120 TIXO (1) / 50-100 THIXO(2) | 15 - 25 | 24 - 36 h | 20 - 30 | 150 - 300 (**) | Tough, high temperature. |
| | 4428 | IVORY | 25-35 (1) / 15-20 (2) | 10 | 24 - 36 h | 18 - 22 | 150 - 200 | Fast curing, high temperature, for composits bonding. |
| | 4429 | BLACK | 100 TIXO (1) / 20-30 THIXO (2) | 120 | 24 - 36 h | 18 - 22 | 200 | High viscosity, non-sag, slow curing, high temperature, for carbon fyber. |
| | EPOSTICK | AMBER | PASTE | 5 - 7 | 15' - 25' | 4 - 6 | - | Plastic putty designed for fast or emergency maintenance and repair. |
| HYBRID TWO-PART | 4807 | GREY | 25000-45000 THIXO / 1500-3000 | 10 - 20 | 7 days | 4 - 10 | 60 - 80 | Maximum flexibility, for bonding together different materials. |
| | 4820 | BLACK | 20000-50000 / 200-300 | 25 - 50 | 72 h | 4 - 7 | - | Self-levelling, maximum flexibility, general purpose. |
| | 4821 | BLACK | PASTE THIXO | 10 - 15 | 72 h | 4 - 7 | 60 - 80 | High viscosity, maximum flexibility, general purpose. |
| | 4826 | IVORY | PASTE THIXO | - | 72 h | 1- 2 | - | Self-extinguishing, thermal conductive, high temperature. |

| | PRODUCT | COLOUR | VISCOSITY (+25°C Pa s) | HANDLING TIME AT + 150°C MINUTES | SHEAR STRENGTH (ISO 4587) N/mm² | PEEL STRENGTH (ISO 4578) N/25 mm | TEMPERATURE RANGE °C | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|
| SINGLE-PART<br>(•) Curing ti,e depends on temperature | 4500 | GREY | 800 - 3800 THIXO | 30 - 45 (•) | 20 - 30 | 80 - 120 | -40 +180 | Tough, high viscosity, for vertical bonding, high performances. |
| | 4580 | GREY | 150 - 250 THIXO | 45 - 60 (•) | 18 - 25 | 80 - 120 | -40 +180 | Tough, self-levelling, fluidify while curing. |
| | 4620 | WHITE | 15 - 30 | 30 - 45 (•) | 18 - 25 | - | -40 +180 | Fluid, tough, self-levelling. |
| | 4680 | IVORY | 60 - 100 | 15 - 30 (•) | 20 - 25 | - | -40 +180 | High impact strength, fluidify while curing for ferrites and magnets. |
| | 4690 | BLACK | 200 - 300 THIXO | 45 - 60 (•) | 18 - 25 | 80 - 150 | -40 +180 | Tough, non-sag, high performances. |
| | 4700 | AMBER | 8 - 12 | 60-90 (a+90°C) | 15 - 25 | - | -40 +180 | Self-levelling, cure at low temperature. |
| | 4780 | BLACK | 400 - 600 THIXO | 30 - 45 (•) | 15 - 25 | - | -40 +180 | High viscosity, thermal conductive. |



LOXEAL® ENGINEERING ADHESIVES



# Acrylic Adhesives

Loxeal Acrylic Adhesives are structural Adhesives with high peel and impact strength. They assure high resistance against chemicals and good resistance against heat.

**SUBSTRATES:**

- Metal, Glass, Caramic, Plastic.

**BENEFITS:**

- Greatly increase in design possibilities to bond a wide variety of substrates.
- Suitable for materials with different thermal expansion coefficient.
- Shocks and vibrations resistant.
- Chemical reaction can start in different ways:
  - Mixing by static mixer
  - Bead on bead
  - At contact (with liquid activator)

| | PRODUCT | VISCOSITY (+25°C mPa s) | HANDLING TIME (minutes) | FUNCTIONAL CURE (minutes) | SHEAR STRENGTH (ISO 4587) N/mm² | PEEL STRENGTH (ISO 4578) N/25 mm | JOINT THICKNESS mm | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|
| ACTIVATED | 30-55 (+Att. 20) | 30000 - 60000 THIXO | 1 - 4 | 30 - 60 | 15 - 25 | 85 - 100 | 0,05 - 1 | High viscosity, general purpose. |
| ACTIVATED | 33-00 (+Att. 20) | 45000 - 80000 THIXO | 1 - 4 | 30 - 60 | 15 - 30 | 45 - 65 | 0,05 - 1 | Medium viscosity, general purpose. |
| ACTIVATED | 3439 (+Att. 20) | 600 - 1000 | 20-50 seconds | 10 - 20 | 20 - 30 | 85 - 100 | 0,05 - 0,2 | Fluid, high temperature, high resistance. |
| ACTIVATED | 3459 (+Att. 20) | 15000 - 25000 THIXO | 20-40 seconds | 10 - 20 | 20 - 30 | 85 - 100 | 0,05 - 0,2 | Gel, high temperature, high resistance. |
| BEAD ON BEAD | 33-47 (A+B) | 5000 - 12000 | 1 - 3 | 30 - 60 | 8 - 20 | 45 - 65 | 0,05 - 0,5 | Fluid, general purpose. |
| BEAD ON BEAD | 3592 (A+B) | 10000 - 20000 (A) / 3500 - 5500 (B) | <1 | 10 - 20 | 20 - 25 | - | 0,05 - 1 | Fast curing for ferrites and magnets. |
| MIXING | 3362 | 3000 - 4000 (A) / 4000 - 5000 (B) | 4 - 7 | 10 - 12 | 15 - 20 | - | 0,50 | Low odour, for plastic, high performances. |
| MIXING | 3452 | 4000 - 5000 (A) / 4000 - 5000 (B) | 2 - 3 | 8 - 10 | 19 - 21 | - | 0,50 | Low odour, for metal, high performances. |
| MIXING | 3460 | THIXO (A) / 15000 - 30000 (B) | 2 - 4 | 24 hours | >4 | - | 1 | Fast, for polyolefins (PE, PP, …). |
| MIXING | 3461 | THIXO (A) / 15000 - 30000 (B) | 5 - 8 | 36 - 48 hours | >4 | - | 1 | Slow, for polyolefins (PE, PP, …). |

# Polyurethane Adhesives

| PRODUCT | VISCOSITY (+25°C mPa s) | HANDLING TIME (minutes) | FUNCTIONAL CURE (hours) | SHEAR STRENGTH (ISO 4587) N/mm² | PEEL STRENGTH (ISO 4578) N/25 mm | JOINT THICKNESS mm | DESCRIPTION |
|---|---|---|---|---|---|---|---|
| 33-26 | 4000 - 8000 THIXO (A) / 3000 - 6000 THIXO (B) | 4 - 8 | 24 - 48 | 10 - 20 | - | - | Fast curing, resistant to water, for rigid materials. |
| 33-28 | 4000 - 8000 THIXO (A) / 3000 - 6000 THIXO (B) | 15 - 20 | 24 - 48 | 10 - 15 | - | - | Slow curing, resistant to water, for rigid materials. |

# Surface conditioners and complementary products


## SURFACE CONDITIONERS

| CATEGORY | PRODUCT | APPROVALS | DESCRIPTION |
|---|---|---|---|
| For cyanoacrilates | Primer 7 | | Primer For Polyolefins. |
| For cyanoacrilates | Activator 9 | | For difficult and porous surfaces, no-blooming. |
| For cyanoacrilates | Remover CR1 | | Remover for cured adhesives. |
| For cyanoacrilates | Remover CR2 | | Remover for cured adhesives, non-flammable. |
| For silicone | Remover CR5 | | Remover for cured adhesives. |
| For anaerobics | Activator 11 | | Activator, shorten curing time. |
| For anaerobics | Activator 17 | | Activator, for passive surfaces. |
| For anaerobics | Activator 18 | | Activator, non-flammable. |
| For acrylics | Activator 21 | | Activator, shorten curing time. |
| Cleaner | 10 | | Cleaner, degreaser. |

## COMPLEMENTARY PRODUCTS

| CATEGORY | PRODUCT | APPROVALS | DESCRIPTION |
|---|---|---|---|
| Silicone grease | Grease 4 | Food NSF H1, potable water TZW | Waterproof, lubricant, PTFE based. |
| Silicone grease | Grease 9 | Food NSF H1, potable water TZW | Waterproof, lubricant. |
| Silicone oil | Oil 1000 | Potable water WRAS | Anti-adhesive, lubricant for metal plastic and rubber. |
| Silicone oil | Oil 12500 | | High viscosity anti-adhesive, lubricant for metal plastic and rubber. |

# Dosing Systems

## DE1

### Electro Pneumatic Dosing Unit

Electro Pneumatic Dosing Unit (time-pressure) for Anaerobic and Cyanoacrylate Adhesives. Including Control unit, Reservoir (with empty level sensor), Valve, Dosing nozzle, actuated by Foot Switch or metal part Sensor. Suitable for PLC connections, equipped with end cycle alarm Sensor. Tubing is made by PE and PTFE flexible hoses

## DE3

### Pneumatic Dosing Unit

Pneumatic Dosing Unit for manual dispensing of Anaerobic and Cyanoacrylate Adhesives. Equipped with foot switch dispensing valve. It does not require electrical power supply and is suitable for use in spark proof / flame proof environments.

## DE3M

### Pneumatic Dosing Unit

Pneumatic Dosing Unit for manual dispensing of Anaerobic and Cyanoacrylate Adhesives. Equipped with hand actuated dispensing valve. It does not require electrical power supply and is suitable for use in spark proof / flame proof environments.

## DE4E

### Syringe Dosing Unit

Precise control time/pressure. Syringe terminal used as reservoir. Micro drops dispensing. Venturi technology to avoid dripping from syringe. Multipurpose dosing unit for different liquid products.

Technical information 04/2018

LOXEAL®
ENGINEERING ADHESIVES

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