INTEGRATE SOLUTIONS TO MECHANICAL MANUFACTURE AND MAINTENANCE

THE ADHESIVE SOURCEBOOK
As a high-tech enterprise, TONSAN is specialized in engineering adhesives R & D, manufacturing and sales. Twenty years, with high quality products, perfect service, and a wealth of engineering experience in adhesives, TONSAN has been supporting customers in solving machinery manufacturing, assembling, and maintenance problems.

TONSAN's anaerobic sealants, silicone sealants, PU sealants, epoxy adhesive, acrylate adhesive, chlorine glue are widely used in 29 key industries, such as automobile, engineering machinery, trains and rails, new energy, electronics, medical treatment, aerospace, marine, metallurgy, petroleum, coal, electric power etc.

Through constant innovation and accumulation, TONSAN products and technologies are much closer to the customer needs. TONSAN has become the leader and professional solution supplier in engineering adhesive industry and specialized in manufacturing, assembly, maintenance areas. TONSAN is the most reliable partner to provide professional glue solutions to help customers optimize processes, improve product quality and production efficiency, reduce costs and extend equipment life.

The worldwide sales and technical service network, support every customer apply TONSAN products more conveniently.
Sealing & Locking
Silicone Sealants
Anaerobic Flange Sealants
Anaerobic Thread Lockers
Anaerobic Thread Sealants
Anaerobic Retaining Compounds
Pre-applied Thread Lockers & Sealants

Structure Adhesion & Sealing
Structure Adhesives
Polyurethane
Modified Silane
Cyanoacrylates
UV Cure Adhesives

Function Coating
Metal Rebuilding Putty
Abrasion Resistance Compounds
Low Friction Coating
Erosion Resistance Polymers
Emergency Repair
High Temperature Sealing & Repairing

Rubber Bonding & Repair
Rubber Bonding & Repair Series

Accessories & Dispensing Equipments
Accessories-Primers, Activators, Accelerators
Dispensing Equipments
Silicone Sealants

TONSAN silicone sealant highly enhances the sealing reliability by excellent oil resistance, chemical resistance, vibration resistance and aging resistance. TONSAN has developed specialized products according to the requirements of various conditions and applications.

Properties

- Easy operating
- Excellent chemical resistance, aging resistance, high temperature resistance
- Reliable sealing
- High efficiency
Microwave Oven Sealant
Black color and special designed for microwave ovens, low viscosity, excellent adhesion, the curing sealant is continuous and smooth. Good scrubbing and scaling resistance. Apply to sealing home appliances, and specialized for sealing microwave oven glass and cavity. Suitable for mechanical applying.
Package size: 18kg/pail Order number: 152785

Electronic Equipment Sealant
Package size: 310ml/cartridge Order number: 15930302

Electronic Potting sealant
Grey color, de-alcohol type, flame-retardant level —UL-94 V0, self-leveling, non-corrosive to circuit, suitable for sealing of electric components and body case.
Package size: 20kg/pail Order number: 15360205

2530 Two-Component Electrical Special Sealant
Black color, two components, addition reaction volume ratio (A: B) 1: 1, 100 °C, 5min fast curing, FDA food grade test, long-term temperature of 300 °C, excellent bonding of metal, glass and other materials, with a special agent on the surface of the powder material.
Package size: A component 16kg / barrel Order number: 25300303A
8 component 18kg / barrel Order number: 25300303B
Special primer: 500ml / bottle Order number: 25300403
Silicone Sealants

1590 Instant Silicone Sealant
Black color. Instant Sealing, high viscosity, high elongation, excellent heat aging resistance and oil resistance. Apply to auto-dispensing assembling line, such as oil sump tank. Suitable for mechanical applying.
Package size: 400g/cartridge Order number: 159021
Package size: 20kg/pail Order number: 159025

1591 Silicone Flange Sealant
Grey color. Instant sealing, medium viscosity, high strength, high elongation, excellent heat aging resistance and oil resistance. Apply to flange sealing of engine parts. Suitable for both mechanical and manual applying.
Package size: 310ml/cartridge Order number: 159105
Package size: 20kg/pail Order number: 159106

1590F Silicone Flange Sealant
Grey color, medium viscosity, medium elongation, fast curing, excellent oil resistance. Apply to rigid joint surface sealing of transmission and timing chain cover.
Package size: 310ml/cartridge Order number: 159066
Package size: 20kg/pail Order number: 159067

1596F Silicone Flange Sealant
Black color, medium viscosity, high elongation, fast curing, excellent oil resistance. Apply to sealing joint surface parts of deformation and with displacement under shock and vibration conditions. Suitable for both mechanical and manual applying.
Package size: 310ml/cartridge Order number: 159666
Package size: 20kg/pail Order number: 159667

1596 Fa Silicone Flange Sealant
Grey color, medium viscosity and extension. Good resistance to gear oil, lubrication oil and anti-freezing solution. Apply to sealing joint surface parts of automobile transmissions, axles and engines with high rigidity. Suitable for both mechanical and manual applying.
Package size: 310ml/cartridge Order number: 159671
Package size: 20kg/pail Order number: 159675

1598F Silicone Flange Sealant
Grey color, medium viscosity, and low elongation, fast curing and excellent gear oil resistance. Apply to rigid joint surface sealing of transmission and timing chain cover.
Package size: 310ml/cartridge Order number: 159626
Package size: 20kg/pail Order number: 159628

High Voltage Switch Flange Sealing  Diesel Engine Side Cover Sealing  Axel Shield Sealing
## Physical Properties

<table>
<thead>
<tr>
<th>Product code</th>
<th>Color</th>
<th>Specific gravity (g/cm³)</th>
<th>Room temperature</th>
<th>After aging at 168h</th>
<th>After soaking in oil</th>
<th>Tack free time (min)</th>
<th>24h curing depth (mm)</th>
<th>Temperature range (°C)</th>
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<td>Blue</td>
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<td>1.8</td>
<td>310</td>
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<td>1596</td>
<td>Grey</td>
<td>1.18</td>
<td>2.0</td>
<td>170</td>
<td>1.8</td>
<td>300</td>
<td>≥2</td>
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<td>Black</td>
<td>1.18</td>
<td>2.0</td>
<td>170</td>
<td>1.8</td>
<td>300</td>
<td>≥2</td>
<td>-54~210</td>
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<td>1592</td>
<td>Red</td>
<td>1.07</td>
<td>1.9</td>
<td>330</td>
<td>1.9</td>
<td>330</td>
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<td>≥2</td>
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<td>1590</td>
<td>Black</td>
<td>1.38</td>
<td>2.0</td>
<td>410</td>
<td>2.2</td>
<td>500</td>
<td>≥2</td>
<td>-54~210</td>
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<td>1591</td>
<td>Grey</td>
<td>1.36</td>
<td>2.8</td>
<td>350</td>
<td>2.4</td>
<td>500</td>
<td>≥2</td>
<td>-54~210</td>
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<td>1596Fa</td>
<td>Grey</td>
<td>1.42</td>
<td>3.0</td>
<td>180</td>
<td>2.5</td>
<td>180</td>
<td>7~20</td>
<td>≥2</td>
</tr>
<tr>
<td>1598F</td>
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<td>1.30</td>
<td>2.0</td>
<td>350</td>
<td>1.8</td>
<td>420</td>
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<tr>
<td>1596F</td>
<td>Grey</td>
<td>1.38</td>
<td>2.3</td>
<td>110</td>
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<td>140</td>
<td>≥2</td>
<td>-54~260</td>
</tr>
<tr>
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<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
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<td>Volume Resistance (Ω·cm)</td>
<td></td>
<td></td>
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<td>1527B</td>
<td>Black</td>
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<td>1.5</td>
<td>180</td>
<td>1.5</td>
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<td>≥2</td>
<td>-54~210</td>
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<td>2.0</td>
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<td>150</td>
<td>≥2</td>
<td>-54~180</td>
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<td>1593FR</td>
<td>Grey</td>
<td>1.20</td>
<td>2.0</td>
<td>100</td>
<td>1.2</td>
<td>100</td>
<td>≥2</td>
<td>-54~180</td>
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<tr>
<td>1593W</td>
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<td>1.25</td>
<td>1.8</td>
<td>350</td>
<td>0.9</td>
<td>200</td>
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<td>≥2</td>
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<td>White</td>
<td>1.16</td>
<td>2.0</td>
<td>350</td>
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<td>200</td>
<td>≥2</td>
<td>-54~210</td>
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<td>1527T</td>
<td>Transparent</td>
<td>1.00</td>
<td>1.3</td>
<td>350</td>
<td>1.4</td>
<td>320</td>
<td>3~15</td>
<td>≥2</td>
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<tr>
<td>1598E</td>
<td>Black</td>
<td>1.13</td>
<td>1.8</td>
<td>150</td>
<td>1.8</td>
<td>110</td>
<td>10~40</td>
<td>≥2</td>
</tr>
</tbody>
</table>

Test condition: temperature 23±2 °C; Relative humidity 50±5%

## Consumption Estimation (Based on 1.25g/cm³ specific gravity)

<table>
<thead>
<tr>
<th>Package size</th>
<th>100g tube</th>
<th>310ml cartridge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter (mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.0</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>2.8</td>
<td>11.3</td>
<td>44.9</td>
</tr>
<tr>
<td>Length (m)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.0</td>
<td>43.9</td>
<td>175.5</td>
</tr>
</tbody>
</table>
Anaerobic Flange Sealants

TONSAN anaerobic sealants are used for sealing of flanges with small gaps on mechanical parts, such as housing, flanges, end cap and etc. It can improve sealing reliability, overall rigidity and loading capacity by replacing gaskets. It can also be dispensed directly on gasket to enhance sealing performance.

Properties

- Single component, Solvent free, Room temperature curing
- Suitable for sealing gap less than 0.25mm
- 100% fill the flange gap
- High strength and excellent adhesion
- Excellent oil resistance, chemical resistance, vibration resistance, and aging resistance
- No corrosion
- Conform to JB/T7311-2008 Construction machinery- anaerobic adhesive, silicone and pre-applied dry film adhesive- Application technical specifications

1510 Anaerobic Flange Sealant
High temperature resistance, chemical resistance. Rigid adhesive layer after curing. Apply for sealing rigid flanges, end caps or used as gasket coating.
Package size: 50ml/ tube  Order number: 151001
Package size: 310ml/ cartridge  Order number: 151005

1515 Anaerobic Flange Sealant
General Purpose. Soft adhesive layer after curing. Apply for sealing flexible or vibrate joint surfaces, such as pumps, transmission, end cap, flange and Axel.
Package size: 50ml/ tube  Order number: 151501
Package size: 310ml/ cartridge  Order number: 151505
1518 Anaerobic Flange Sealant (Aluminum Surface)
Soft adhesive layer after curing. Especially suitable for aluminum surface or joint surface with relative displacement caused by vibration, stress or temperature variation. It can also be used as gasket coating for sealing pumps, gearbox and axle.
Package size: 50ml/tube Order number: 151801
Package size: 310ml/cartridge Order number: 151805

Physical Properties

<table>
<thead>
<tr>
<th>Product code</th>
<th>Color</th>
<th>Specific gravity (g/cm³)</th>
<th>Viscosity (mPa.s)</th>
<th>Max sealing clearance (mm)</th>
<th>Max sealing pressure (MPa)</th>
<th>Fixture time (h)</th>
<th>Fully cured time (h)</th>
<th>Temperature range (°C)</th>
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</thead>
<tbody>
<tr>
<td>1510</td>
<td>Pink</td>
<td>1.10</td>
<td>5.0x10²</td>
<td>0.25</td>
<td>36.0</td>
<td>2 ~ 3</td>
<td>24</td>
<td>-60 ~ 204</td>
</tr>
<tr>
<td>1515</td>
<td>Purplish</td>
<td>1.10</td>
<td>1.2x10⁴</td>
<td>0.25</td>
<td>32.0</td>
<td>1 ~ 2</td>
<td>18</td>
<td>-60 ~ 150</td>
</tr>
<tr>
<td>1518</td>
<td>Red</td>
<td>1.10</td>
<td>3.2x10⁴</td>
<td>0.25</td>
<td>34.0</td>
<td>3 ~ 4</td>
<td>24</td>
<td>-60 ~ 150</td>
</tr>
</tbody>
</table>

Test condition: temperature 23±2 °C; Relative humidity 50±5%

Consumption Estimation

<table>
<thead>
<tr>
<th>Package Size</th>
<th>50ml/tube</th>
<th>310ml cartridge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter (mm)</td>
<td>6.0</td>
<td>6.0</td>
</tr>
<tr>
<td>Length (m)</td>
<td>7.1</td>
<td>43.9</td>
</tr>
</tbody>
</table>

Axle Surface Sealing  Pivoting Support Sealing  Transmission End Sealing
Anaerobic Thread Lockers

TONSAN Anaerobic Thread lockers are thermosetting plastics of different strength after curing, to protect thread from impact, vibration, infiltration, rusty and corrosion. Replacing spring cushion, cotter pin and other mechanical locking methods.

Properties

- Single component
- Solvent free
- Room temperature curing
- 100% fill the thread gap
- Precise tightening torque
- Clamp force transformation
- Diverse categories to meet different locking strength
- Conform to US Military Standard MIL-S-46163A
- Conform to JB/T7311-2008 Construction machinery-anaerobic adhesive, silicone and pre-applied dry film adhesive-Application technical specifications

1222 Thread Locker (Easy Disassembly)

Purple color. Low strength, easy disassembled thread locker. Thixotropic viscosity. Apply for fastener with diameters up to 6mm. Available disassembled by hand tools.

Package size: 50ml/bottle  Order number: 122201
Package size: 250ml/bottle  Order number: 122205

1242 Thread Locker (General Purpose)

Blue color. General purpose, easy disassembled thread locker. Thixotropic viscosity. Applied for locking of nuts, bolts and screws from 6mm to 20 mm. Available disassembled by hand tools.

Package size: 50ml/bottle  Order number: 124201
Package size: 250ml/bottle  Order number: 124205
**Thread Locker (Oil Tolerance)**
Blue color. High strength, thixotropic viscosity, excellent chemical resistance, can be used on light oil surface. Applied for fastener diameters from 6mm to 20mm. Available disassembled by hand tools.
Package size: 50ml/bottle  Order number: 124301
Package size: 250ml/bottle  Order number: 124305

**Thread Locker (Penetrative)**
Green color. Medium strength, very low viscosity, good permeability, applied for sealing and locking of pre-assembled threads up to M12. Also apply for sealing weld joint and casting cracks under 0.1mm.
Package size: 50ml/bottle  Order number: 129001
Package size: 250ml/bottle  Order number: 129005

**Thread Locker (Low Temperature Curing)**
Red color. High strength, medium viscosity, excellent low temperature curing. Apply for slight oil surface. Suitable for fastener diameters up to 27mm. Permanently locked.
Package size: 50ml/bottle  Order number: 126101

**Thread Locker (Fatigue Resistance)**
Red color. High strength, thixotropic viscosity and good fatigue resistance. Suitable for fastener diameters under 20mm. Available disassembled by hand tools.
Package size: 50ml/bottle  Order number: 126202
Package size: 250ml/bottle  Order number: 126205

**Thread Locker (Thermal Aging Resistance)**
Green color. High strength with medium viscosity, excellent chemical resistance and good thermal aging resistance. Apply for fastener diameters up to 27mm. Permanently locked.
Package size: 50ml/bottle  Order number: 127011

**Thread Locker (Low Viscosity)**
Red color. High strength, low viscosity, and good chemical resistance. Apply for fastener diameters up to 27mm. Permanently locked.
Package size: 50ml/bottle  Order number: 127102
Package size: 250ml/bottle  Order number: 127105

**Thread Locker (High Temperature Resistance)**
Red color. High strength with thixotropic viscosity and high temperature resistance. Apply for fastener diameters up to 36mm. Permanently locked.
Package size: 50ml/bottle  Order number: 127201

**Thread Locker (High Viscosity)**
Red color. High strength with high viscosity. Apply for fastener diameters up to 36mm. Permanently locked. Heating is needed for disassembly.
Package size: 50ml/bottle  Order number: 127701
Package size: 250ml/bottle  Order number: 127705

**Thread Locker (Ultra High Strength)**
Red color. Ultra high strength with thixotropic viscosity, excellent chemical resistance and good thermal aging resistance. Apply for fastener diameters up to 36mm. Permanently locked. Heating is needed for disassembly.
Package size: 50ml/bottle  Order number: 127901

**Activator**
Used to shorten curing time of anaerobic adhesives, especially at low temperature, in applications with passive metals or inert surfaces, or where large gaps are involved.
Package size: 300ml/aerosol can  Order number: 176421
# Anaerobic Thread Lockers

## Physical Properties

<table>
<thead>
<tr>
<th>Product code</th>
<th>Color</th>
<th>Specific gravity (g/cm³)</th>
<th>Viscosity (mPa·s)</th>
<th>Gap fill (mm)</th>
<th>Break torque (N·m)</th>
<th>Prevail torque (N·m)</th>
<th>Fixture time (min)</th>
<th>Fully cured time (h)</th>
<th>Temperature range (°C)</th>
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</thead>
<tbody>
<tr>
<td>1222</td>
<td>Purple</td>
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<td>1400/Thixotropic</td>
<td>0.13</td>
<td>6.0</td>
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<td>20</td>
<td>24</td>
<td>-60 ~ 150</td>
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<tr>
<td>1242</td>
<td>Blue</td>
<td>1.10</td>
<td>1400/Thixotropic</td>
<td>0.13</td>
<td>12.0</td>
<td>5.0</td>
<td>20</td>
<td>24</td>
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<tr>
<td>1243</td>
<td>Blue</td>
<td>1.10</td>
<td>2800/Thixotropic</td>
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<td>25</td>
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<td>2000/Thixotropic</td>
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Test condition: temperature 23±2 °C; Relative humidity 50±5%.

## Consumption Estimation (1,000 bolts and nuts)

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<tr>
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<th>M6</th>
<th>M8</th>
<th>M10</th>
<th>M12</th>
<th>M14</th>
<th>M16</th>
<th>M20</th>
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<tr>
<td>Manual Dispensing</td>
<td>28ml</td>
<td>42ml</td>
<td>76ml</td>
<td>130ml</td>
<td>188ml</td>
<td>230ml</td>
<td>350ml</td>
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<tr>
<td>Auto Dispensing</td>
<td>16ml</td>
<td>30ml</td>
<td>48ml</td>
<td>92ml</td>
<td>116ml</td>
<td>125ml</td>
<td>220ml</td>
</tr>
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</table>

Test condition: temperature 23±2 °C; Relative humidity 50±5%.
Anaerobic Thread Sealants

TONSAN Anaerobic Thread Sealants are used for sealing of pipelines and no leakage and rust. After curing, can resist high pressure which are good replacements of PTPE tapes.

Properties

- Single component
- Solvent free
- Room temperature curing
- 100% fill the thread gap
- no pollution for sealed chemical, non-clogging
- Anti-seizing
- Easy to assemble, disassemble and clean
- Chemical, vibration and aging resistance
- Conform to JB/T7311 -2008 Construction machinery- anaerobic adhesive, silicone and pre-applied dry film adhesive- Application technical specifications

1545 Anaerobic Thread Sealant (Chemical Resistance)
Purple color. Medium viscosity thread sealant with fast curing and no pollution to system, no clogging on pressure elements. Can be use on slight oil surface. Apply for locking and sealing hydraulic systems, pneumatic systems and refrigeration equipment.
Package size: 50ml/bottle Order number: 154501

1554 Anaerobic Thread Sealant (Copper Surface)
Red color. Medium viscosity, medium strength, slow curing speed, and good chemical resistance. Recommended for sealing pipe thread, plug, and expended pipe heat radiator of refrigeration systems.
Package size: 50ml/bottle Order number: 155401

1567 Anaerobic Thread Sealant (High Temperature Resistance)
White color. A paste-like, high viscosity, general-purpose sealant, self-lubricating, resistant to high temperature chemicals such as oil, gas, vapor, and water. Suitable for locks and seals tapered pipe threads and fittings. Can be used for drinking water pipe system.
Package size: 50ml/tube Order number: 156701
Package size: 250ml/tube Order number: 156705

1567F Anaerobic Thread Sealant (Fast Curing)
White color. Paste-like with white color, fast curing, and self-lubrication. Suitable for locking and sealing most chemicals such as oil, gas, vapor, and water in tapered pipe threads and fittings. Can be used for drinking water pipe system.
Package size: 50ml/tube Order number: 156712
Anaerobic Thread Locking Sealant
Brown color. Medium viscosity, medium strength. Recommended for sealing the fine threads of hydraulic and pneumatic fittings. No fillers and will not foul valves or fluid filtering system. Can be used for drinking water pipe system.
Package size: 50ml/bottle Order number: 156901
Package size: 250ml/bottle Order number: 156905

Oil Piping System Sealant
Package size: 250ml/bottle Order number: 157001

Anaerobic Thread Pipe Locking Sealant
Yellow color. A paste-like, medium strength sealant with thixotropic viscosity, fast curing and chemical resistance. Recommended for locking and sealing tapered/straight pipe threads and fittings up to 3”.
Can be used for drinking water pipe system.
Package size: 50ml/tube Order number: 157701

Activator
Activator exclusive for anaerobic adhesive, used to shorten the curing time of anaerobic adhesives under low temperature, in applications with passive metals or inert surfaces, or large gaps.
Package size: 300ml/aerosol can Order number: 176421

Physical Properties

<table>
<thead>
<tr>
<th>Product code</th>
<th>Color</th>
<th>Specific gravity (g/cm³)</th>
<th>Viscosity (mPa·s)</th>
<th>Max thread diameter</th>
<th>Sealing pressure (MPa)</th>
<th>Fixture time (min)</th>
<th>Fully cured time (h)</th>
<th>Temperature range (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1545</td>
<td>Purple</td>
<td>1.10</td>
<td>14000/Thixotropic</td>
<td>3/16”</td>
<td>70.0</td>
<td>15</td>
<td>24</td>
<td>-60 ~ 150</td>
</tr>
<tr>
<td>1554</td>
<td>Red</td>
<td>1.10</td>
<td>2500</td>
<td>3/8”</td>
<td>71.0</td>
<td>180</td>
<td>72</td>
<td>-60 ~ 150</td>
</tr>
<tr>
<td>1567</td>
<td>White</td>
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<td>5.54×10³</td>
<td>3/4”</td>
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</tr>
<tr>
<td>1567F</td>
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<td>1.10</td>
<td>2.3×10⁵</td>
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<td>71.0</td>
<td>120</td>
<td>24</td>
<td>-60 ~ 204</td>
</tr>
<tr>
<td>1569</td>
<td>Brown</td>
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<td>400</td>
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<td>24</td>
<td>-60 ~ 150</td>
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<tr>
<td>1570</td>
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<td>5100</td>
<td>3/8”</td>
<td>56.0</td>
<td>20</td>
<td>24</td>
<td>-60 ~ 150</td>
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<td>1577</td>
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<td>1.05</td>
<td>24000/Thixotropic</td>
<td>3/4”</td>
<td>70.0</td>
<td>15</td>
<td>24</td>
<td>-60 ~ 150</td>
</tr>
</tbody>
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Test condition: temperature 23±2 °C; Relative humidity 50±5%

Consumption Estimation (1,000 bolts and nuts)

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<tr>
<th>Package size</th>
<th>1/8</th>
<th>1/4</th>
<th>3/8</th>
<th>1/2</th>
<th>3/4</th>
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<tbody>
<tr>
<td>Manual Dispensing</td>
<td>41ml</td>
<td>60ml</td>
<td>92ml</td>
<td>120ml</td>
<td>248ml</td>
<td>446ml</td>
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<tr>
<td>Auto Dispensing</td>
<td>25ml</td>
<td>43ml</td>
<td>60ml</td>
<td>88ml</td>
<td>185ml</td>
<td>371ml</td>
</tr>
</tbody>
</table>
Anaerobic Retaining Compounds

TONSAN Anaerobic Retaining Compounds are developed for the assembly of all cylindrical components such as bearing, gears, shafts, keyways and rotors. They increase the load bearing characteristics of cylindrical joints, reducing assembly stress and assembly cost.

Properties

- Single component
- No solvent
- Room temperature curing
- 100% fill surface gap
- Diversified categories, meet different locking requirements
- Impact, vibration, chemical and aging resistance
- Easy assembly
- Conform to JB/T7311-2008 Construction machinery- anaerobic adhesive, silicone and pre-applied dry film adhesive- Application technical specifications
Anaerobic Retaining Compounds

**1609 Retaining Compounds (Low Viscosity)**
Green color. Low viscosity, high strength. Used for cylindrical assemblies less than 0.10mm radial clearance, such as gears and shafts.
Package size: 50ml/bottle Order number: 160901
Package size: 250ml/bottle Order number: 160905

**1660 Retaining Compounds (For Large gap)**
Grey color. High viscosity, high strength, used for retaining of cylindrical parts with large gap less than 0.50 mm, such as shaft sleeve, bolt and axle.
Package size: 50ml/tube Order number: 166001

**1680 Retaining Compounds (High Strength)**
Green color. Medium viscosity, high strength and resistant to solvents. For retaining components with radical gap less than 0.25mm, such as drive pipe, gear, and rotor.
Package size: 50ml/bottle Order number: 168001
Package size: 250ml/bottle Order number: 168005

**1603 Retaining Compounds (Oil Tolerance)**
Green color. A low viscosity retaining compound with improved oil tolerance. High strength. Used for locking and sealing axle hole components, especially for oil surface.
Package size: 50ml/bottle Order number: 160301
Package size: 250ml/bottle Order number: 160305

**1620 Retaining Compounds (High Temperature Resistance)**
Green color. High viscosity, high strength, temperature resistance. Especially for locking and sealing axle hole components such as valve pipe, plastic injection core retainer coat, valve barrel cylinder liner and keyway up to 230°C.
Package size: 50ml/bottle Order number: 162001
Package size: 250ml/bottle Order number: 162005

**1638 Retaining Compounds (Ultra High Strength)**
Green color. Ultra strength retaining compound with medium viscosity, fast curing, used in where high retaining strength is required.
Package size: 50ml/bottle Order number: 163801

**1648 Retaining Compounds**
Green color. Medium viscosity, high strength, fast curing, mainly used for locking and sealing axle hole components, especially for continuous work condition under temperature up to 175°C.
Package size: 50ml/bottle Order number: 164801
Package size: 250ml/bottle Order number: 164805

**1608 Cup Plug Sealant**
Red color. Thixotropic viscosity, high strength, non-sagging on vertical surface and resistant to oil and heat. Specially designed for cup plug in engines and etc.
Package size: 50ml/bottle Order number: 160803
Package size: 1kg/bottle Order number: 160805

**1662 Cup Plug Sealant**
Red color. A thixotropic, high-strength sealant. Designed for sealing and securing cylindrical metal assemblies such as engine block up and cup plugs.
Package size: 1kg/bottle Order number: 166205

**1764 Activator**
Activator exclusive for anaerobic adhesive, used to shorten the curing time of anaerobic adhesives under low temperature, in applications with passive metals or inert surfaces, or where large gaps are involved.
Package size: 300ml/aerosol can Order number: 176421
### Physical Properties

<table>
<thead>
<tr>
<th>Product code</th>
<th>Color</th>
<th>Specific gravity (g/cm³)</th>
<th>Viscosity (mPa·s)</th>
<th>Max radial clearance (mm)</th>
<th>Shear strength (MPa)</th>
<th>Fixture time (min)</th>
<th>Fully cure time (h)</th>
<th>Temperature range (°C)</th>
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<tbody>
<tr>
<td>1609</td>
<td>Green</td>
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<td>190</td>
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<td>16.0</td>
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<td>-60—150</td>
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<tr>
<td>1620</td>
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<td>8000/Thixotropic</td>
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<td>-60—230</td>
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<tr>
<td>1660</td>
<td>Grey</td>
<td>1.13</td>
<td>Paste</td>
<td>0.50</td>
<td>18.0</td>
<td>10</td>
<td>24</td>
<td>-60—150</td>
</tr>
<tr>
<td>1680</td>
<td>Green</td>
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<td>1500</td>
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<td>10</td>
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<td>-60—150</td>
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<td>1638</td>
<td>Green</td>
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<td>2000</td>
<td>0.25</td>
<td>25.0</td>
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<td>-60—150</td>
</tr>
<tr>
<td>1648</td>
<td>Green</td>
<td>1.13</td>
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<td>10</td>
<td>24</td>
<td>-60—175</td>
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<tr>
<td>1603</td>
<td>Green</td>
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<td>125</td>
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<tr>
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<td>20.0</td>
<td>10</td>
<td>24</td>
<td>-60—150</td>
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</tbody>
</table>

Test condition: temperature 23±2 °C; Relative humidity 50±5%
Pre-applied Thread Sealants

TONSAN pre-applied thread lockers can maintain dry status after applied and can be stored for a long time, which are widely used for mass production and fast pace assembly.

Properties

- Easy to operate, reliable quality
- Very low odor, no solvent
- Excellent solvent resistance
### Pre-applied Thread Sealant (Locking)

Double components, high strength, pre-applied thread locker that reliably secures and seals thread fasteners up to M20.

- **Package size:** 500g/set
- **Order number:** 12040802

### Pre-applied Dry Film Thread Sealant (Sealing)

White color, single component, low viscosity, elastic rubber coat will be formed after cured. Suitable for sealing thread components. Apply for sealing fuel, lubrication, and most industrial gas and liquid.

- **Package size:** 2kg/pail
- **Order number:** 15130205

### Pre-applied Dry Film Thread Sealant (Sealing)


- **Package size:** 500g/bottle
- **Order number:** 151601
- **Package size:** 2kg/pail
- **Order number:** 151605

### Physical Properties

<table>
<thead>
<tr>
<th>Product code</th>
<th>Color</th>
<th>Viscosity (mPa·s)</th>
<th>Destabilizing moment (N·m)</th>
<th>Lubricity</th>
<th>Fixture time (h)</th>
<th>Fully cure time (h)</th>
<th>Temperature range (°C)</th>
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</thead>
<tbody>
<tr>
<td><strong>1204</strong></td>
<td>Pink</td>
<td>65000</td>
<td>40</td>
<td>Medium</td>
<td>30</td>
<td>72</td>
<td>-54 ~ 150</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product code</th>
<th>Color</th>
<th>Viscosity (mPa·s)</th>
<th>Skinning time</th>
<th>Max air pressure (MPa)</th>
<th>Max oil pressure (MPa)</th>
<th>Temperature range (°C)</th>
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<tbody>
<tr>
<td><strong>1513</strong></td>
<td>White</td>
<td>20000</td>
<td>20min(80°C)</td>
<td>0.8</td>
<td>35</td>
<td>-54 ~ 150</td>
</tr>
<tr>
<td><strong>1516</strong></td>
<td>Iron red</td>
<td>60000</td>
<td>20min(80°C)</td>
<td>0.8</td>
<td>35</td>
<td>-54 ~ 150</td>
</tr>
</tbody>
</table>

Test condition: temperature 23±2 °C; Relative humidity 50±5%

---

*Brushing Apply*

*Rolling Apply*
Structure Adhesives

TONSAN Structure Adhesives are developed for structural bonding applications that require tensile, shear and peel strength combined with maximum impact resistance. Easy to operate, high strength, no need special equipment, anti stripping, impact resistance. They form to a tough, durable bond to a wide variety of substrates, including metals, plastics and composites. Enable the bonding of different materials, replacing spot welding and rivets.

Properties

- High viscosity
- Evenly stress distribution on the joint surface, no heat impact and no deformation to components
- Fast curing speed to improve operation efficiency
- Widely used for bonding different materials

Acrylic Structure Adhesives

**TS802 High Strength Adhesive**  
(General Purpose)  
White color. Double components, high strength adhesive, fast fixture in 5 minutes. Suitable for bonding and self-bonding of metal, plastic, leather and wood (not suitable for copper).  
Package size: 85g/set Order number: 080201

**TS805 High Strength Structure Adhesives**  
(Easy to Operate)  
White color. Double components, high viscosity, fast fixture in 30 minutes. Suitable for bonding and self-bonding of metal, plastic, leather and wood (not suitable for copper).  
Package size: 400ml/set Order number: 280501

**TS806 Rail Steel Band Adhesive**  
(Specialized Bonding)  
White color. Double components, oil resistance, high viscosity, 50 minutes operating time, easy to precisely fixture. Especially for bonding steel band of guide rail.  
Package size: 2kg /set Order number: 280605

**TS807 General Type Structural Adhesive**  
(Taupe, 1:1 two components acrylate structural adhesive for general use. Low viscosity, flowable. Cured layer has high resistance to impact. Especially suitable for bonding plastic and metal with a minimum of surface preparation.  
Package size: 2kg/set Order number: 28070505  
Package size: 2.5kg/barrel×2 Order number: 28070510A/B  
Package size: 5Gal/barrel×2 Order number: 28070515A/B

**TS820 Low Odor Structural Adhesive**  
Blue purple. Double components, volume ratio 1:1. Fixture time is 5-8 minutes at room temperature and fast curing at high temperature. Cured layer has high toughness and resistance to impact. Especially suitable for bonding metal.  
Package size: 400ml/set Order number: 08200305

**TS828 High Performance Acrylic Structure Adhesive**  
(Dark Green. Double components, could be able to cure in 5 minutes with volume ratio 10:1, and reach to 80% ultra strength in 20 minutes, high strength of thermal aging. Good toughness and easy to peel of adhesive.  
Package size: 2kg /set Order number: 280605
TS828S High Performance Acrylic Structure Adhesive
Dark green. Double components, volume ratio 10:1. Cured layer has high toughness, good resistance to peeling off, and high strength after thermal aging. Provide strong bonding for a variety of materials, especially suitable for large area bonding.

Package size: 50ml/set Order number: 08280205
Package size: 400ml/set Order number: 08280205

TS830 High Performance Structural Adhesive
Dark green. Double components, volume ratio 10:1. Cured layer has high toughness and good resistance to medium and aging. Especially suitable for bonding structures working under high temperature conditions.

Package size: 50ml/set Order number: 08300202
Package size: 400ml/set Order number: 08300205

Epoxy Structure Adhesives

TS811 High Strength Structure Adhesives (High Strength)
Light yellow. Double components, impact absorbing epoxy. Excellent tensile and shear strength. Unique structure adhesive with wide applications for bonding and self-bonding of metals, ceramics and plastics.

Package size: 250g/set Order number: 281101

TS813 5 Minutes Epoxy
Transparent. Double components, flowable, good toughness, easy to operate. Quick fixture in 5 minutes with good toughness. Suitable for fast bonding various substrates, such as metal, glass, wood, part of plastics and ceramics.

Package size: 50ml/set Order number: 081301

TS814 30-Minute Clear Epoxy (Easy to Operate)
Transparent. Double components, flowable, good toughness, easy to operate, and curing in 30 minutes. Provide strong bonding to glass, metals, part of plastics, ceramics and wood combinations.

Package size: 50ml/set Order number: 081401

TS816 High Toughness Epoxy Structure Adhesive
Transparent. Double components, yellow color, flowable, industrial adhesive, first curing in 30 minutes, good toughness, good strength. Provide strong bond to metals, jewelry, stones, wood, ceramics and most of plastics.

Package size: 50ml/set Order number: 08160202
Package size: 400ml/set Order number: 08160205

TS818 Abrasion Resistance Ceramics Epoxy
Grey color. Double components, putty, suitable for bonding to metals, stone, wood, ceramic and most of plastic, especially for the wear resistance ceramic bonding.

Package size: 10kg/set Order number: 08180202

TS832 High Strength And High Temperature Resistant Epoxy Adhesive
Yellow color. Double components, volume ratio in 2:1. High strength and good toughness, heat resistance up to 150°C in long term and 180°C in short time. Low viscosity, suitable for potting bonding and have a good bonding performance to metal, stone, wood, ceramic and most of plastics.

Package size: 400ml/set Order number: 08320205

TS843 High Temperature Resistant Epoxy Adhesive
Grey black. Double components, volume ratio in 2:1. High strength and good toughness, heat resistance can up to 150°C in long term and 180°C in short time. High viscosity, suitable for potting bonding, thixotropic, not flow on vertical surface. Suitable for metal and other parts bonding in high temperature and harsh conditions.

Package size: 400ml/set Order number: 08430202

Polyurethane Structure Adhesives

TS850 Double Components Polyurethane Adhesive
Black color. Double components, initial curing in 30 minutes, and could work in vertical surface. Excellent bonding performance, impact resistance and water proof, with both good corrosion resistance and electrical insulation. Special suitable for bonding of insulation and metal materials, such as SMC, BMC, RTM FRP etc.

Package size: 600ml/set Order number: 08500205

TS956 Polyurethane Adhesive
Light yellow. Double components, weight ratio of 4:1, high strength and high toughness. Excellent bonding performance, impact resistance and water proof, with both good corrosion resistance and electrical insulation. Suitable for bonding of all kinds of composite materials, special for metal materials and fibre reinforced composites.

Package size: 10kg/set Order number: 09560205

Other Structure Adhesives

TS812 High Temperature Bonder
Black color. Double components, High muffle coupling strength. Thermal durability up to 780°C. Suitable for bonding of muffle coupling components.

Package size: 250g/set Order number: 081201

1326 Anaerobic Structure Adhesive (Ferrite Bonding)
Light yellow. High strength, high viscosity, fast curing, excellent impact resistance. Suitable for ferrite bonding with activator 1764.

Package size: 50ml/bottle Order number: 132631

1764 Activator
Specially designed for anaerobic adhesives. Apply to shorten the curing time of anaerobic adhesives under low temperature, in applications with passive metals or inert surfaces, or where large gaps are involved.

Package size: 300ml/aerosol can Order number: 176421
## Structure Adhesives

### Physical Properties

<table>
<thead>
<tr>
<th>Product code</th>
<th>Color</th>
<th>Specific gravity (g/cm³)</th>
<th>Viscosity (mPa·s)</th>
<th>Gap fill (mm)</th>
<th>Shear strength (MPa)</th>
<th>Tensile strength (MPa)</th>
<th>Peel strength (N/cm)</th>
<th>Shrinkage rate (%/cm²)</th>
<th>Fixture time (h)</th>
<th>Fully cured time (h)</th>
<th>Temperature range (°C)</th>
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<td>TS802</td>
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<td>4:1</td>
<td>3</td>
<td>70</td>
<td>49.0</td>
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<td>1:1</td>
<td>30</td>
<td>28.0</td>
<td>38.0</td>
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<td>2</td>
<td>6</td>
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<td>1:1</td>
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<td>38.0</td>
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<td>1:1</td>
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<td>25.9</td>
<td>31.6</td>
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<td>12</td>
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<td>-</td>
<td>1:1</td>
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<td>28.0</td>
<td>40.0</td>
<td>0.01</td>
<td>0.3</td>
<td>24</td>
<td>-60~120</td>
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<td>-</td>
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<td>0.01</td>
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<td>-</td>
<td>30~50</td>
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<td>1.65</td>
<td>2:1</td>
<td>1.8:1</td>
<td>30~50</td>
<td>36.0</td>
<td>22.0</td>
<td>-</td>
<td>-</td>
<td>20</td>
<td>24</td>
</tr>
<tr>
<td>TS832</td>
<td>Yellow</td>
<td>1.30</td>
<td>-</td>
<td>2:1</td>
<td>30~70</td>
<td>30.0</td>
<td>25.0</td>
<td>24.0</td>
<td>-</td>
<td>20</td>
<td>24</td>
</tr>
<tr>
<td>TS843</td>
<td>Grey black</td>
<td>1.40</td>
<td>-</td>
<td>2:1</td>
<td>40~70</td>
<td>30.0</td>
<td>22.0</td>
<td>20.0</td>
<td>-</td>
<td>20</td>
<td>24</td>
</tr>
<tr>
<td><strong>Polyurethane Structure Adhesives</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TS850</td>
<td>Black</td>
<td>1.30</td>
<td>-</td>
<td>1:1</td>
<td>20</td>
<td>20.0</td>
<td>16.0</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TS956</td>
<td>Light yellow</td>
<td>1.4</td>
<td>4:1</td>
<td>-</td>
<td>(23°C, 200g/h)</td>
<td>8.5</td>
<td>≥12.0</td>
<td>≥20.0</td>
<td>-</td>
<td>4h(23°C)</td>
<td>72</td>
</tr>
</tbody>
</table>

### Other Structure Adhesives

<table>
<thead>
<tr>
<th>Product code</th>
<th>Color</th>
<th>Specific gravity (g/cm³)</th>
<th>Mix ratio by weight (A:B)</th>
<th>Mix ratio by volume (A:B)</th>
<th>Working time (min)</th>
<th>Tensile strength (MPa)</th>
<th>Shear strength (MPa)</th>
<th>Peel strength (N/cm)</th>
<th>Shrinkage rate (cm/cm²)</th>
<th>Fixture time (h)</th>
<th>Fully cured time (h)</th>
<th>Temperature range (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acrylic Structure Adhesives</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TS812</td>
<td>Black</td>
<td>1.69</td>
<td>3:1</td>
<td>-</td>
<td>30~40</td>
<td>-</td>
<td>50.0</td>
<td>-</td>
<td>Exp. 0.01</td>
<td></td>
<td></td>
<td>-60~780</td>
</tr>
</tbody>
</table>

Test condition: temperature 23±2°C; Relative humidity 50±5%
* When the temperature is below 15°C, some heating measures should be adopted, or the relevant curing time should be extended
** When mix volume is more than 200g, the working time will be shorter
*** Above data is typical
Polyurethane Sealants & Adhesives

TONSAN Polyurethane Sealants & Adhesives can be used for bonding and sealing of windshield, side and rear glass, body panel, front & rear surrounding and trim. It also can be used for sealing of container, steel structure and refrigeration storage.

Properties

- Aging resistance, fatigue resistance
- Single component, easy to operate
- Excellent temperature resistance
- Good sealing and bonding performance for various substances
- Solvent free, no pollution
### Polyurethane Sealants & Adhesives

#### 1924 Polyurethane Sealants
- **Polyurethane Sealants**
  - Single component, white color/black color/grey color available, good flexibility, excellent water proof ability, high viscosity, oil resistance, water resistance, aging resistance and salt mist resistance. Good long time vibration fatigue resistance. Suitable for vehicle, container, steel structure, and refrigerator sealing.
  - **White color:**
    - Package size: 310ml/cartridge Order number: 192401
    - Package size: 400ml/sausage Order number: 192404
    - Package size: 600ml/sausage Order number: 192406
  - **Black color:**
    - Package size: 310ml/cartridge Order number: 192201
    - Package size: 400ml/sausage Order number: 192204
    - Package size: 600ml/sausage Order number: 192206
  - **Grey color**
    - Package size: 310ml/cartridge Order number: 192301
    - Package size: 400ml/sausage Order number: 192304
    - Package size: 600ml/sausage Order number: 192306

#### 1925UV Polyurethane Sealants
- **Polyurethane Sealants (General Purpose)**
  - Black color, single component, moisture curing, good flexibility, excellent UV resistance, water proof and anti-aging resistance. Suitable for sealing of vehicle glass and window frame, and the exposure parts.
  - Package size: 600ml / sausage
  - Order number: 19250206 black
  - Order number: 19250306 grey
  - Order number: 19250406 white

#### 1726 Polyurethane Cleaner
- **Polyurethane Cleaner**
  - Alcoholic solution, improve the bonding strength between TONSAN Polyurethane Adhesives and the substances. Remove the oil of the bonding surface before using. Suitable for cleaning metal, synthetic material, glass and painted surface. (Note: This product will darken the paint surface, please pre-test before using.)
  - Package size: 500ml/bottle Order number: 175601

#### 1771 Metal Bonding Primer
- **Metal Bonding Primer**
  - Low viscosity, light yellow color, transparent liquid. Suitable for pre-treatment of metal, plastic and painted surface to improve bonding strength.
  - Package size: 250ml/bottle Order number: 176101

#### 1762 Glass Bonding Primer
- **Glass Bonding Primer**
  - A black thick-liquid. It is used to improve bonding strength between TONSAN PU sealants, glass and ceramic. Suitable for pre-treatment of vehicle assembly, such as windshield, side glass bonding. (Note: Please shake evenly before using)
  - Package size: 250ml/bottle Order number: 17621202
## Physical Properties

<table>
<thead>
<tr>
<th>Product code</th>
<th>Color</th>
<th>Specific gravity (g/cm³)</th>
<th>Tack-free time (min)</th>
<th>Cure speed (mm)</th>
<th>Elongation at break (%)</th>
<th>Tensile strength (MPa)</th>
<th>Shear strength (MPa)</th>
<th>Hardness (Shore A)</th>
<th>Temperature range (°C)</th>
<th>Test condition: temperature 23±2 °C, Relative humidity 50±5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1924</td>
<td>White Black Grey</td>
<td>1.20</td>
<td>30 – 60</td>
<td>4mm/24h</td>
<td>600</td>
<td>2.6</td>
<td>2.21</td>
<td>50</td>
<td>-40 – 90 Short-term 120</td>
<td></td>
</tr>
<tr>
<td>1925UV</td>
<td>Black</td>
<td>1.28</td>
<td>30 – 60</td>
<td>3mm/24h</td>
<td>400</td>
<td>2</td>
<td>1</td>
<td>42</td>
<td>-40 – 90 Short-term 120</td>
<td></td>
</tr>
<tr>
<td>1956</td>
<td>Black</td>
<td>1.24</td>
<td>30 – 60</td>
<td>4mm/24h</td>
<td>500</td>
<td>8.0</td>
<td>4.0</td>
<td>55</td>
<td>-40 – 90 Short-term 140</td>
<td></td>
</tr>
</tbody>
</table>

Side Glass Bonding

Rear Glass Seaming

Coach Glass Seaming
**Modified Silane Sealants & Adhesives**

TONSAN Modified Sealants and Adhesives demonstrate good adhesion without primer to various substances. They are widely used for elastic bonding and sealing applications where high strength and weather resistance are required.

**Properties**

- Low odor
- No primer needed
- Excellent aging and UV resistance
- No mildew
- Paintable

<table>
<thead>
<tr>
<th>Modified Silane Sealants and Adhesives</th>
<th>STP1921</th>
<th>Modified Silane Sealants</th>
<th>STP1920</th>
</tr>
</thead>
</table>
| STP1921 White, grey and black color, single component, suitable for elastic sealing of vehicle, vessel and engineering machinery assembly. | **White color package size:**
Package size: 310ml/cartridge
Order number: 192141
Package size: 400ml/sausage
Order number: 192144
Package size: 600ml/sausage
Order number: 192146
| **White and black color, single component, moisture curing, low viscosity, flowable. Suitable for elastic sealing of fiberglass, plywood, teakwood, metal, metal primer and paint, etc.** | **Black color package size:**
Package size: 310ml/cartridge
Order number: 192151
Package size: 400ml/sausage
Order number: 192154
Package size: 600ml/sausage
Order number: 192156 |

**STP1920**

**Black color package size:**
Package size: 600ml/sausage
Order number: 1920506
MS1937 Modified Silane Sealants And Adhesives
White, grey and black color, single component, fast curing, high module. Suitable for bonding and sealing in bus, train, truck, vessel, container and ventilation system assembly.
White color package size:
- Package size: 430g/cartridge, Order number: 193701
- Package size: 400ml/sausage, Order number: 193704
- Package size: 600ml/sausage, Order number: 193706
Black color package size:
- Package size: 430g/cartridge, Order number: 193711
- Package size: 400ml/sausage, Order number: 193714
- Package size: 600ml/sausage, Order number: 193716
Grey color package size:
- Package size: 430g/cartridge, Order number: 193721
- Package size: 400ml/sausage, Order number: 193724
- Package size: 600ml/sausage, Order number: 193726

MS1937S Modified Silane Sealants And Adhesives
White and black color, single component, moisture curing, high module. With outstanding adhesion to many kinds of substrates. Long tack free time, meet the demand of long operation time working condition and high temperature in summer season.
White color package size:
- Package size: 600ml/sausage, Order number: 19379006
Black color package size:
- Package size: 600ml/sausage, Order number: 19379106

MS1939FR Modified Silane Sealants And Adhesives
Black color, single component, high elasticity, flame retardant type. Suitable for sealing and bonding where flame retardant is required, such as rail vehicle and elevator etc.
Package size: 400ml/sausage, Order number: 193914
Package size: 600ml/sausage, Order number: 193916

Physical Properties

<table>
<thead>
<tr>
<th>Product code</th>
<th>Color</th>
<th>Specific gravity (g/cm³)</th>
<th>Tack free time (min)</th>
<th>Cure speed (mm)</th>
<th>Elongation at break (%)</th>
<th>Tensile strength (MPa)</th>
<th>Shear strength (MPa)</th>
<th>Hardness (Shore A)</th>
<th>Temperature range (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>STP1920</td>
<td>White Black</td>
<td>1.33</td>
<td>60 – 90</td>
<td>3mm/24h</td>
<td>200</td>
<td>1.2</td>
<td>0.8</td>
<td>35</td>
<td>-50 ~ 90</td>
</tr>
<tr>
<td>STP1921</td>
<td>White Black Grey</td>
<td>1.45</td>
<td>20 – 30</td>
<td>3mm/24h</td>
<td>350</td>
<td>1.8</td>
<td>1.2</td>
<td>40</td>
<td>-50 ~ 90</td>
</tr>
<tr>
<td>MS1937</td>
<td>White Black Grey</td>
<td>1.45</td>
<td>5 – 20</td>
<td>4mm/24h</td>
<td>200</td>
<td>3.0</td>
<td>2.3</td>
<td>55</td>
<td>-40 ~ 100</td>
</tr>
<tr>
<td>MS1937S</td>
<td>White Black</td>
<td>1.45</td>
<td>20 – 40</td>
<td>4mm/24h</td>
<td>300</td>
<td>2.8</td>
<td>2.0</td>
<td>55</td>
<td>-40 ~ 100</td>
</tr>
<tr>
<td>MS1939FR</td>
<td>Black</td>
<td>1.45</td>
<td>5 – 20</td>
<td>4mm/24h</td>
<td>180</td>
<td>3.0</td>
<td>2.0</td>
<td>52</td>
<td>-40 ~ 100</td>
</tr>
</tbody>
</table>

Test condition: temperature 23±2 °C; Relative humidity 50±5%
Cyanoacrylate Adhesives

TONSAN Cyanoacrylate Adhesives are new generation products of α-Cyanoacrylate. Quick fixture and suitable for bonding various substances such as metal, rubber, plastic, glass, feather, and ceramic.

Properties

- Fast curing in seconds
- Single component, easy to operate
- High strength
- Suitable for bonding various substances
- Low odor, low blooming
- Good temperature resistance

**1401 Instant Adhesive (Fast Curing)**
Transparent. Medium viscosity, high strength, fast curing. Suitable for bonding various substances surfaces, especially for the inert and acid surfaces such as rubber, leather, wood, plywood and card board and cork wood.
Package size: 20g/bottle Order number: 14010202

**1406 Instant Adhesive (Toughened)**
Transparent. Low viscosity, high strength, fast curing. Suitable for bonding various substances surface, especially for the difficult-to-bond rubber and plastic surfaces such as loudspeaker parts, lamp shade, plastic electric fan, plastic motor shell, and rubber O-ring.
Package size: 20g/bottle Order number: 14062202

**1414 Instant Adhesive (Humidity Resistance)**
Transparent. Medium viscosity, fast curing, humidity resistance and good weather resistance. Suitable for bonding materials such as plastic, rubber, ceramic.
Package size: 20g/bottle Order number: 141411

**1420 Instant Adhesive (General Purpose)**
Transparent. General purpose with low viscosity and fast curing. Used for bonding penetrated plastic and rubber.
Package size: 20g/bottle Order number: 142001
1454 Instant Adhesive (For Large Gap)
Transparent. Paste, not flow, high strength, vertical
surface bonding. Suitable for various substances such
as inert, porous, acid, and absorbing materials,
especially for bonding large gap or roughened surfaces.
Package size: 20g/pc          Order number: 145401

1495 Instant Adhesive (Peeling Resistance)
Transparent. Medium viscosity, good peeling
resistance. Suitable for bonding rubber, metal and
plastic.
Package size: 20g/bottle      Order number: 14950202

1382 Instant Adhesive (Electronic Bonding)
Transparent. High viscosity, high strength, high
temperature resistance. Suitable for bonding and
fixure of electronic products, such as jumper wire
fixing.
Package size: 20g/bottle      Order number: 138201

1480 Instant Adhesive (Impact and Vibration
Resistance)
Black color, medium viscosity, excellent impact
resistance, vibration resistance, peeling resistance,
and heat resistance.
Package size: 20g/bottle      Order number: 148001

1460 Instant Adhesive (Low odor)
Transparent. Medium viscosity for bonding instrument,
electronics, art craft rubber and plastic components.
The bonded components are clean and artistic.
Suitable for applying in conditioner or closed room.
Package size: 20g/bottle      Order number: 146001

1415 Instant Adhesive (Metal Bonding)
Transparent. High viscosity, high strength, medium
curing speed, adjustable after bonding. Suitable for
bonding and filling gaps of metals. Persistence high
strength, good medium resistance.
Package size: 20g/bottle      Order number: 141501

1496 Instant Adhesive (Metal Bonding)
Transparent. Medium viscosity, especially for fast
bonding between metals, or metal with other
materials.
Package size: 20g/bottle      Order number: 149601

1745 Instant Adhesive Activator
Applied for shorten curing time of TONSAN
cyanoacrylate adhesives. It can be either pre or post
applied. Post-applied is preferred.
Package size: 250ml/bottle    Order number: 174501
Package size: 50ml/bottle     Order number: 174502
(Brush painting/spray painting)

1768 Cyanoacrylate Remover
A solvent suitable for clearing and resolving redundant
cured cyanoacrylate adhesives.
Package size: 250g/bottle     Order number: 176801

1770 Cyanoacrylate Primer
Used for the treatment of difficult-to- bond materials,
such as polypropylene, polyethylene, PTFE.
Package size: 20ml/bottle     Order number: 177001
Package size: 50ml/bottle     Order number: 177004
(Brush painting/spray painting)
# Cyanoacrylate Adhesives

## Physical Properties

<table>
<thead>
<tr>
<th>Product code</th>
<th>Color</th>
<th>Viscosity (mPa·s)</th>
<th>Gap fill (mm)</th>
<th>Shear strength steel-steel (MPa)</th>
<th>Fixture time (s)</th>
<th>Fully cure time (h)</th>
<th>Temperature range (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1382</td>
<td>Transparent</td>
<td>5000</td>
<td>0.20</td>
<td>22.0</td>
<td>40</td>
<td>24</td>
<td>-50 ~ 120</td>
</tr>
<tr>
<td>1401</td>
<td>Transparent</td>
<td>110</td>
<td>0.10</td>
<td>21.0</td>
<td>15</td>
<td>24</td>
<td>-50 ~ 120</td>
</tr>
<tr>
<td>1406</td>
<td>Transparent</td>
<td>20</td>
<td>0.10</td>
<td>20.0</td>
<td>10</td>
<td>24</td>
<td>-50 ~ 120</td>
</tr>
<tr>
<td>1414</td>
<td>Transparent</td>
<td>110</td>
<td>0.15</td>
<td>20.0</td>
<td>25</td>
<td>24</td>
<td>-50 ~ 80</td>
</tr>
<tr>
<td>1415</td>
<td>Transparent</td>
<td>1200</td>
<td>0.20</td>
<td>23.0</td>
<td>60</td>
<td>24</td>
<td>-50 ~ 80</td>
</tr>
<tr>
<td>1420</td>
<td>Transparent</td>
<td>5</td>
<td>0.05</td>
<td>20.0</td>
<td>30</td>
<td>24</td>
<td>-50 ~ 80</td>
</tr>
<tr>
<td>1454</td>
<td>Transparent</td>
<td>Paste</td>
<td>0.25</td>
<td>22.0</td>
<td>20</td>
<td>24</td>
<td>-50 ~ 80</td>
</tr>
<tr>
<td>1460</td>
<td>Transparent</td>
<td>80</td>
<td>0.10</td>
<td>18.0</td>
<td>60</td>
<td>24</td>
<td>-50 ~ 70</td>
</tr>
<tr>
<td>1480</td>
<td>Black</td>
<td>300</td>
<td>0.15</td>
<td>20.0</td>
<td>120</td>
<td>24</td>
<td>-50 ~ 100</td>
</tr>
<tr>
<td>1495</td>
<td>Transparent</td>
<td>45</td>
<td>0.10</td>
<td>20.0</td>
<td>30</td>
<td>24</td>
<td>-50 ~ 120</td>
</tr>
<tr>
<td>1496</td>
<td>Transparent</td>
<td>125</td>
<td>0.15</td>
<td>21.0</td>
<td>40</td>
<td>24</td>
<td>-50 ~ 80</td>
</tr>
</tbody>
</table>

Test condition: temperature 23±2 °C; Relative humidity 50±5%
UV Cure Adhesives

TONSAN UV Cure Adhesives are single component, which can cure in seconds when exposed to UV light (300nm-400nm). Widely used for bonding, coating and sealing of electronic, medical instruments, arts craft, optical instruments and glass furniture.

Properties

- Single component
- Easy to operate
- Fast curing when exposed to UV light
- Low odor, solvent free
- Colorless and transparent layer

**1866 UV Cure Adhesive**
(Medium Viscosity, High Strength)
Transparent. Medium viscosity, fast curing. Specialized for small scale bonding of glass arts and crafts. Can be used for other kinds of materials as well.
Package size: 250g/bottle Order number: 186605

**1868 UV Cure Adhesive**
(Low Viscosity, High Strength)
Transparent. Low viscosity, fast curing. Specialized for large scale bonding of glass arts and crafts. Can be used for other materials as well.
Package size: 250g/bottle Order number: 186805

**Physical Properties**

<table>
<thead>
<tr>
<th>Product code</th>
<th>Color</th>
<th>Viscosity (mPa·s)</th>
<th>Cure speed (s)</th>
<th>Compressive shear strength (MPa)</th>
<th>Hardness (Shore D)</th>
<th>Temperature range (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1866</td>
<td>Transparent</td>
<td>800</td>
<td>3</td>
<td>20</td>
<td>75</td>
<td>-30 – 150</td>
</tr>
<tr>
<td>1868</td>
<td>Transparent</td>
<td>80</td>
<td>3</td>
<td>20</td>
<td>80</td>
<td>-30 – 150</td>
</tr>
</tbody>
</table>
Metal Rebuilding Putty

TONSAN metal rebuilding putty are epoxy material reinforced by metal and alloy. Suitable for repairing and sealing the slag blowholes, shrinkage cavity, sand hole and cracks in casting of iron, steel, cooper and aluminum.

Properties

- Erosion resistance
- High combination strength with metals
- No curing shrinkage
- Good construction performance, basically the same color with rebuilt substrate
- Conform to JB/T 10283-2008 Construction machinery—Engineering repair putty—Application technical specifications

TS101  Casting Defect Rebuilding Putty  (Big Size Defect)
Grey color. Double components, putty, general purpose. Used for repairing and restoring blowholes, shrinkage cavity, sand holes and cracks in castings with defect size over 2mm. Able to apply under low temperature and humidity.
Package size: 500g/set      Order number: 210101

TS102  Casting Defect Rebuilding Putty  (Small Size Defect)
Grey color. Double components, flowable. Used for repairing and restoring blowholes, shrinkage cavity, sand hole and cracks in castings with defect size smaller than 2mm.
Package size: 250g/set      Order number: 210201
**TS2111 Super Metal Rebuilding Putty**
Grey color. Double components, putty, high strength, good comprehensive mechanical performance. Available to use in winter. Apply to repair the blowholes, shrinkage cavity, sand hole and cracks in castings, and repair the worn, corroded, cracked components.
Package size: 500g/set  
Order number: 211101

**TS111 Iron Putty**
Double components, putty. Suitable for repairing and restoring of blowholes, shrinkage cavity, sand holes and cracks in cast iron parts.
Package size: 500g/set  
Order number: 011101

**TS112 Steel Putty**
Double components, putty. Steel-reinforced epoxy with excellent mechanical performances. Suitable for repairing the abrasion, scratch, corrosion and cracks of steel parts.
Package size: 500g/set  
Order number: 011201

**TS113 Aluminum Putty**
Double components, putty. Aluminum-filled epoxy putty. Suitable for repairing the defects of cast aluminum parts.
Package size: 250g/set  
Order number: 011301

**TS114 Copper Putty**
Double components, putty, copper-filled epoxy. Suitable for rebuilding copper bushings, shafts, castings and defected parts.
Package size: 250g/set  
Order number: 011401

**TS121 Penetrator - High Penetration**
Green color. Single component, flowable, low viscosity with high strength and excellent sealing performance. Suitable for sealing shrinkage porosity and micro-shrinkage in alloy castings. No requirement for heating and pressure.
Package size: 50ml/bottle  
Order number: 012101
Package size: 250ml/bottle  
Order number: 012105

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Flange Repairing  
Pulley Repairing  
Pressure Vessel Repairing
# Metal Rebuilding Putty

## Physical Properties

| Product code | Color | Specific gravity (g/cm³) | Mix ratio by weight (A:B) | Mix ratio by volume (A:B) | Working time (min) | Compressive strength (MPa) | Tensile strength (MPa) | Shear strength (MPa) | Flexural strength (MPa) | Hardness (Shore D) | Cured time for machining (%) | Temperature range (°C) |
|--------------|-------|--------------------------|---------------------------|---------------------------|-------------------|--------------------------|----------------------|---------------------|------------------------|----------------|
| TS101        | Grey  | 1.65                     | 2 : 1                     | 2 : 1                     | 60                | 98.0                     | 38.0                 | 20.0                | 65.0                   | 80              | 18                         | -60 ~ 120           |
| TS102        | Grey  | 1.43                     | 2 : 1                     | 2 : 1                     | 60                | 95.0                     | 35.0                 | 20.0                | 67.0                   | 80              | 18                         | -60 ~ 120           |
| TS111        | Cast iron | 1.62            | 7 : 1                     | 4 : 1                     | 60                | 110.0                    | 42.0                 | 20.0                | 70.0                   | 82              | 24                         | -60 ~ 160           |
| TS112        | Steel | 1.68                     | 7 : 1                     | 4 : 1                     | 60                | 106.5                    | 35.0                 | 19.0                | 58.0                   | 80              | 24                         | -60 ~ 160           |
| TS113        | Aluminium | 1.41              | 6 : 1                     | 4.5 : 1                   | 60                | 99.6                     | 41.0                 | 20.0                | 55.0                   | 80              | 36                         | -60 ~ 160           |
| TS114        | Brass | 1.53                     | 6 : 1                     | 4 : 1                     | 80                | 100.0                    | 40.0                 | 21.0                | 56.0                   | 81              | 24                         | -60 ~ 160           |
| TS121        | Green | 1.08                     | Single component          | -                         | -                 | 109.0                    | -                    | 12.0 (Static shear) | -                      | -               | -                          | -60 ~ 150           |
| TS2111       | Grey  | 1.97                     | 7 : 1                     | 5 : 1                     | 70                | 170.0                    | 54.0                 | 21.0                | 77.0                   | 85              | 24                         | -60 ~ 160           |

Test condition: temperature 23±2 °C; Relative humidity 50±5%

* When the temperature is below 15 °C, some heating measures should be adopted; or the relevant curing time should be extended
** When mix volume is more than 200g, the working time will be shorter
*** Above data is typical

## Adhesive Volume

<table>
<thead>
<tr>
<th>Product code</th>
<th>TS101</th>
<th>TS102</th>
<th>TS111</th>
<th>TS112</th>
<th>TS113</th>
<th>TS114</th>
<th>TS121</th>
<th>TS2111</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard package</td>
<td>500g/set</td>
<td>250g/set</td>
<td>500g/set</td>
<td>500g/set</td>
<td>250g/set</td>
<td>250g/set</td>
<td>50ml/bottle</td>
<td>500g/set</td>
</tr>
<tr>
<td>Volume (g/cm³)</td>
<td>303</td>
<td>175</td>
<td>309</td>
<td>298</td>
<td>177</td>
<td>163</td>
<td>50</td>
<td>254</td>
</tr>
</tbody>
</table>


Abrasion Resistance Compounds

Polymerized ceramic polymer technical is adopted by TONSAN Abrasion Resistance Compounds to supply engineering solutions for anti-abrasion under different conditions.

Properties

- Suitable for powder, fine particles, and big particles conditions
- Great combination between coating and substrate
- High anti-abrasion property
- Extending maintenance period, reduce shrinkage
- Easy operation, reduce shut-down time
**Abrasion Resistance Compounds**

**TS215 Abrasion Resistance Rebuilding Putty (Super Abrasion Resistance)**
Black color. Double components, titanium alloy-reinforced epoxy putty with high hardness metallic carbide materials. The relative abrasion resistance is 2-3 times stronger than medium carbon steel. Excellent pressure and impact tolerance. Apply to repair of axels, axle holes, multiple keys and keyways.
Package size: 500g/set  Order number: 221501

**TS228 Abrasion Resistant Coating (Hard Sliding)**
Grey color. Double components. Reinforce epoxy filled with large ceramic beads and fine alumina carbide filled epoxy for maximum protection against hard sliding abrasion, such as screen, slurry pump, sorting machine and screw conveyors.
Package size: 2kg/set  Order number: 222806
Package size: 10kg/set  Order number: 222802

**TS216 Abrasion Resistance Rebuilding Putty (Powder Wear and Gas Erosion Resistance)**
Package size: 500g/set  Order number: 221601
Package size: 10kg/set  Order number: 221603

**TS236 Fast-curing Wear Resistant Coating (Low Temperature Fast-curing)**
Package size: 500g/set  Order number: 023601
Package size: 10kg/set  Order number: 023602

**TS218 Anti-abrasion Putty (Medium Particle Compound)**
Grey color. Double components. Reinforce epoxy filled with ceramic beads and silicon carbide. For rebuilding and protecting equipment worn by big articles, such as pipe, pump housing, impeller and so on.
Package size: 500g/set  Order number: 221801

**TS238 Fast-curing Wear Resistant Coating (Low Temperature Fast-curing)**
Package size: 10kg/set  Order number: 023802
Package size: 500g/set  Order number: 023801

**TS226 Abrasion Resistant Coating (Fine Particle Compound)**
Grey color. Double components. Micro-alumina ceramic bead filled epoxy. Renewes worn surfaces fast, reducing downtime to put equipments back in service. For rebuilding and protecting equipments worn by fine particles, such as scrubbers, ash handling systems, pipe elbows and chutes.
Package size: 2kg/set  Order number: 222606
Package size: 10kg/set  Order number: 22260302

**TS246 High temperature Wear Resistance Coating**
Double components. Super hard ceramic and wear resistance fine filler epoxy. Designed for abrasion resistance at high temperature up to 250 °C.
Package size: 500g/set  Order number: 024601
Package size: 10kg/set  Order number: 024605

---

Chute Repairing  
Coal Feeder Side Panel Repairing  
Anti-abrasion Coating
**Physical Properties**

<table>
<thead>
<tr>
<th>Product code</th>
<th>Color</th>
<th>Specific gravity (g/cm³)</th>
<th>Mix ratio by weight (A:B)</th>
<th>Mix ratio by volume (A:B)</th>
<th>Working time (min)</th>
<th>Compressive strength (MPa)</th>
<th>Tensile strength (MPa)</th>
<th>Shear strength (MPa)</th>
<th>Flexural strength (MPa)</th>
<th>Fully cured time (h)</th>
<th>Temperature range (ºC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS215</td>
<td>Black</td>
<td>1.85</td>
<td>6 : 1</td>
<td>4 : 1</td>
<td>65</td>
<td>125.0</td>
<td>36.0</td>
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<td>75.0</td>
<td>24</td>
<td>-60 ~ 150</td>
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<tr>
<td>TS216</td>
<td>Grey</td>
<td>2.43</td>
<td>8 : 1</td>
<td>4 : 1</td>
<td>65</td>
<td>112.0</td>
<td>32.0</td>
<td>14.0</td>
<td>45.0</td>
<td>24</td>
<td>-60 ~ 160</td>
</tr>
<tr>
<td>TS218</td>
<td>Grey</td>
<td>2.43</td>
<td>8 : 1</td>
<td>4 : 1</td>
<td>65</td>
<td>115.0</td>
<td>30.0</td>
<td>6.0</td>
<td>73.0</td>
<td>24</td>
<td>-60 ~ 160</td>
</tr>
<tr>
<td>TS226</td>
<td>Grey</td>
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<td>4 : 1</td>
<td>3.5 : 1</td>
<td>80</td>
<td>95.0</td>
<td>30.0</td>
<td>10.0</td>
<td>62.0</td>
<td>24</td>
<td>-60 ~ 160</td>
</tr>
<tr>
<td>TS228</td>
<td>Grey</td>
<td>2.37</td>
<td>3 : 1</td>
<td>2.8 : 1</td>
<td>80</td>
<td>97.0</td>
<td>25.0</td>
<td>5.0</td>
<td>60.0</td>
<td>24</td>
<td>-60 ~ 160</td>
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<td>Grey</td>
<td>1.84</td>
<td>2.5 : 1</td>
<td>2.2 : 1</td>
<td>30</td>
<td>87.0</td>
<td>36.0</td>
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<td>42.0</td>
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<td>-60 ~ 120</td>
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<td>TS238</td>
<td>Grey</td>
<td>2.15</td>
<td>2.3 : 1</td>
<td>2 : 1</td>
<td>30</td>
<td>86.0</td>
<td>-</td>
<td>-</td>
<td>53.4</td>
<td>18</td>
<td>-60 ~ 120</td>
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<tr>
<td>TS246</td>
<td>Black</td>
<td>2.29</td>
<td>2.2 : 1</td>
<td>2.2 : 1</td>
<td>180</td>
<td>120.0</td>
<td>38.0</td>
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<td>-25 ~ 250</td>
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<td>TS256</td>
<td>White</td>
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<td>4.5 : 1</td>
<td>3 : 1</td>
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<td>36.0</td>
<td>28.0</td>
<td>-</td>
<td>24</td>
<td>-60 ~ 100</td>
</tr>
</tbody>
</table>

Test condition: temperature 23±2 ºC; Relative humidity 50±5%
* When the temperature is below 15 ºC, some heating measures should be adopted, or the relevant curing time should be extended
** When mix volume is more than 200g, the working time will be shorter
*** Above data is typical
Low Friction Coating & Fixture Potting

TONSAN Low Friction Coatings and Fixture potting materials are based on specially formulated epoxy resins with the finest filler combinations. Suitable for coating and fixture of slide fitting surfaces.

Properties

- Magnify the joint area between rail surface and substrate
- Self-lubricated
- Good creeping resistance
- High strength combination with metals, excellent impact resistance
- Low shrinkage rate
- Conform to JB/T3578-2007 General technical rules for epoxy coating material on sliding lead-rail
- Conform to JB/T3579-2007 General specification rules for epoxy coating sliding lead-rail

**TS311 Low Friction Rebuilding Putty**
Black color. Double components, putty, unique low friction epoxy, encapsulated with blend of lubricating and abrasion resistant fillers. With excellent self-lubrication and abrasion resistance after curing. Recommended for rebuilding scored slid rail, gouged hydraulic rams and loose bearing housings.
Package size: 500g/set   Order number: 231101

**TS312 Low Friction Coating**
Dark grey. Double components, low viscosity, good fluid ability, self-lubrication. Can be machined after curing. Suitable for making scored slid ways, gouged hydraulic rams and loose bearing housings with the method of rubber injecting.
Package size: 400g/set   Order number: 231221
Package size: 1kg/set   Order number: 231222

**TS316 Low Friction Coating**
Dark grey. Double components, medium viscosity, non-flagging epoxy compound modified with lubrication and abrasion resistant fillers. Good adhesion to metals, wear resistant and high dimensional stability. Recommended for duplicate-in-place slide rail coating for large and heavy machineries.
Package size: 6kg/set   Order number: 231601
Package size: 1kg/set   Order number: 231602

**TS353 High Strength Fixture Coating**
Grey color. Double components, flowable, high pressure resistance. A pourable epoxy compound that cures at room temperature form an extremely tough and durable solid. Reach high precision without machining. Apply to highly precision assembly of bearing elements, bushings, ping guides and machine parts.
Package size: 500g/set   Order number: 035301
**Physical Properties**

<table>
<thead>
<tr>
<th>Product code</th>
<th>Color</th>
<th>Specific gravity (g/cm³)</th>
<th>Mix ratio by weight</th>
<th>Compressive strength (MPa)</th>
<th>Shear strength (MPa)</th>
<th>Hardness (Shore D)</th>
<th>Friction coefficient</th>
<th>Friction width (mm)</th>
<th>Friction rate (mm³/N·m)</th>
<th>Cured time for machining (h)</th>
<th>Temperature range (°C)</th>
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</thead>
<tbody>
<tr>
<td>TS311</td>
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<td>5 : 1</td>
<td>40 ~ 70</td>
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<td>21.0</td>
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<td>0.030</td>
<td>1.68</td>
<td>2.4x10⁻⁸</td>
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<tr>
<td>TS312</td>
<td>Dark grey</td>
<td>1.34</td>
<td>9 : 1</td>
<td>50 ~ 70</td>
<td>100.0</td>
<td>21.0</td>
<td>80</td>
<td>0.019</td>
<td>1.60</td>
<td>4.79x10⁻⁸</td>
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<td>TS316</td>
<td>Dark grey</td>
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<td>7 : 1</td>
<td>50 ~ 70</td>
<td>98.0</td>
<td>20.0</td>
<td>81</td>
<td>0.032</td>
<td>1.80</td>
<td>1.42x10⁻⁸</td>
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<td>Grey</td>
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<td>60 ~ 90</td>
<td>150.0</td>
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<td>-</td>
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<td>12 : 1</td>
<td>60 ~ 90</td>
<td>120.0</td>
<td>18.0</td>
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<td>10 ~ 20</td>
<td>115.0</td>
<td>20.0</td>
<td>80</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>12</td>
</tr>
</tbody>
</table>

Test condition: temperature 23±2 °C; Relative humidity 50±5%
* When the temperature is below 15 °C, some heating measures should be adopted, or the relevant curing time should be extended
** When mix volume is more than 200g, the working time will be shorter
*** Above data is typical

**Adhesive Volume**

<table>
<thead>
<tr>
<th>Product code</th>
<th>TS311</th>
<th>TS312</th>
<th>TS316</th>
<th>TS353</th>
<th>TS355</th>
<th>TS356</th>
<th>TS99</th>
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<tbody>
<tr>
<td>Standard package</td>
<td>500g/set</td>
<td>400g/set</td>
<td>6kg/set</td>
<td>500g/set</td>
<td>500g/set</td>
<td>8kg/set</td>
<td>20kg/set</td>
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<tr>
<td>Volume (g/cm³)</td>
<td>312</td>
<td>299</td>
<td>3922</td>
<td>250</td>
<td>263</td>
<td>4500</td>
<td>11429</td>
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</tbody>
</table>
Erosion Resistant Polymers

By combining a unique blend of inorganic chemical resistant reinforcing agents with a radically new, densely crosslinked polymer, TONSAN Erosion Resistant Polymers show excellent resistance to various acids, solvents and alkalis. Provide outstanding protection for metal surfaces subjected to erosions.

Properties

- Wide range chemical resistance
- Easy to operate, brushable and paintable
- Penetration resistance, no falling off
- Smooth surface, good erosion and gas erosion resistance

TS406 Erosion Resistance Coating
Green color. Double components, low viscosity, brushing, excellent acid and alkaline resistance. Designed for rebuilding corroded pumps, valves, fans, heat exchanger, tanks and vessels.
Package size: 500g/set  Order number: 240601

TS416 Erosion Resistance Putty
Black color. Double components, putty, excellent acid and alkaline resistance. Designed for rebuilding corroded pumps, valves, fans, heat exchanger, tanks and vessels.
Package size: 250g/set  Order number: 241601

TS426 Erosion Resistance Coating
Blue color. Double components, low viscosity, brushing, excellent medium resistance. Provides a smooth, protective barrier against erosion and corrosion.
Package size: 6kg/set  Order number: 242601
Package size: 500g/set  Order number: 242603

TS436 Anti-acid Coating
Black color. Double components, excellent acid resistance. Suitable for repairing erosion/corrosion of electrolyzer, water treating system, oil tanks.
Package size: 500g/set  Order number: 243602

TS476 Impact And Erosion Resistance Coating
Blue color. Double components, low viscosity, brushing. Using the epoxy toughening technology. Suitable for being used under the condition of vibration, temperature-alternating or impact.
Package size: 500g/set  Order number: 24760202

TS496 Anti-inorganic Acid Coating
Dark blue. Double components, good inorganic acid resistance ability, with excellent corrosion resistance to dilute and some dense acid, 100% solid content and environment friendly coating.
Package size: 500g/set  Order number: 049601
Physical Properties

<table>
<thead>
<tr>
<th>Product code</th>
<th>Color</th>
<th>Specific gravity (g/cm³)</th>
<th>Mix ratio by weight (A:B)</th>
<th>Mix ratio by volume (A:B)</th>
<th>Working time (min)</th>
<th>Compressive strength (MPa)</th>
<th>Tensile strength (MPa)</th>
<th>Shear strength (MPa)</th>
<th>Flexural strength (MPa)</th>
<th>Hardness (Shore D)</th>
<th>Cured time for operation (h)</th>
<th>Temperature range (℃)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS406</td>
<td>Green</td>
<td>1.68</td>
<td>5 : 1</td>
<td>4 : 1</td>
<td>30 ~ 45</td>
<td>110.0</td>
<td>47.0</td>
<td>19.0</td>
<td>61.0</td>
<td>76</td>
<td>72</td>
<td>-60 ~ 150</td>
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<tr>
<td>TS416</td>
<td>Black</td>
<td>1.63</td>
<td>5 : 1</td>
<td>4 : 1</td>
<td>30 ~ 45</td>
<td>110.0</td>
<td>44.0</td>
<td>19.0</td>
<td>65.0</td>
<td>80</td>
<td>72</td>
<td>-60 ~ 150</td>
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<td>1.52</td>
<td>5 : 1</td>
<td>3.5 : 1</td>
<td>45 ~ 60</td>
<td>85.0</td>
<td>40.0</td>
<td>20.0</td>
<td>50.0</td>
<td>73</td>
<td>72</td>
<td>-60 ~ 120</td>
</tr>
<tr>
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<td>Black</td>
<td>1.40</td>
<td>10 : 1</td>
<td>11.5 : 1</td>
<td>15 ~ 35</td>
<td>105.0</td>
<td>8.0</td>
<td>15.0</td>
<td>51.0</td>
<td>75</td>
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<td>-60 ~ 150</td>
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<tr>
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<td>Blue</td>
<td>1.54</td>
<td>5 : 1</td>
<td>3.5 : 1</td>
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<td>1.38</td>
<td>3 : 1</td>
<td>2.5 : 1</td>
<td>120</td>
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<td>70.0</td>
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<td>-50 ~ 150</td>
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<td>100.0</td>
<td>65.0</td>
<td>27.0</td>
<td>-</td>
<td>80</td>
<td>96</td>
<td>-50 ~ 150</td>
</tr>
</tbody>
</table>

Test condition: temperature 23±2 ℃; Relative humidity 50±5%  
* When the temperature is below 15 ℃, some heating measures should be adopted; or the relevant curing time should be extended  
** When mix volume is more than 200g, the working time will be shorter  
*** Above data is typical

Chemical Resistance

<table>
<thead>
<tr>
<th>Product code</th>
<th>Acid solution</th>
<th>Alkali solution</th>
<th>Others</th>
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<tbody>
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<td>10% H2SO4</td>
<td>10% NaOH</td>
<td>10% NaCl</td>
</tr>
<tr>
<td>TS406</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>TS416</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>TS426</td>
<td>+</td>
<td>+</td>
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</tr>
<tr>
<td>TS476</td>
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<td>+</td>
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<td>+</td>
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</tr>
<tr>
<td>RC-703</td>
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</tbody>
</table>
Emergency Repair

TONSAN Emergency Repair Products are fast curing and applied for repairing, plugging of leaking pipes, tanks or damaged equipments. It can cure rapidly even under most severe conditions.

Properties

- Suitable for on-site emergency repair and plugging
- Fast curing, suitable for various substances
- Suitable for using in different weather conditions, even under low temperature
- Can be used under conditions with oil or water.

**TS518 Emergency Repair Putty**

Grey color. Double components, putty, high strength and good flexibility, curing in 5 minutes under normal temperature. Suitable for emergency repair of pipes and valves.

Package size: 250g/set  Order number: 251801

**TS528 Emergency Repair Putty**

White color. Double components, suitable for oil surface, fast curing and fixture under low temperature. Applied for emergency repair to electrical transformers, oil tanks, oil pipes and flanges. (Not suitable for copper components repairing)

Package size: 504g/set  Order number: 052801
**Product code** | **Color** | **Specific gravity (g/cm³)** | **Mass ratio by weight (Kg)** | **Mass ratio by volume (Kg)** | **Working time (min)** | **Tensile strength (MPa)** | **Shear strength (MPa)** | **Flexural strength (MPa)** | **Temperature range (°C)**
---|---|---|---|---|---|---|---|---|---
**TS518** | Grey | 1.70 | 1 : 1 | 1 : 1 | 3~5 | - | 7.3/12.0/13.0/- | - | 40~120
**TS528** | White | 1.00 | 1 : 1 | 1 : 1 | 3~5 | 35.0 | 15.8/18.7/-/- | - | -40~120
**TS626** | Brownish red | 1.83 | 8 : 1 | 3.5 : 1 | 5~10 | - | -0.1/1.7/4.4 | 65.0 | -60~150
Fast steel stick | Grey | 2.19 | - | - | 3~5 | - | 12.5 | 33.9 | -60~149

*Test condition: temperature 23±2 °C; Relative humidity 50±5%*

+ When the temperature is below 15 °C, some heating measures should be adopted, or the relevant curing time should be extended

++ When mix volume is more than 200g, the working time will be shorter

+++ Above data is typical
High Temperature Sealing & Repairing

TONSAN High Temperature Sealing and Repairing Putties are poly materials or inorganic materials filled with ceramics and metals. Applied for sealing, repairing and bonding under high temperature.

Properties

- High temperature resistance
- High strength combination with substrates
- Stable temperature resistance for a long time, cater to high temperature working condition
- Suitable for sealing, repairing, bonding with different requirements
TS737 High-temp Repair Putty
Grey color. Double components, high temperature resistance up to 200 °C, high strength retention rate under high temperature for a long time. Designed for rebuilding equipment abrasion, scratch, corrosion at high temperature.
Package size: 250g/ set Order number: 073701

TS747 High-temp Sealing Putty
Brownish red. Double components, a high performance silicone sealant, resists high temperature up to 350 °C. Excellent flexibility, high temperature sealing performance and electric insulation. Applied for sealing or repairing equipment at high temperature.
Package size: 250g/ set Order number: 074701

TS757 High-temp Sealing Putty
Grey color. Double components, high sealing performance polymer compounds, resists high temperature up to 300 °C. Formulated for sealing or repairing of oil, steam, acid and alkali equipment.
Package size: 500g/ set Order number: 075701

TS767 High-temp Putty
Greyish white. Double components, an inorganic ceramic putty resists high temperature up to 1200 °C. Recommended for repairing of metal, ceramic in high temperature, such as high-temp pad, steel mold or others.
Package size: 250g/ set Order number: 076701

<table>
<thead>
<tr>
<th>Physical Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product code</strong></td>
</tr>
<tr>
<td>TS737</td>
</tr>
<tr>
<td>TS747</td>
</tr>
<tr>
<td>TS757</td>
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<td>TS767</td>
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</table>

Test condition: temperature 23±2 °C; Relative humidity 50±5%
* When the temperature is below 15 °C, some heating measures should be adopted, or the relevant curing time should be extended
** When mix volume is more than 200g, the working time will be shorter
*** Above data is typical
Rubber Bonding & Repairing

TONSAN Rubber Bonding and Repairing products are designed to bond conveyor belts, with good performance after curing. Curing fast at room temperature with high initial strength.

Properties

- Fast curing, shorten repair time
- High strength bonding
- Peeling strength higher than combination strength between rubber and fabric

**TS801 Conveyor Rubber Bonder**
Yellow green. Double components, high strength, good flexibility adhesive. Applied for self-adhesion or bonding between conveyor, rubber, leather. Peeling strength at bonding area is higher than combination strength between rubber and fabric.

Package size: 550g/set  Order number: 080101
Package size: 1Kg/set  Order number: 080105

**TS808 High Strength Rubber Bonder**
Light green. Double components, excellent flexibility, high initial bonding strength, fast curing, can get high strength in wet environment. Used for conveyor fast bonding.

Package size: 550g/set  Order number: 080801
Package size: 1Kg/set  Order number: 08080503

**TS808FR High Strength Flaming Retardant Rubber Bonder**
Light green. Double components, flaming retardant, high initial bonding strength, excellent flexibility, fast curing. Withstand high temperature heating. Can be used for conveyor bonding under low temperature.

Package size: 605g/set  Order number: 280801

**TS809 High-temp Flaming Retardant Conveyor Rubber Bonder**
Yellow green. Double components, flaming retardant, high initial bonding strength, excellent flexibility. Applied for conveyor belt bonding, repairing and all types of rubber bonding assemblies. Peeling strength at bonding area is higher than combination strength between rubber and fabric.

Package size: 605g/set  Order number: 080901
Package size: 1.1kg/set  Order number: 080905

**TS853 Rubber Metal Bonder**
Black color. Double components, excellent flexibility, high strength, using with product 1753 primer will get better effect. Mainly used for industrial roll plastic bags, and the bonding and self-adhesion of rubber, metal, leather and ceramics.

Package size: 1100g/set  Order number: 08530205

**1753 Rubber Metal Bonding Primer**
One component, viscous liquid. Significantly increase the adhesive strength between TS853 and metal.

Package size: 750g/set  Order number: 17530205
Test condition: temperature 23±2℃; Relative humidity 50±5%  
* When the temperature is below 15℃, some heating measures should be adopted; or the relevant curing time should be extended  
** When mix volume is more than 200g, the working time will be shorter  
*** Above data is typical  
**** Slight color difference won’t affect bonding strength

<table>
<thead>
<tr>
<th>Product code</th>
<th>Color</th>
<th>Specific gravity (g/cm³)</th>
<th>Mix ratio by weight (AB)</th>
<th>Working time (min)</th>
<th>Peel strength (N/cm)</th>
<th>Tensile strength (MPa)</th>
<th>Tear strength (Kg/cm)</th>
<th>Breakdown voltage (KV/mm)</th>
<th>Elongation at break (%)</th>
<th>Cured time for light load (h)</th>
<th>Cured time for full load (h)</th>
<th>Max working temperature (℃)</th>
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<tbody>
<tr>
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<td>28.0</td>
<td>2</td>
<td>4</td>
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<td></td>
</tr>
</tbody>
</table>

TS859 Rubber Repairing Belt  
With EP strengthen layer and A sulfide layer inside, good abrasion resistance and tensile strength, anti-static, suitable for longitudinal scratches, edge damage, and tear of repair for the rubber conveyor belt, and sealing of cold vulcanization for rubber conveyor belt.  
Package size: 880mm*150mm*4.3mm Order number: 08591507  
Package size: 1000mm*150mm*4.3mm Order number: 08591508  
Package size: 1000mm*200mm*4.3mm Order number: 08592208  
Package size: 1000mm*300mm*4.3mm Order number: 08593008

TS866 Hot Vulcanization Core Glue For Fabric Belt  
Suitable for the hot vulcanization bonding of fabric conveyor belt used in metallurgy, mine, port industries.  
Package size: 10kg/roll Order number: 08660202

TS919 High Strength Rubber Rebuilder  
Package size: 500g/ set Order number: 091901

TS919N High Strength Rubber Rebuilder  
Package size: 500g/ set Order number: 091911

TS921 Fast Rubber Rebuilder  
Black color. A double components polyurethane compound. Excellent abrasion resistance, good flexibility. Designed for joint bonding and repairing. It can also be used for bonding and sealing of rubber, metal, glass and concrete.  
Package size: 420g/ set Order number: 092101

1783 Pully Lagging Board  
With CN layer, good adhesive strength, excellent abrasion resistance, suitable for all kinds of roller protection.  
Package size: 10000mm*628mm*12mm Order number: 17830612  
Package size: 10000mm*628mm*15mm Order number: 17830615

1786 Hot Vulcanization Core Glue For Steel Wire Belt  
Suitable for the hot vulcanization bonding of steel wire conveyor belt used in metallurgy, mine, port industries.  
Package size: 10kg/roll Order number: 08670202

1788 Hot Vulcanization Cover Glue  
Used for covering the core glue, good wear and abrasion resistance, suitable for the hot vulcanization bonding of conveyor belt used in metallurgy, mine, port industries.  
Package size: 10kg/roll Order number: 08680302

1781 Tungsten Steel Grinding Disc  
Designed for grinding rubber, to improve the surface roughness, greatly improve the effect of bonding. High grinding speed and is unmatched by ordinary steel wire wheel.  
Package size: 150x22mm K18 Order number: 178101  
Package size: 100x16mm K18 Order number: 178102

1748 Rubber Primer  
Primer specialized for double components polyurethane. It can enhance the bonding strength between Polyurethane rubber reuber and rubber.  
Package size: 100ml/bottle Order number: 174801

1749 Activator  
Activator for TS919 and TS919N rubber reuber, increase the curing speed at low temperature.  
Package size: 50g/bottle Order number: 174901

Physical Properties
Accessories

TONSAN Accessory products can guarantee that TONSAN engineering adhesives demonstrate their best performances, making ideal repairing, bonding, sealing, locking, rust moving and mold releasing.

Properties

- Easy to operate
- Reasonable design
- Convenient storage

1731 **Mould Release Agent**
Specially used for low friction coating, secure that the cured adhesive layer will separate with substrates. Can be sprayed on the surface that needs no bonding to remove remained adhesive.
Package size: 300ml/aerosol can  Order number: 173101

1740 **Rust Remover**
For removing rust on iron and steel. Effectively dissolve the obstinate oxide, sediment and contamination on metal.
Package size: 250g/bottle  Order number: 174001

1750 **Bolt Loosener**
Looses rusty fastener and other retaining components, prevent metal parts from rusting, lubricate mechanical parts and effectively protect metal mold.
Package size: 400ml/aerosol can  Order number: 175001

PR-80 **Rust Preventer**
Provide long-term comprehensive functions such as prevent rust, dissolve rust, dehumidify and lubricate up to 90 days, contain anticorrosion component, can protect metal surface from corrosion.
Package size: 400ml/aerosol can  Order number: 175201

1755EF **High Performance Cleaner (Environment Friendly)**
Environment friendly, no pollution to the atmospheric environment, flameless, effectively clean oil and dirt on the surface, enhance the bonding strength between metal and substrates.
Package size: 400g/aerosol can  Order number: 175501

1755EF **High Performance Cleaner (Low Odor)**
Low odor, easy to volatilize, environment friendly, flameless, can effectively clean oil and dirt on the surface, enhance the bonding strength between metal and substrates.
Package size: 400g/aerosol can  Order number: 1755 1
1767 **Silver-based Anti-seize**
Silver grey, low odor, applied for anti-seizing of metal joint surfaces under high temperature, also prevent galling and corrosion of chains, fasteners, gears and shafts in vessels or oil refineries, especially for stainless steel substance. Operating temperature can reach to 1000°C.
Package size: 230g/bottle (brushable)  Order number: 176711

1769N **Molybdenum Lubricant**
Black. Paste. Molybdenum based lubricant, good extreme pressure performance, great low temperature application performance, can be used for new machine running-in lubricating and bolt lubricating.
Package size: 1kg/set  Order number: 17690302

1771 **Nickel-based Anti-seize**
Grey color, low odor, paste-like primer contents no copper. Applied for anti-seizing, anti-galling and anti-corrosion of chains, fasteners, gears and shafts in vessels or oil refineries, especially for stainless steel substance. Operating temperature can reach to 900°C.
Package size: 230g/bottle  Order number: 177101

1772 **Bolt Lubricant**
Package size: 1kg/set  Order number: 17720202

1790 **Gasket Cleaner**
Removes residual sealant, oil, painting and dirt. No corrosion to metal. Not suitable for plastic and thctic fibre.
Package size: 400ml/ aerosol can  Order number: 179001
Dispensing Equipments

Together with integrate technical solutions, TONSAN also supply matching dispensing tools to increase production efficiencies, assembly reliability.

Properties

- Improve dispensing quality and efficiency
- Reduce labor intensity
- Easy operation
- High precision
Dispensers:

310ml Pneumatic Dispenser For Cartridges
Order number:171102

310ml Handheld Dispenser For Cartridges
Order number:171104

400ml Handheld Dispenser For Double Components Sealant
Order number:171105

50ml Handheld Dispenser For Double Components Sealant
Order number:171106

600ml Pneumatic Dispenser For Sausages
Order number:171110

400ml Pneumatic Dispenser For Sausages
Order number:171123
Tonsan Adhesive, Inc.
Address: 5 Shuangyuan Rd. Badachu High-Tech Zone, 100041, Beijing, China
Tel: +86-10-88795588
Fax: +86-10-68865252

Tonsan Suzhou Adhesive Co., Ltd.
Address: No. 40, Youxiang Road, Wuzhong Economic Development Zone, Suzhou, China
Tel: +86-512-87775588
Fax: +86-512-66551698

www.tonsan.com

Important Notice to Purchaser: The technical parameters provided in the manual will vary with different operating conditions (temperature, humidity, material, etc.), only for reference, not as a product acceptance criteria.