ThreeBond

# 1500 Series

**Volatile Solvent-Type Adhesives / Elastomeric Adhesives /**
**Water-Based Pressure Sensitive Adhesives for Screen Printing**

1500 Series

## Volatile Solvent Type Adhesives

This is a series of single-component, volatile solvent-type adhesives.
They can be used for general bonding to a wide range of substrates such as soft materials like rubber and leather, and rigid materials like plastic and metals.
After curing, they have elasticity so they provide excellent bonding between different types of materials due to the high peel strength.
After applying and letting the solvent vaporize until the stickiness is lost, adhesion strength is acquired immediately when it is clamped.
There is a rubber-based solvent type, water-based acrylic emulsion type, paste-like type that can be used with materials with high penetrability, which are normally difficult to bond, and a low-viscosity type that can be applied using an air gun.


■ Applicable markets

Transportation Equipment | Electrical and Electronics | Industrial Materials and Public Works | Automotive Aftermarket

### 1501

This is a standard type rubber-based adhesive.
It has a long adhesiveness-keeping time after application and becoming tack free, and it has good bonding workability for a large area.
There are products with different colors available.

### 1521

This is a rubber-based adhesive with high initial adhesiveness.

### 1521C

This is a high-viscosity colored type of 1521.
It has excellent padding ability, so dropping does not occur even when applied to a vertical surface.
It is good for bonding weather strip rubber for automobiles, etc., and is good for porous materials with high penetrability, which are difficult to bond.

### 1541C

This is a water-based acrylic emulsion type.
It can be used for polystyrene foams with low organic solvent resistance.

**Property Table**

| Product name | | | 1501 | 1521 | 1521B | 1521C | 1541C |
|---|---|---|---|---|---|---|---|
| Characteristics | | Unit | | | | | |
| Main component | | | Chloroprene rubber Phenolic resin | Chloroprene rubber Phenolic resin | Chloroprene rubber Phenolic resin | Chloroprene rubber Phenolic resin | Acrylic resin-based emulsion |
| Features | | | Long adhesiveness-keeping time | High initial adhesiveness | 1501 Black Long adhesiveness-keeping time | Optimal for materials with high penetrability | Water-based adhesive High initial adhesiveness |
| Appearance | | | Light yellow | Light brown transparent | Black | Black | Milky yellow |
| Viscosity | | Pa•s | 5.0 | 4.2 | 4.7 | Paste | 1.2 |
| Specific gravity | | | 0.89 | 0.87 | 0.88 | 1.13 | 1.00 |
| Solid content (Nonvolatile content) | | % | 25.0 | 26.0 | 27.0 | 60.0 | 54.0 |
| Tack free time | | min | 10 or less | 8 to 10 | 10 or less | 5 | - |
| Adhesiveness-keeping time | | min | 90 or higher | 8 to 30 | 90 or higher | 40 | * Open time 20 (Recommended) |
| Peel strength | Iron / Cotton canvas | kN/m | 4.7 | 5.2 | 4.7 | 1.6 | - |
| | Tin plate / Cotton canvas | kN/m | - | - | - | - | 0.7 |
| | Iron / Soft PVC | kN/m | 15 | 3.7 | 15 | 1.0 | - |
| | Aluminum foil / Soft PVC | kN/m | - | - | - | - | 2.0 |
| | Iron / NBR | kN/m | 2.0 | 3.8 | 2.0 | - | - |
| | Soft PVC / Soft PVC | kN/m | - | - | - | - | - |
| Tensile shear bond strength | ABS | MPa | - | - | - | - | - |
| | Hard PVC | MPa | - | - | - | - | - |
| Operating temperature range (Est.) | | ℃ | -40 to 80 | -40 to 80 | -40 to 80 | -40 to 80 | -40 to 80 |
| Remark(s) (Solvent used) | | | Toluene n-hexane | Toluene n-hexane Ethyl acetate | Toluene n-hexane Ethyl acetate | Toluene | Water Coal tar naphtha Trimethylbenzene |

* - : Unmeasured
* The value listed in the property table is an example of a measured value and is not the guarantee level.
* Before using, confirm the adequacy and safety for the relevant application.

## Elastomeric Adhesives

These are single-component type solventless moisture-curing adhesives.
The curing reaction occurs from the moisture in the air when it is squeezed from the container, and it becomes a rubber-like elastic body.
They have excellent adhesive strength for a wide range of materials including metals, plastics, rubber, wood, and inorganic materials.
After curing, they have elasticity so they provide excellent bonding between different types of materials due to the high peel strength.
The 1530 Series begins to have a strong initial tackiness in just 5 to 10 minutes after application, and temporary adhesion is possible without a jig. Depending on the bonding area, it can reach 1/2 of the final strength (practical strength) after 12 to 24 hours, and it reaches final strength after 3 to 7 days.
The 1532 Series reaches practical strength after 2 days, and reaches final strength after 3 to 7 days, becoming a cured material with a high elongation rate.
There is also a low-viscosity type and a Nonflammable type (certified according to Nonflammable grade).


■ Applicable markets

Transportation Equipment | Electrical and Electronics | Industrial Materials and Public Works | Automotive Aftermarket

**1530 Series**
This is a standard type elastomeric adhesive.
After an open time of 5 to 10 minutes, initial tackiness develops and temporary adhesion is possible without a jig.
It has excellent adhesion strength for a wide range of materials. It is possible to bond with silicone rubber.
There are many variations such as different color tones and different viscosities.
It has a heat resistance of approximately 100°C to 120°C.

**1532 Series**
This is a modified silicone-based elastomeric adhesive.
It forms a cured material with high elongation. Because of its thixotropic properties, it is easy to apply without dropping.
It has excellent adhesion strength with a wide range of materials, and it is also good as a filling adhesion for materials with uneven surfaces.
It has a heat resistance of approximately 80°C for continual use.

**1537 Series**
This elastomeric adhesive is certified according to flammability standard UL94 V-0.
It has small cure shrinkage and excellent adhesion strength for a wide range of materials.
It has a heat resistance of approximately 100°C to 120°C.

**1538B**
It is an elastomeric adhesive that meets special standards.
Certified as UL Standard QOQW2 [Polymeric Adhesive Systems, Rated temperature 80°C].
It has excellent adhesion strength for a wide range of materials. It has a heat resistance of approximately 100°C to 120°C.

**1535 Series**
This is a tin-free elastic adhesive. With an open time of about 3 to 5 minutes, it not only has excellent initial tack, but also has excellent adhesion strength for a wide range of materials.
It has a heat resistance of approximately 100°C to 120°C.

**1539 Series**
This is an elastomeric adhesive that is speedily cured at low temperatures.
Plant-based polymers (Castor oil) are used, so it is an environmentally-friendly adhesive.
It has excellent adhesion strength for a wide range of materials.
It has a heat resistance of approximately 100°C.





## Elastomeric Adhesives
### Property Table

| Characteristics | Unit | 1530 | 1530B | 1530C | 1530D | 1530H | 1530K | 1530P | 1532C |
|---|---|---|---|---|---|---|---|---|---|
| Main component | | Silyl-containing special polymer | Silyl-containing special polymer | Silyl-containing special polymer | Silyl-containing special polymer | Silyl-containing special polymer | Silyl-containing special polymer | Silyl-containing special polymer | Modified Silicone |
| Reaction type | | Moisturecuring alcohol type | Moisturecuring alcohol type | Moisturecuring alcohol type | Moisturecuring alcohol type | Moisturecuring alcohol type | Moisturecuring alcohol type | Moisturecuring alcohol type | Moisturecuring alcohol type |
| Features | | Standard type | Thixotropic type | Clear type | Low viscosity | Low viscosity | Light blocking type | Ultra-low viscosity | Flexibility |
| Appearance | | White | Black | Translucent | Gray | White | Black | Black | White |
| Viscosity | Pa•s | 100 | 110 | 100 | 22.0 | 30.0 | 70 | 6.0 | 420 |
| Specific gravity | | 1.39 | 1.31 | 1.31 | 1.39 | 1.14 | 1.24 | 1.43 | 1.40 |
| Tack-free | min | 7 | 7 | 7 | 5 | 13 | 12 | 8 | 60 |
| Physical characteristics after curing: Hardness | | A44 | A48 | A55 | A34 | A25 | A35 | A26 | A40 |
| Physical characteristics after curing: Elongation rate | % | 280 | 380 | 200 | 220 | 280 | 270 | 140 | 360 |
| Physical characteristics after curing: Tensile strength | MPa | 5.9 | 3.0 | 4.1 | 3.2 | 2.1 | 2.5 | 1.6 | 1.8 |
| Physical characteristics after curing: Volume resistivity | Ω/m | $5.0\times10^{10}$ | $3.9\times10^{10}$ | $3.6\times10^{10}$ | $1.7\times10^{10}$ | $4.8\times10^{9}$ | $9.3\times10^{9}$ | $1.2\times10^{9}$ | - |
| Physical characteristics after curing: Dielectric breakdown strength | kV/mm | 21 | 17 | 20 | - | - | 32 | 17 | - |
| Tensile shear bond strength: Iron | MPa | 5.4 | 4.1 | 3.5 | 2.9 | 2.5 | 2.2 | 2.5 | 2.0 |
| Tensile shear bond strength: Aluminum | MPa | 6.6 | 4.4 | 4.3 | 2.5 | 2.8 | 2.5 | 2.9 | 2.4 |
| Tensile shear bond strength: Acrylic | MPa | 4.7 | 3.3 | 3.8 | 2.6 | 2.1 | 2.5 | 2.3 | 0.5 |
| Tensile shear bond strength: Polycarbonate | MPa | 5.6 | 3.8 | 4.5 | 2.4 | 3.1 | 3.6 | 2.0 | 1.6 |
| Peel strength: Aluminum | kN/m | 2.5 | 2.8 | 1.9 | 2.5 | - | - | 1.7 | - |
| Peel strength: NBR | kN/m | 1.60 | 1.50 | 1.40 | - | - | - | 0.29 | - |
| Peel strength: CR | kN/m | 1.40 | 1.60 | 1.00 | - | - | - | 0.04 | - |
| Peel strength: Silicone rubber | kN/m | 0.30 | 0.75 | 0.30 | - | - | - | 0.07 | - |
| Remark(s) | | | Structural viscosity ratio 4.1 | UL-HB certified product ISO10993 compliant product | | Small increase in hardness when heating | | Complies with REACH DBT regulations | |

* - : Unmeasured
* The value listed in the property table is an example of a measured value and is not the guarantee level.
* Before using, confirm the adequacy and safety for the relevant application.
* DBT: Dibutyltin compounds

# 1530 Series

## Elastomeric Adhesives

### Property Table

| Characteristics | Unit | 1532D | 1533 | 1533C | 1533D | 1533F | 1533K | 1535 | 1535B | 1535C | 1535D | 1537 | 1537B | 1537D | 1537E | 1538B | 1538D | 1539 | 1539B | 1539K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Main component | | Modified Silicone | Silyl-containing special polymer | Silyl-containing special polymer | Silyl-containing special polymer | Silyl-containing special polymer | Silyl-containing special polymer | Silyl-containing special polymer | Silyl-containing special polymer | Silyl-containing special polymer | Silyl-containing special polymer | Silyl-containing special polymer | Silyl-containing special polymer | Silyl-containing special polymer | Silyl-containing special polymer | Silyl-containing special polymer | Silyl-containing special polymer | Castor oil polymer | Castor oil polymer | Castor oil polymer |
| Reaction type | | Moisturecuring alcohol type | Moisturecuring alcohol type | Moisturecuring alcohol type | Moisturecuring alcohol type | Moisturecuring alcohol type | Moisturecuring alcohol type | Moisturecuring alcohol type | Moisturecuring alcohol type | Moisturecuring alcohol type | Moisturecuring alcohol type | Moisturecuring alcohol type | Moisturecuring alcohol type | Moisturecuring alcohol type | Moisturecuring alcohol type | Moisturecuring alcohol type | Moisturecuring alcohol type | Heat-curing Moisture-curing | Heat-curing Moisture-curing | Heat-curing Moisture-curing |
| Features | | Flexibility | Standard type | Clear type | Low viscostity | Applicable to Adhesion-difficult Material | - | Standard type | - | Clear type | - | Nonflammable type | Nonflammable type | Nonflammable type | Nonflammable type | Nonflammable type | Standard type | Standard type | Standard type | Improved resin adhesion |
| Appearance | | Black | White | Translucent | Gray | Black | Black | White | Black | Colorless | Gray | White | Black | Gray | Gray | Black | Gray | Black | White | Black |
| Viscosity | Pa•s | 450 | 100 | 100 | 22.0 | 180 | 47.0 | 75.0 | 90 | 30.0 | 25.0 | 55.0 | 55.0 | 55.0 | 90.0 | 80.0 | 55.0 | 100 | 100 | 160 |
| Specific gravity | | 1.55 | 1.39 | 1.30 | 1.39 | 1.21 | 1.24 | 1.43 | 1.43 | 1.04 | 1.38 | 1.67 | 1.67 | 1.67 | 1.66 | 1.44 | 1.67 | 1.34 | 1.34 | 1.39 |
| Tack-free | min | 60 | 7 | 7 | 7 | - | 12 | 4 | 5 | 3 | 5 | 4 | 4 | 4 | 3 | 9 | 7 | - | - | - |
| Physical characteristics after curing: Hardness | | A40 | A40 | A50 | A26 | A25 | A30 | A45 | A45 | A37 | A36 | A72 | A74 | A71 | A84 | A50 | A85 | A70 | A70 | A74 |
| Physical characteristics after curing: Elongation rate | % | 360 | 280 | 145 | 286 | 460 | 480 | 180 | 166 | 136 | 182 | 29 | 33 | 29 | 50 | 170 | 60 | 120 | 140 | 230 |
| Physical characteristics after curing: Tensile strength | MPa | 1.8 | 4.5 | 3.8 | 2.9 | 3.0 | 3.0 | 4.5 | 4.2 | 3.5 | 3.6 | 5.0 | 3.9 | 4.3 | 4.2 | 2.9 | 4.1 | 3.5 | 3.5 | 4.8 |
| Physical characteristics after curing: Volume resistivity | Ω/m | - | $3.2\times10^{10}$ | $8.8\times10^{9}$ | $1.0\times10^{9}$ | $6.8\times10^{13}$ | $4.6\times10^{9}$ | $5.9\times10^{9}$ | $5.0\times10^{8}$ | $4.7\times10^{9}$ | $2.5\times10^{9}$ | $1.9\times10^{10}$ | $2.3\times10^{10}$ | $2.7\times10^{10}$ | $3.2\times10^{10}$ | $3.9\times10^{10}$ | $6.2\times10^{11}$ | $2.4\times10^{11}$ | $6.5\times10^{10}$ | $2.3\times10^{13}$ |
| Physical characteristics after curing: Dielectric breakdown strength | kV/mm | - | 21 | 25 | 21 | 26 | 19.0 | 25 | 20 | 28 | 19 | 25 | 24 | 26 | 20 | 17 | 20.6 | 19 | 22 | 19 |
| Tensile shear bond strength: Iron | MPa | 2.0 | 5.8 | 4.6 | 3.4 | 3.7 | 4.1 | 5.0 | 5.0 | 7.1 | 4.2 | 4.0 | 4.2 | 4.4 | 4.1 | 4.0 | 3.9 | 3.8 | 3.6 | 3.8 |
| Tensile shear bond strength: Aluminum | MPa | 2.4 | 5.7 | 4.7 | 2.8 | 3.9 | 4.4 | 5.8 | 5.0 | 8.7 | 3.9 | 4.3 | 4.3 | 4.3 | 4.3 | 4.2 | 3.5 | 4.3 | 4.1 | 4.0 |
| Tensile shear bond strength: Acrylic | MPa | 0.6 | 2.6 | 3.8 | 2.7 | 4.5 | 2.8 | 4.1 | 3.6 | 6.4 | 2.9 | 1.7 | 1.6 | 1.8 | 1.7 | 3.4 | 3.2 | 0.7 | 0.7 | 1.3 |
| Tensile shear bond strength: Polycarbonate | MPa | 1.6 | 4.3 | 3.2 | 2.1 | 4.2 | 3.3 | 3.1 | 2.9 | 5.5 | 1.4 | 3.7 | 3.6 | 3.6 | 3.6 | 3.2 | 3.5 | 1.5 | 1.4 | 2.3 |
| Peel strength: Aluminum | kN/m | - | 3.5 | 3.2 | 1.5 | - | - | 1.7 | 3.0 | 1.7 | 1.7 | 1.0 | 1.4 | 1.2 | 0.9 | 2.2 | 3.5 | 1.5 | 1.5 | - |
| Peel strength: NBR | kN/m | - | 2.30 | 1.00 | 1.30 | - | - | 1.20 | 0.60 | 0.70 | 1.60 | 0.10 | 0.11 | 0.09 | 0.09 | 0.30 | - | - | - | - |
| Peel strength: CR | kN/m | - | 2.10 | 0.70 | 1.00 | - | - | 1.30 | 0.60 | 0.40 | 0.80 | 0.06 | 0.05 | 0.06 | 0.05 | 0.10 | - | - | - | - |
| Peel strength: Silicone rubber | kN/m | - | 1.00 | 0.20 | 0.40 | - | - | 0.10 | 0.10 | 0.10 | 0.40 | 0.13 | 0.13 | 0.12 | 0.12 | 0.30 | - | - | - | - |
| Remark(s) | | | Complies with REACH DBT regulations UL94-HB certified product | Complies with REACH DBT regulationst UL94-HB certified product | Complies with REACH DBT regulations | Complies with REACH DBT regulations | Complies with REACH DBT regulations | Complies with REACH tin regulations | Complies with REACH tin regulations | Complies with REACH tin regulations | Complies with REACH tin regulations | Non-flammable grade UL94 V-0 certified product | Non-flammable grade UL94 V-0 certified product | Non-flammable grade UL94 V-0 certified product | Non-flammable grade UL94 V-0 certified product | UL QOQW2 certified product | Non-flammable grade UL94 V-0 equivalent product | Heat-curing 60°C curing | Heat-curing 60°C curing | Heat-curing 60°C curing |

* - : Unmeasured
* The value listed in the property table is an example of a measured value and is not the guarantee level.
* Before using, confirm the adequacy and safety for the relevant application.
* DBT: Dibutyltin compounds

# Water-Based Pressure Sensitive Adhesives for Screen Printing

This is a series of single-component type, water-based, pressure sensitive adhesives.
They are good for screen printing, and adhesion processing can be done according to the design pattern.
They can be used as pressure-sensitive adhesives for plastic, paper, metal and other nameplates, as well as for labels and stickers.
After printing, a strong adhesive layer is formed by heating and drying, or at room temperature.
It is possible to configure the dried film thicknesses up to around 100µm according to the screen design.
There is a standard type and a high heat resistant, high moisture-resistant type.


■ Applicable markets

Transportation Equipment | Electrical and Electronics | Industrial Materials and Public Works | Automotive Aftermarket

## 1549

This is a standard type water-based, pressure sensitive adhesive for screen printing.
It has excellent adhesion with various plastics such as polyester, polyvinyl chloride, styrol, ABS, and PET, as well as paper, metal, etc.
It is an aqueous type, so it can be used with materials that have low organic solvent resistance.

## 1555C

This is a high heat resistant, highly moisture-resistant, aqueous, pressure-sensitive adhesive for screen printing.
It has excellent adhesion with various plastics such as polyester, polyvinyl chloride, styrol, ABS, and PET, as well as paper, metal, etc.
It is an aqueous type, so it can be used with materials that have low organic solvent resistance.

**Property Table**

| Characteristics | | Unit | 1549 | 1549B | 1555C | 1555D |
|---|---|---|---|---|---|---|
| Main component | | | Acrylic resin-based emulsion | Acrylic resin-based emulsion | Acrylic resin-based emulsion | Acrylic resin-based emulsion |
| Features | | | Standard type | Standard type<br>High viscosity | High heat resistance<br>High moisture resistance | High heat resistance<br>High moisture resistance<br>Slow drying property |
| Appearance | | | Milky white | Milky white | Milky white | Milky white |
| Viscosity | | Pa•s | 20.0 | 25.0 | 30.0 | 25.0 |
| Specific gravity | | | 1.01 | 1.01 | 1.01 | 1.01 |
| Solid content (nonvolatile content) | | % | 65.0 | 66.0 | 65.0 | 60.0 |
| Recommended screen | | | Polyester or SUS 100 to 150 mesh, etc. | | SUS 80 mesh, etc. | |
| Recommended conditions of drying | | | 55°C×15 min or 25°C×60 min, etc. | | 60°C×20 min (SUS 80 mesh) | |
| Peel strength | PET/Polystyrol | N/m | 823 | 823 | - | - |
| | PET/Acrylic | N/m | 823 | 823 | - | - |
| | PET/ABS | N/m | - | - | 380 | 380 |
| | Polycarbonate/ Polystyrol | N/m | 1098 | 1098 | - | - |
| | Polycarbonate/Acrylic | N/m | 1098 | 1098 | - | - |
| Operating temperature range (Est.) | | °C | -30 to 60 | -30 to 60 | -30 to 80 | -30 to 80 |
| Remark(s) | | | | | | |

* - : Unmeasured
* The value listed in the property table is an example of a measured value and is not the guarantee level.
* Before using, confirm the adequacy and safety for the relevant application.

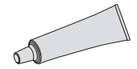
# 1500 Series

## Application Equipment

This section introduces Application Equipment to apply adhesives efficiently.


- Lineup of products for improved productivity and workability
- Applicators suitable to a wide range of adhesives, such as solvent-volatilization type, moisture-curable type, and aqueous pressure-sensitive type, can be selected.

**Tube**



### Air gun for sealant (DH1)

Applicable package type: Cartridge/Tube
This is a pneumatic sealant gun.

*This product may not be compatible with some cartridge and tube types. For the details, contact one of our sales engineers.

Individual catalog number #36

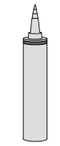
### Tank for tube
### Air dispenser (minicoater C5)

Applicable package type: Tube
The discharge amount is adjusted by means of the dispensing time and tank pressure.

*This product may not be compatible with some tube types. For the details, contact one of our sales engineers.

Individual catalog number #2

**Cartridge**



### Air gun for sealant (DH1)

Applicable package type: Cartridge/Tube
This is a pneumatic sealant gun.

Individual catalog number #36

### Cartridge-type tank (TC2)
### Dispense valve (HPNV-50)
### Controller for pressure (coater S4)
### Desktop robot (RT7 Series)

This unit pressure-feeds a material from the cartridge and controls the valve to apply the material. When the controller is combined with a robot, it will apply the material to a programmed position.
Automatic application by machine is possible.

Individual catalog number #15

**1-kg can**

### Tank for 1-kg or less bottle or can (TG1-T)
### Pen type manually operated valve (pencil gun)

This dispenser is for a low-viscosity material.
Dispensing is done by pulling the gun lever.
Automatic application by machine is impossible.

Individual catalog number #3

### Tank for 1-kg or less bottle or can (TG1-T)
### Dispense valve (HPNV-50)
### Pressure controller (coater S4)
### Desktop robot (RT7 Series)

This device pressure-feeds a material from a tank and applies the material by controlling the valve.
When the dispenser is combined with a robot, it applies the material appropriately to a programmed position.
Automatic application by machine is possible.

Individual catalog number #14

**For Industrial Use Only** Do not use this product for household purposes

This product was developed for general industrial use. Before using this product, the user must accept the following terms:

- The technical data given herein are not guaranteed values, but examples of experimental values obtained by our specified test methods. We do not guarantee that the uses described herein do not conflict with any intellectual property right.
- Users are asked to examine whether the product is appropriate to the purpose of use and can be used safely before they use it and bear all responsibilities and hazards involved in its use. Never use the product for medical implants that may be embedded, injected or left in the body.
- We are not liable for personal injury or property damage caused by improper handling of this product. If the properties and usage of this product are unknown, never use it.
- For detailed safety information of the product, see the Safety Data Sheet (SDS). To obtain the SDS, contact our sales office or customer service center.
- Information in this technical document is subject to change at our discretion without notice.



Creating Our Future From a Single Drop
**ThreeBond Co., Ltd.**
4-3-3 Minamiosawa, Hachioji, Tokyo 192-0398
0120-56-1456 TEL 81 42 670 5333

● With about 100 sales offices and manufacturing plants in Japan as well as 60 sales offices and manufacturing plants that are located outside of Japan, we have established a system to quickly meet the needs of our customers.

Your request: