

TECHNICAL DATA

ThreeBond 1501

Multi-Purpose Rubber Adhesive

Three Bond 1501 is a high performance multi-purpose bonding agent. It contains synthetic rubbers and synthetic resins including a special synthetic rubber and a slow vulcanising agent.

Application

Three Bond 1501 effectively bonds the following materials.

- (a) Metals: iron, aluminium, duralumin, brass, etc.
- (b) Plastics: poly-vinyl chlorides, poly-metacrylic resins, phenolic resins, poly-styrenes, ebonite, etc.
- (c) Non-metals: wood, fabrics, leather, ceramics, paper, concrete, mortar, etc.
- (d) Natural and synthetic rubbers.

Directions for Use

- (1) **Surface Cleaning:**
Remove moisture: oil, dust, rust, oxide film, etc. completely from the surfaces to receive Three Bond 1501. For metal surfaces, scrape off rust, and then wash off oil with gasoline, trichlene or benzol oxide file, etc. With fine sand paper, sandblasting or filing. Metals are bonded together best when the surfaces have been finished by precision grinding. The less suitable preparations are sand blast finishes, forged surfaces, surfaces with lengthwise and sidewise furrows in order of decreasing bonding effectiveness. For vulcanised rubber surfaces, remove grease, oil, lubricant, etc. With sandpaper or file. Moulded synthetic resin product retains lubricant on surfaces, remove with solvent.
- (2) **Means of Application:**
Use finger, brush, spatula, spray gun or roller depending on size of surfaces.
- (3) **Adhesive quantity required:**
About 25-30/30cm² for porous surfaces and 20-25cm² for non-porous surfaces. Absorbing surfaces like canvas need two or three repeated application. In such cases, stare the second or the third coating when the under-coating has got almost dried.

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- (4) Bonding method:
- (a) At room temperature:
Clean the surfaces then coat with Three Bond 1501. Allow the solvent to evaporate and the cement to lose its viscosity. (This drying process usually takes 5-10 minutes. The time length varies with atmospheric temperature, humidity, etc.) If it is necessary to correct the unevenness of the cement coating, apply 1-2 more times. Dry as described above.
After the solvent has evaporated, press the surfaces against each other. Do not leave bubbles or other defects between the bonded surfaces. To ensure the most effective adhesive, it is essential to have solvent evaporate completely. Porous surfaces absorb the solvent and become ready for use in about 12 hours while non-porous surfaces like metals take over 24 hours to become usable.
- (b) Re-moistening method:
In this method, the surfaces must cure for at least 30 minutes after application. After the solvent is completely evaporated, apply Three Bond solvent to the dried coating with a brush or soft cloth to give renewed tackiness to the cement. Then, a little while later, press the surfaces together.

Characteristics

Appearance	Amber coloured viscous liquid with a slight brown tinge
Main ingredient	Chloroprene rubbers and phenol resins
Non-volatile matter	33.5%
Viscosity (@ 25 ⁰ C)	3300 mPa.s
Specific gravity (@ 25 ⁰ C)	0.94
Set-to-touch time (@ 25 ⁰ C)	10 min

Chemical Resistance

Test method: Federal Specification MMM-A-175 method 20011.

Specimens spread on plate glass were at left at room temperature for 72 hours, and then immersed in the following reagents for 30 min., 24 hrs. respectively and film conditions and other reactions to each reagent was observed.

Reagents	30 min	24 hrs
Toluene	Dissolved	
Trichlene	Dissolved	Changed to yellow
Carbone tetrachloride	Melted, changed to milky yellow	
Acetone	Changed to white, expanded and moistened	Same as in 30 min
Ethyl acetate	Dissolved	
Hexane	expanded & moistened a little	same as in 30 min
Ethyl	no change	no change
Glacial acetic acid	no change	slightly changed to white
Sulphuric acid (30%)	no change	no change
Nitric acid (15%)	no change	no change
Reagents	30 min	24 hrs
Hydrochloric acid (15%)	no change	no change
Caustic soda (15%)	no change	no change

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TB 1501

Ammonia (15%)	no change	no change
Distilled water	no change	no change
Salt water	no change	no change
Warm water	no change	no change

Resistance to Heat & Cold

- (a) Resistance to heat:
 Test method: ASTM D816-55
 Samples: Iron plates (JIS G3310) and vulcanized neoprene.

Allowance period at room temperature	Not affected under
1 days	75 °C
3 days	80 °C
5 days	83 °C
7 days	87 °C
10 days	92 °C

- (b) Resistance to cold:
 Test method: ASTM D903-49

Temperature	Change in condition
-20 °C	nil
-30 °C	nil
-40 °C	Slightly stiffened

Adhesion Test

- (a) Tensile Strength:
 Test method: ASTM D903-49, Unit: kg/25mm width.

<u>Bonded materials</u>	<u>24 hrs</u>	<u>3 days</u>	<u>5 days</u>	<u>7 days</u>	<u>10 days</u>
Vulcanized NP+Iron plate	3.5	5.7	6.0	8.1	9.3
Soft vinyl sheet + Iron Plate	2.1	3.5	4.6	-	-

- (b) Shear Strength:
 Test method: ASTM D1002-53T, Unit: kg/2.5cm².

<u>Bonded materials</u>	<u>24 hrs</u>	<u>3 days</u>	<u>5 days</u>	<u>7 days</u>	<u>10 days</u>
Vulcanized NP+Iron plate	24.2	27.0	28.3	30.2	31.4

- (c) Immersion test:
 Test method: bonded materials were pressed one time by hand roller. Then set at room temperature for 24 hours and immersed separately in water and machine oil for 24 hours. The bonding strength were examined after one hour exposure at room temperature. (Unit: kg/25mm width)

Not immersed	Immersed in water	Immersed in Machine Oil	
Iron plate + nitrile rubber	Iron plate + soft vinyl chloride	Iron plate + nitrile rubber	Iron plate + soft nitrile rubber
5.2	3.6	4.4	3.0

- (d) Heat Test in Air:
Test method: samples were pressed one time by hand roller then exposed for 24 hours at room temperature, then heated for 3 hours at 80°C. The examination was made one hour after the end of the heating period.

Iron plate/Nitrile rubber	Iron plate/soft vinyl chloride
3.6	4.8

Handling Precautions

- (1) In case Three Bond 1501 forms a precipitated and separated later stir before use until it returns to its original state. Formation of the layer does not mean that the cement is no longer usable.
- (2) Inflammable. Three Bond 1501 is inflammable. Do not place the container where temperature well exceeds 50°C.
- (3) Storage: Three Bond 1501 can be stored for more than six months at room temperature. It can be preserved longer if kept in a cool dark

Shelf Life

24 months unopened when stored at 5-35°C.

Packaging

Available in sizes of 1500cc and 1kg.

Disclaimer

For Industrial Use Only

(Do not use for household purposes)

- The data contained in this report are obtained from experimental results, based on our test methods. We cannot assume absolute responsibility for accuracy and safety. Before using this product, use your own judgement to determine whether or not this product meets the requirements of the application and objectives. This includes the burden of responsibility and hazardous danger. The extent of the guarantee provides replacement for products, which are clearly unsatisfactory.
- We assume responsibility for neither injury nor property damages resulting from the misuse of this product.
- We do not assume responsibility without written notice or contract.