ThreeBond

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ThreeBond Co., Ltd.

Technical Data

ThreeBond 1184

Liquid gasket (gray)

1. Outline

ThreeBond 1184 is a semidrying liquid gasket whose main component is special synthetic rubber.

After it is applied and dried, it forms a rubber-like elastic body. Since it excels in padding property, it shows a high sealing effect even on bonded surfaces with poor flatness and large clearance. In addition, it has excellent resistance to water, oil and gasoline.

Hereinafter, ThreeBond is abbreviated to TB.

2 Features

(1) Good padding property
It shows an excellent sealing effect even on bonded surfaces with poor flatness and large clearance.

(2) Excellent resistance to vibration and impact
After applied and dried, it forms a rubber-like elastic body and exhibit excellent resistance to vibration and impact.

(3) Excellent resistance to high and low temperatures
It keeps stable rubber elasticity in a wide temperature range from -40°C to 150°C.

(4) Excellent resistance to water and oil

(5) Effective in preventing leak from threaded portions

3. Uses

(1) Sealing of flange surfaces and threaded portions

(2) Applicable to sealing of flange surfaces with large clearance

4. Properties

Table 1 Properties of TB1184

Test item	Unit	Result	Test method	Remarks
Appearance	-	Gray	3TS-201-02	-
Viscosity	Pa·s	9.5	3TS-210-02	25°C/BH-type, No.5-20 rpm
Specific gravity	-	1.26	3TS-213-02	25°C
Heating residue	%	57.5	3TS-217-93	-
Tack-free time	min	12	3TS-219-04	-

5. Characteristics

5.1 Characteristics of cured material

Table 2 Characteristics of TB1184 after curing

Test item	Unit	Result	Test method
Tensile strength	MPa	0.17	3TS-320-01
Elongation	%	1720	3TS-320-01
Hardness	A	23	3TS-215-01

Note) Curing conditions: 25°C for 14 days

5.2 Influence on rubber (change in mass)

Table 3 Influence of TB1184 on rubber

Kind	Unit	Mass change	Test method
NR	wt%	+38	3TS-229-01 (immersion at 25°C for 24 hrs.)
CR	wt%	+45	
SBR	wt%	+55	
NBR	wt%	+44	
EPDM	wt%	+67	

5.3 Pressure resistance

Table 4 Pressure resistance of TB1184

Condition	Unit	Result	Test method
Room temperature	MPa	10.0	3TS-350-02
80°C	MPa	8.5	
150°C	MPa	8.5	

Test conditions

* Surface finish: 6.3 S
* Flange used: OD 90 mm, ID 60 mm, width across flats 15 mm
* Surface pressure: 15.7 MPa
* Tightening: 27.5 N.m
* Clamp bolt: JIS B 1180, M12 bolt, Class 2, 6 pcs.
* Flange material: JIS G 3101, Type 2 SS41
* Pressure medium: Turbine oil No.1
* Rate of application of pressure: Increase of 0.5 MPa per minute

5.4 Resistance to high and low temperatures

Table 5 Resistance of TB1184 to high and low temperatures

Item	Unit	Result	Test method
Resistance to high and low temperatures	MPa	10.0	JIS K 6820

Test conditions

* The specimen is applied to the flange for pressure resistance test, and the flange is tightened under the same conditions as the pressure resistance test conditions. The flange is cooled at -40°C ± 5°C for 2 hours and heated at 100°C ± 5°C for 3 hours. After it is left to cool at room temperature, the resistance is measured.

5.5 Chemical resistance

Table 6 Chemical resistance of TB1184

Item	Mass change (%)	Immersion temperature	Test method	Remarks
Water	-1.9	90 to 95°C	JIS K 6820	Tap water
Saline solution	-2.1			10% saline solution
Anti-freeze	-1.9			50% ethylene glycol
10% H2SO4 aq.	-1.6	25°C		-
10% NaOH aq.	-2.0			-
10% KOH aq.	-1.4			-
Test lube oil No.1	-4.5	95 to 100°C		-
Test lube oil No.2	-3.6			-
Test lube oil No.3	+0.9			-
Engine oil	-1.6			-
Turbine oil	-3.8			-
Gasoline	-2.8	45 to 50°C		-
Fuel oil B	-3.1			Isooctane/toluene 70/30(Vol)
Kerosine	-1.3			-

Test conditions

* The concavities in a glass or aluminum plate specified in JIS are filled with the liquid specimen. After the liquid is left at room temperature for 24 hours, it is dried at 100 ± 5°C for 3 hours, and the mass of the dried specimen in each concavity is measured. These obtained test pieces for immersion test are immersed in the above liquids for 24 hours. Then, the immersed test pieces are taken out of the liquids and dried at 65 ± 5°C for 24 hours. The mass of each test piece is measured at room temperature, and the rate of change of mass is determined from the values obtained before and after immersion.

5.6 Tensile shear bond strength

Table 7 Tensile shear bond strength of TB1184

Bonded materials	Unit	Result	Test method
Fe/Fe	MPa	1.9	3TS-301-11 (25°C for 7 days)
Al/Al	MPa	0.2	
Fe/Fe	MPa	3.3	3TS-301-11 (130°C for 5 hrs)
Al/Al	MPa	2.7	

5.7 Corrosion resistance

Table 8 Corrosion resistance of TB1184

	Result	Test method
Corrosion resistance	No change (no significant color change, pitting nor etching)	JIS K 6820 Cu plate, 25°C for 7 days

6. Usage

(1) Stir the product prior to use.
(2) Remove moisture, oil and other contaminants completely from the surfaces to be bonded.
(3) Apply the product as thin and uniformly as possible.
(4) Laminate the surfaces approx. 1 minute after applying it.

7. Instructions for use

(1) This product is harmful to the health. Do not inhale or drink it.
(2) When using it, wear protective clothings.
(3) If it is swallowed, do not induce vomiting. Immediately rinse the mouth, and get medical attention.
(4) If it gets in the eyes, immediately wash them with clean water for more than 15 minutes, and immediately get medical attention.
(5) If it adheres to the skin, wash the skin with water or soap and water.
(6) If any abnormality is found in the body, stop using the product, and get medical attention.
(7) It is flammable. Do not put it close to fire.
(8) Keep it out of the reach of children.
(9) Stir the product prior to use.
(10) It is a product for industrial use. Do not use it for household products.
(11) Before using the product, sufficiently confirm whether the method of application and the purpose of use are appropriate.
(12) People who have allergies or sensitive skin should avoid using it.
(13) Provide the working area with a local exhaust system.
(14) This product is an insulating material. Take care that it does not adhere to electric contacts.
(15) Ascertain in advance whether or not it affects the parts to be treated with it. If any problem occurs, do not use it.
(16) It contains harmful components. Do not use it for drinking water or hot water supply piping.
(17) For hazard and toxicity information not mentioned herein, see the material safety data sheet (MSDS).

8. Storage

(1) Store it with the cap tightly fitted to prevent deterioration and entry of foreign matter.
(2) Store it in a dry, cool and dark place avoiding direct sunlight.

9. Disposal

When disposing of the product and its empty container, treat them as industrial wastes.

10. Cautions

For industrial use only (Do not use it for household products.)

This product has been developed for general industrial use. Before using the product, you must accept the following sales 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 introduced herein do not conflict with any intellectual property right.
- Users are asked to evaluate the validity and safety of the use of the product for the relevant purpose prior to use and bear all responsibilities and hazards involved in its use.
  Never use the product for medical implants that will be implanted or injected into the body or may be 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 use of the relevant product are unknown, never use it.
- For detailed information on product safety, see the material safety data sheet (MSDS).
  To obtain the MSDS, contact our sales department or customer service office.
- This document is subject to change at our discretion.