

Three Bond 1194 Liquid gasket

Three Bond 1194 is a semi-drying liquid gasket whose major component is a special synthetic rubber and after its application it forms a rubber-like elastic body. Since it excels in padding properties, it shows a high sealing effect on bonded surfaces that have poor flatness or large clearance, and exhibits excellent resistance to water, oil and gasoline. Three Bond 1194 has been developed as a substitute for the popular liquid gasket Three Bond 1104, and can be used as a direct replacement in all applications.

1. Features

- High padding property
- It shows an excellent sealing effect not only on normal bonded surfaces, but also on bonded surfaces with large clearance
- Excellent resistance to vibration and impact
- After setting it will form a rubber-like elastic body
- Maintains stable rubber elasticity over a wide temperature range from -40°C ~ 150°C
- Excellent resistance to water, oil and gasoline
- Effective in preventing leaks from threaded joints as well as flanges.

2. Applications

- Sealing of flange surfaces and threaded joints
- Sealing of flange surfaces having large clearance
- All current TB1104 applications

3. Properties

3.1 General properties

Item	Units	Results	Test Method	Remarks
Appearance		Grey Paste	3TS-201-02	
Viscosity at 25°C	Pa.s {cP}	1600 {16000}	3TS-210-03	BS-type No. 7 5rpm
Specific gravity		1.25	3TS-213-02	25°C
Heating residue	%	58.0	3TS-217-01	
Tack free time	min	12	3TS-219-04	
Solvent	-	Xylene	-	

3.2 Properties of cured material (cured at 25°C x 14 days)

Item	Units	Results	Test Method	Remarks
Tensile strength	MPa	0.12	3TS-320-01	
Elongation	%	900 ~ 1000	3TS-320-01	
Hardness	Shore A	25	3TS-215-01	

4 Performance Characteristics**4.1 Pressure resistance**

Condition	Units	Results	Test Method
25°C	MPa	10.0	3TS-350-02 (JIS K 6820)
80°C	MPa	8.0	
150°C	MPa	8.0	
-40°C x 2 hr ~ +100°C x 3 hr	MPa	10.0	

Test conditions:

- Surface finish: 6.3S
- Surface pressure: 15.7 Mpa
- Clamping bolt: JIS B 1180, M12 bolt, Class 2, 6 pcs.
- Flange material: JIS G 3101, Type 2 SS41
- Hydraulic medium: Turbine oil No. 1
- Applied flange: 90mm OD, 60mm ID, 15mm width
- Tightening: 27.5 N.m
- Rate of pressure increase: 0.5 Mpa per minute

4.2 Pressure resistance v flange width

Flange width	Units	Results	Test Method
3 mm	MPa	2.0	3TS-350-01
5 mm	MPa	2.5	
8 mm	MPa	3.0	
15 mm	MPa	4.5	

Test conditions:

- Surface finish: 6.3S
- Average surface pressure: 3.9 Mpa
- Clamping bolt: JIS B 1180, M12 bolt, 4 pcs.
- Drying time: 5 minutes
- Hydraulic medium: Turbine oil No. 1
- Applied flange: 54 mm ID
- Rate of pressure increase: 0.2 Mpa per 20 seconds

4.3 Pressure resistance v average surface pressure

Average surface pressure	Units	Results	Test Method
3.9 MPa	MPa	3.0	3TS-350-01
7.8 MPa	MPa	4.5	
11.8 MPa	MPa	7.5	

Test conditions:

- Surface finish: 6.3S
- Flange width: 8mm
- Clamping bolt: JIS B 1180, M12 bolt, 4 pcs.
- Hydraulic medium: Turbine oil No. 1
- Applied flange: 70mm OD, 54mm ID
- Drying time: 5 minutes
- Rate of pressure increase: 0.2 Mpa per 20 seconds

4.4 Chemical resistance

Item	Mass change	Immersion	Test Method	Remarks
Water	-1.8 %	90 ~ 95°C	JIS K 6820	Tap water
Salt water	- 2.1 %			10% salt water
Anti-freeze	-1.4 %			50% ethylene glycol
10% H ₂ SO ₄ aq.	-1.4 %	25°C		
10% NaOH aq.	-1.3 %			
Test lube oil No. 1	-3.9 %	95 ~ 100°C		
Test lube oil No. 2	-3.4 %			
Test lube oil No. 3	+4.8 %			
Engine oil	-2.5 %			
Turbine oil	-2.4 %			
Gasoline	-4.0 %	45 ~ 50°C		
Fuel oil B	-2.8 %			Isooctane / toluene
Kerosine	-2.0 %			

Test conditions:

- Initial curing: 24 hours + 100°C x 3 hours
- Immersion: 24 hours
- Post drying: 65°C x 24 hours

4.5 Tensile shear bond strength

Item	Units	Results	Test Method	Remarks
Fe / Fe	MPa	2.9	3TS-301-11	RT x 7 days
Al / Al	MPa	0.4		
Fe / Fe	MPa	3.2	3TS-301-11	130°C x 5 hours
Al / Al	MPa	2.0		
Fe / Fe	MPa	6.2	3TS-301-11	130°C x 5 hours + 130°C x 5 hours
Al / Al	MPa	3.0		

4.6 90° Peel strength

Item	Units	Results	Test Method	Remarks
Fe / Al	kN/m	0.3	3TS-304-31	RT x 7 days
Fe / Al	kN/m	0.6	3TS-304-31	130°C x 5 hours
Fe / Al	kN/m	0.5	3TS-304-31	130°C x 5 hours + 130°C x 5 hours

4.7 Corrosion resistance

Item	Characteristic	Test Method
Corrosion resistance	No problem (no significant colour change, pitting or etching)	JIS K 6820

4.8 Effect on rubber (change in mass)

Rubber	Units	Mass change	Test Method	Remarks
NR	wt %	+ 35	3TS-229-01	(immersion at 25°C for 24 hrs)
CR	wt %	+44		
SBR	wt %	+55		
NBR	wt %	+42		
EPDM	wt %	+71		

5. How to use

- Before use ensure the liquid gasket is well mixed.
- Remove moisture, oil and other contamination completely from the surfaces to be bonded.
- Apply the liquid gasket as thinly and uniformly as possible.
- Join the surfaces within 1 to 4 minutes of application.
- Working temperature range is -40 to 150°C

6. Handling precautions

- 1) For industrial use only.
- 2) Use and keep out of reach of children.
- 3) Avoid contact with skin and eyes.
- 4) In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- 5) After contact with skin, wash immediately with plenty of soap and water.
- 6) Keep away from sources of ignition – No smoking.
- 7) Do not breathe fumes.
- 8) Once transferred do not transfer unused product back to the original container.
- 9) Confirm beforehand that the use or application is appropriate and that there are no adverse effects to substrates.
- 10) This material and its container must be disposed of as hazardous waste.
- 11) Refer to the product MSDS for further details.

7. Storage

- Keep the container tightly sealed and store in a dry cool place avoiding direct sunlight.

8. Packaging

- 200g tube, 1kg tin, 15kg pail.

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