TECHNICAL DATA SHEET
ThreeBond International, Inc.
www.threebond.com

ThreeBond 3164H
UV Curing Silicone RTV
Alkoxy condensation cure type

① Product Description

ThreeBond 3164H is a UV-curing silicone resin having moisture curability. It can cure in a short time under irradiation with UV light,and, on areas not exposed to UV light, it can cure with moisture. After curing, it becomes a rubber-like elastic body. Therefore, it is suitable for potting, sealing, bonding and fixing electric and electronic parts.

② Features

- Deep curing UV material with secondary moisture cure
- Self-leveling material for potting
- Non-corrosive to metals
- Fluoresces under black light (390 - 410 nm)

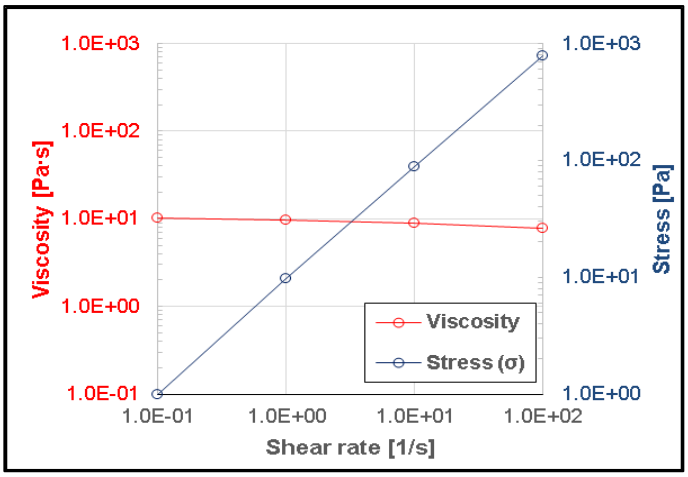
③ Uncured Properties

Test Item	Units	Value	Methods	
Appearance	-	transparent	-	3TS-2100-001
Viscosity @25°C, shear rate 1.0 [1/s]	Pa·s	8.0	-	3TS-4200-001
Specific gravity @ 25°C	-	0.99	ASTM D891	3TS-2500-002
Thixotropic Index @25°C	-	1.1	-	3TS-2F10-001
Tack-free time @ 25°C x 55%RH	hours	8 - 24	ASTM C679	3TS-3130-006

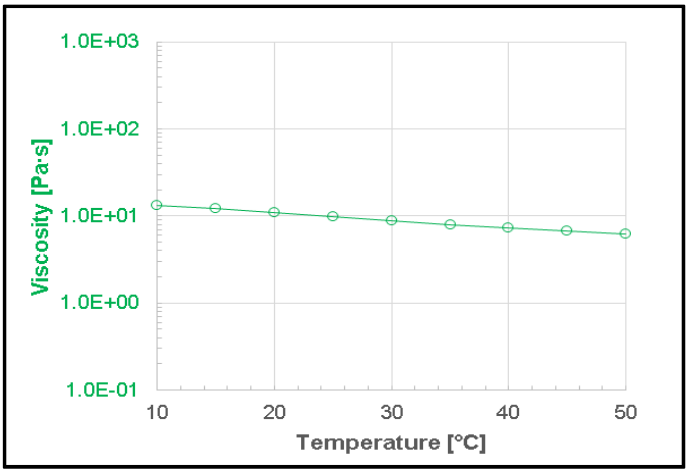
④ Flow Curves

Shear rate	Stress	Viscosity
[1/s]	[Pa]	[Pa·s]
0.1	1.0	10.1
1.0	9.8	9.8
10	89	8.9
100	780	7.8

3TS-4200-001
temperature 25 °C
frequency 1 Hz



Temperature [°C]	Viscosity [Pa·s]
10	13.2
15	12.2
20	10.9
25	9.8
30	8.8
35	7.9
40	7.3
45	6.8
50	6.3



3TS-4200-003

shear rate 1 1/s

frequency 1 Hz

⑤ Cured Properties

Test Item	Units	Value	Methods	
Durometer Hardness	Durometer A	24	ASTM D2240	3TS-Z388-001
Tensile strength (Die C)	MPa	0.9	ASTM D412	3TS-4190-004
Elongation at break (Die C)	%	220	ASTM D412	3TS-4190-004
Lap shear strength (Glass/PBT)	MPa	1.0	ASTM D1002	3TS-4100-023

Cure conditions: 3000mJ/cm^2 168 hours @25°C x 55%RH

⑥ Heat Resistance

Test Item	Units	Value	Methods	
Durometer Hardness	Durometer A	35	ASTM D2240	3TS-Z388-001
Tensile strength (Die C)	MPa	0.9	ASTM D412	3TS-4190-004
Elongation at break (Die C)	%	200	ASTM D412	3TS-4190-004

Heat aging conditions: 168 hours @120°C

Test Item	Units	Value	Methods	
Durometer Hardness	Durometer A	35	ASTM D2240	3TS-Z388-001
Tensile strength (Die C)	MPa	1.2	ASTM D412	3TS-4190-004
Elongation at break (Die C)	%	140	ASTM D412	3TS-4190-004

Heat aging conditions: 168 hours @150°C

⑦ ATF Resistance

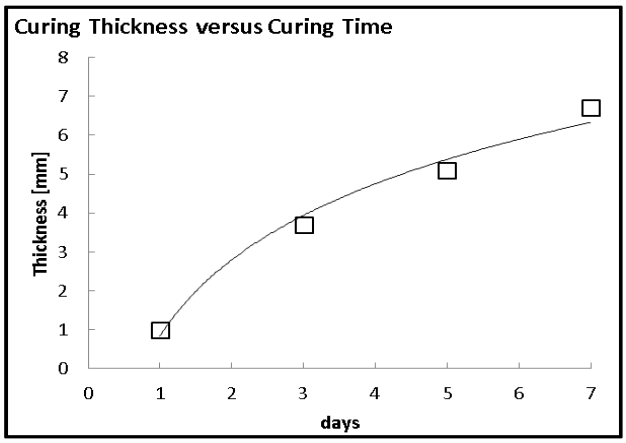
Test Item	Units	Value	Method	
Durometer Hardness	Durometer A	4	ASTM D2240	3TS-Z388-001
Tensile strength (Die C)	MPa	0.1	ASTM D412	3TS-4190-004
Elongation at break (Die C)	%	160	ASTM D412	3TS-4190-004

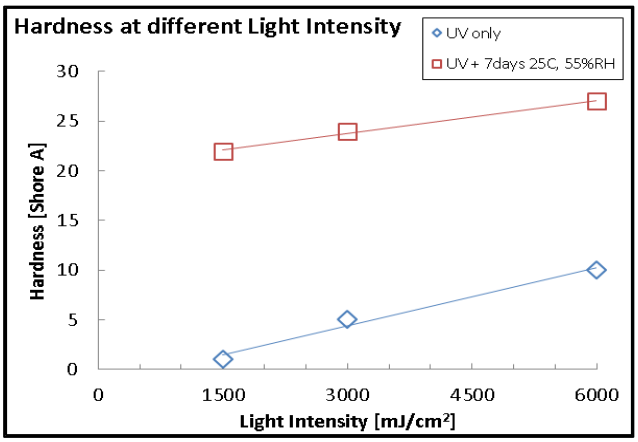
Fluid immersion conditi 168 hours in DEXTRON VI @120°C

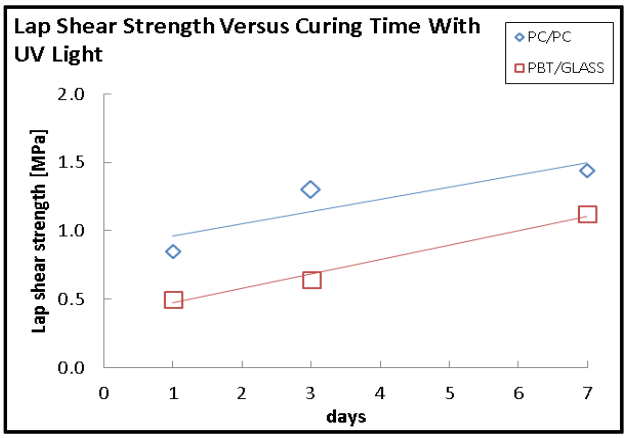
Test Item	Units	Value	Methods	
Durometer Hardness	Durometer A	3.1	ASTM D2240	3TS-Z388-001
Tensile strength (Die C)	MPa	1.0	ASTM D412	3TS-4190-004
Elongation at break (Die C)	%	120	ASTM D412	3TS-4190-004

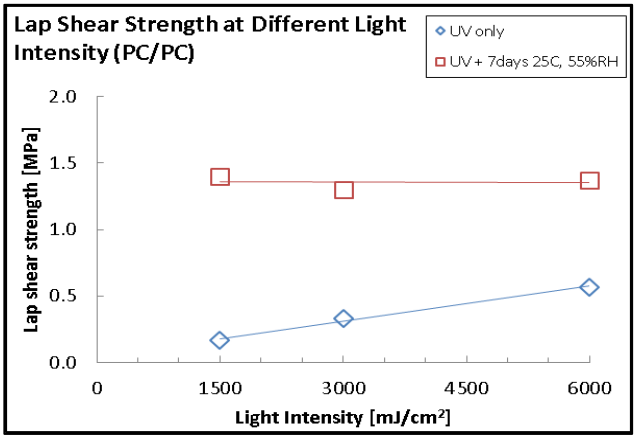
Fluid immersion conditi 168 hours @150°C + DEXTRON VI (splash every 24 hours)

⑧ Curing Characteristics









The properties in this datasheet are typical values and are for reference only. This document is **NOT** a specification.

⑨ Handling Precautions

One-component silicone RTV will cure by condensation once the material is exposed to the moisture in the air. This reaction begins on the surface and will develop inwards. The rate at which this reaction occurs is dependent on the ambient temperature and humidity. Curing condition for the tests listed in this technical data sheet is 25C and 55% RH unless otherwise stated.

One-component acetic acid type silicone RTV may cause corrosion and rust on metal substrates. Oxime type silicone RTV may cause corrosion on copper in highly enclosed spaces. Alcohol and acetone type silicone typically do not have this issue.

Avoid using one-component condensation cure silicone RTV in enclosed spaces. This blocks moisture from curing the RTV (e.g. grooved design on flange).

Addition curing silicone RTV is highly susceptible to contamination by sulfur, phosphorus, amines, and water. These compounds will inhibit curing of addition cure silicones. Test the curing capabilities in a small area before moving forward with this product type.

Avoid using addition cure silicone RTV in highly humid environments.

⑩ Usage

Ensure that bonding area of substrates are completely free of water, oil, dust, and foreign contaminants before applying the ThreeBond product. This will ensure that adhesion can develop properly to the substrate.

Pre-treatment may be required for certain types of substrates. This can be achieved through plasmatreatment, abrasion, or ThreeBond primers. Contact a sales representative for additional information on primers.

The curing speed and the characteristics of the cured resin vary depending on the type, illuminance and integrated light intensity of light source. Check the conditions prior to use.

The resin has moisture curability. To obtain sufficient characteristics of the cured resin, irradiate the resin with UV light to cure it as soon as possible after applying it.

Be sure to not exceed the pressure limitations of the cartridge when choosing to use pneumatic gun for dispensing.

After using a cartridge of condensation cure type silicone RTV, make sure that the container is tightly sealed away from direct sunlight for re-use.

⑪ Safety

Provide adequate ventilation when using condensation cure type silicone. Various gases are generated depending on the curing mechanism: acetoxy type (acetic acid), alkoxy type (methanol), oxime type (methyl ethyl ketoxime), acetone type (acetone).

Quickly move to an area with fresh air if you begin to feel dizzy or discomfort.

Materials used to formulate silicone RTV can cause skin and eye irritation. Wear correct personal protection equipment when working with this product. If in contact with skin, wipe with a dry cloth or paper towel and then with soap and water. Flush with water for 15 minutes and contact a physician for medical attention if uncured material were to get into contact with the eyes.

Several silicone RTV can be classifed as hazardous depending on the country. Local laws must be obeyed regarding the storage, label, and handling of the product.

Keep away from children.

Read Safety Data Sheets (SDS) before using and keep these documents available for reference. Contact our Sales department for and SDS if not available with the product.