1603 HFR

Chloroprene Rubber Adhesive

DAEHEUNG CHEMICAL

1603HFR was developed for many Electric & Electronical assembly parts fixing as nonflammable Chloroprene series adhesive from DAEHEUNG CHEMICAL CO., LTD. It has strong adhesion power as well as flame resistance ability. For it is flame resistance ability, it has certificated "94 V-O UL Mark" by U.S.A Underwriters Laboratories. It has further enhanced the electrical characteristics and thermal resistance of other products.

1. Uses

- Sealing, adhering and fixing for the purposes of sound facilities parts, precision parts fixing, electrical and electronics parts.
- Adhesion for demanded nonflammable material like as automobile, vehicles, vessel.
- General sticking for metal, glass, plastics, rubber, wood, etc.

2. Characteristics

- Product of certification UL 94 V-O Mark.
- Good adhesion property for various materials.
- Excellent initial bonding strength and water resistance.
- Good workability as one component.

3. Physical properties

Properties	Value
Main component	Chloroprene rubber
Color	Light yellow
Solid content	42±2 % (at 105±5℃, 3hr)
Specific gravity	0.99±0.05 g/cm^3 (at 20℃)
Viscosity	10,000~11,000 cps (at 20℃ RVF #6 10rpm)
Open time	3 min (at 20℃)
Shelf life	9 months in unbroken package under dry and cool condition

4. Adhesion property

- **Adhesive strength**

peel strength kgf/25mm

	TIMES				
	1 HR	24 HR	48 HR	96 HR	168 HR
FE / CANVAS	2.4	6.4	9.6	10.6	1.2
FE / CR RUBBER	2.0	5.0	6.3	6.6	6.8
FE / POLY ESTER FILM	1.8	3.2	4.4	5.0	5.4
MELAMINE COATING FE / CANVAS	1.7	6.0	7.7	9.0	9.4
MELAMINE COATING FE / NATURAL RUBBER	1.9	4.3	5.6	6.1	6.5
PS FOAM / NATURAL RUBBER	2.5	3.8	6.5	8.0	8.3

	HEAT-PROOF		COLD PROOF	WATER PROOF	HEAT AGING
	60℃	80℃	-20℃	48 HR	70℃、96 hr
FE / CANVAS	5.4	3.	12.2	8.6	10.3
FE / CR RUBBER	3.1	2.0	7.3	5.8	6.5
FE / POLY ESTER FILM	3.4	2.8	5.0	3.5	2.6
MELAMINE COATING FE / CANVAS	5.1	3.2	9.9	7.8	9.0
PS FOAM / NATURAL RUBBER	3.0	1.9	8.1	5.4	6.3

- **Electric characteristics**

Surface of insulation resistance(Ω)

	After 250 hours	After 500 hours	After 1000 hours
20 ℃	5×10^{14}	5×10^{14}	5×10^{14}
80 ℃	7×10^{14}	7×10^{14}	9×10^{14}
90 ℃	7×10^{14}	7×10^{14}	8×10^{14}
100 ℃	7×10^{14}	9×10^{14}	3×10^{11}
110 ℃	1×10^{14}	5×10^{12}	3×10^{8}

※ JIS K6911 5.13 / 500V·DC

- **Hardness**

20℃						70℃	
10 days	30 days	6months	1 year	3 year	7 year	5 days	10days
70	76	82	89	90	90	89	90

- **Tension**

Temp.(℃)	- 20	0	20	40	60
Tension(%)	120	200	300	425	530

Heating Time(70℃)	0	100	200	500	1000
Tension(%)	350	270	230	190	140

Outdoor time	0	2	4	7
Tension (%)	350	280	260	240

- **Thermal expansion index**

  2~20 $\times 10^{-5}$ /℃

  10~15 $\times 10^{-5}$ /℃ in green(normal) states

  We will guess 3~8 $\times 10^{-5}$ /℃ after long-times with heating.

- **Test methods(test item, spec)**

  1) Softening Point : Test methods – ASTM D-816-55

  The days after leaving Fe / ASTM D-15-58T 3A rubber/Fe alone as it is attached

  After 1 days - 200℃ over

  After 3 days - 200℃ over

  After 5 days - 200℃ over

  After 10 days - 200℃ over

  2) Combustion test

  a) Test Methods :

  (1) put 5inch ×1/2 inch in the fire(Gas flame)

  (2) Watch the tested strip after 10 sec

  (3) After it is extinguished, put it in the fire at 10 sec

  (4) Then record the combustion time, existence of a load, the combustion of absorbent cotton, glowing

  b) Beforehand treatment :

  (1) Leaving it alone 48 HR at 23 ±2 ℃, RH 50 ± 5 %

  (2) Leaving it alone in the oven (at 70 ±1 ℃) by 168 HR

3) Test Results

Thickness	Beforehand treatment	The combustion time			10 times
		First test combustion time	2 times combustion test		Total flaming
			Flaming	Flaming +glowing	5 EA
0.8 mm	A	2 sec(a)	5 sec	15 sec(a)	20 sec
	B	2 sec(a)	5 sec	15 sec(a)	20 sec
3.2 mm	A	2 sec(a)	5 sec	15 sec(a)	20 sec
	B	2 sec(a)	5 sec	15 sec(a)	20 sec
UL94's Demand condition	V-0	10 sec(b)	10 sec	30 sec(b)	50 sec
	V-1	30 sec(b)	30 sec	60 sec(b)	250 sec
	V-2	30 sec	30 sec	60 sec	250 sec

(a) : No load, (b) : exist no load to burn absorbent cotton, (c) : exist a load to burn absorbent cotton

5. Used methods

- Beforehand treatment : Eliminated water, oil, dust, an oxide and clear the surface for attached
- Spread methods : Spread the adhesive flatly with the brush
- Spread volume : Standard is 150~200 g/m^2 if
- Adhesion : After spread adhesive at the both surface for attached material, dry for 5~10 min
- Adhere two both surface and press a long time(2~3 min is fit at 80℃ for heating condition)

6. Caution

- Avoid direct rays of the sun and keep in cool and dry place.
- The gas of adhesive is hazard, so be well ventilated.
- Don't use except for the original purpose.
- Caution of ventilation and fire.

7. Packaging

- 1kg C/N

Please contact us for further information or see Material Safety Data Sheet (MSDS) for this product.

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