MITSUBISHI CHEMICAL

Nichigo G-Tape Technical Report

Long Term Stability Test
Nichigo G-Tape

1. Test Objective

Nichigo G-Tape 3040BK, 3030BK, and 3020SB have been used in building construction fields for a long time. It has been confirmed by professional people that G-Tape has high weather resistance and excellent dimension stability and can be used for long term both indoor & outdoor. The objective of this test is to evaluate G-Tape's long term stability, that is specifically, how many years they can be used. We conducted accelerated aging test by temperature (heat) testing chamber.

2. Test Method

2-1) Peel test

We estimated peel & tensile strength of tapes as below steps. (Fig. 1).

Step 1 : Place tapes on stainless steel

Step 2 : Store samples at 194F (Keep in temperature testing chamber)
(Per ASTM 1980, a 3.5 weeks aging at 194F is equivalent to 5 years)

Step 3 : After 3.5, 7.0, 10.5, and 14.0 weeks at 194F, take out samples
(Per ASTM 1980, a 14.0 weeks aging at 194F is equivalent to 20 years)

Step 4 : Inspect appearance after storage at 194F

Step 5 : Measure 180 degree peel adhesion & tape tensile strength

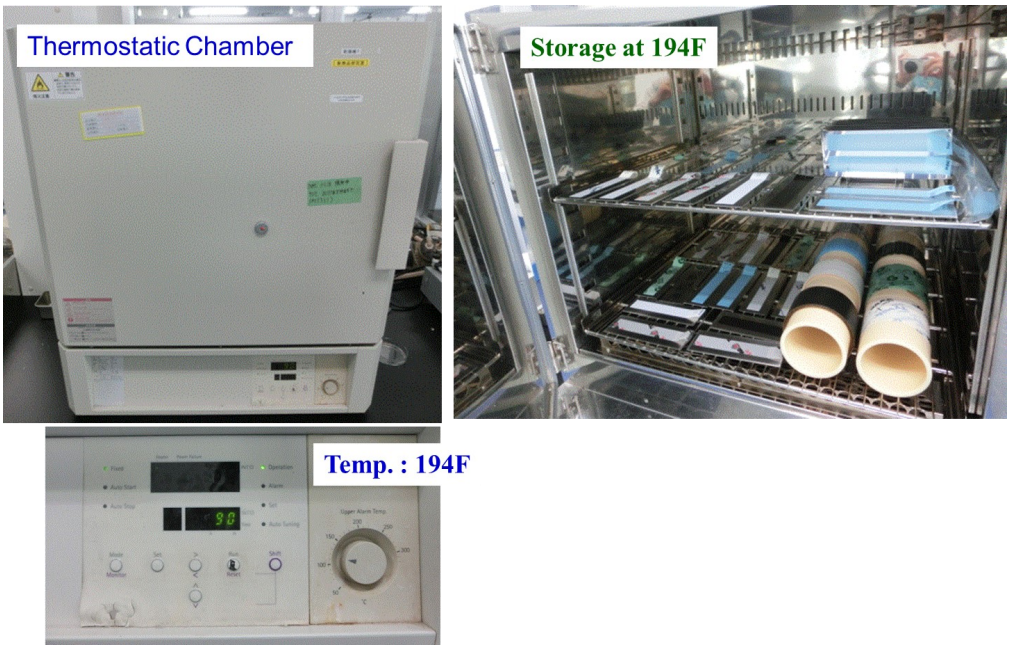

Fig.1 Appearance during stability test

3. Peel & tensile strength after heat accelerated test

G-Tape series (3040BK, 3030BK, and 3020SB) showed higher peel & tensile strength than competitors. Peel strength of 3040BK & 3020SB decreased but still kept high adhesion after 20 equivalent year. Tensile strength of G-Tape series kept almost same strength as initial after 20 equivalent year. Also, rolls after storage at 194F (20 equivalent year) did not show any fold, peel, or wrinkles. On the other hand, competitors lost peel & tensile strength since 10 equivalent year (7.0 weeks). (Fig. 2-4)

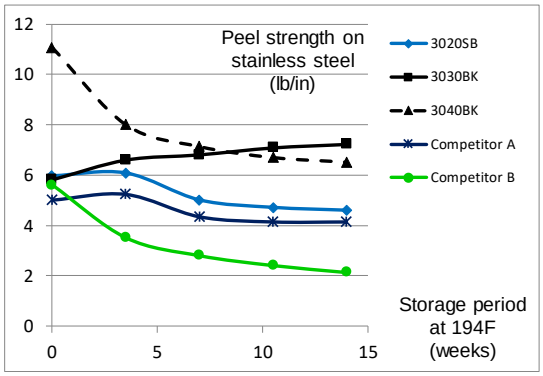

Fig. 2 Peel strength on stainless steel of tapes after storage at 194F (up to 20 equivalent year)

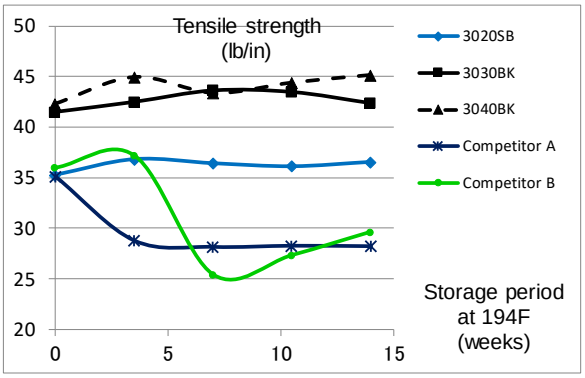

Fig. 3 Tensile strength of tapes after storage at 194F (up to 20 equivalent year)

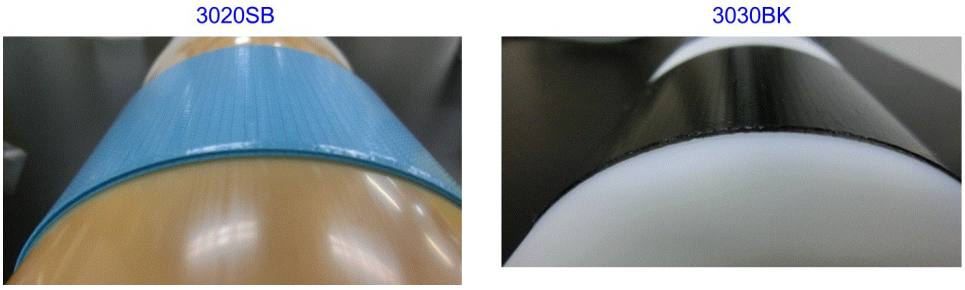

Fig. 4 Appearance after storage at 194F (20 equivalent year)

4. Observation

Heat affects physical features of tape over time. However, G-Tape series (3040BK, 3030BK, and 3020SB) kept high peel & tensile strength even after storage at 194F for 14.0 weeks that are equivalent to 20 years. Both substrate and adhesive of G-Tape have high weather resistance and excellent dimensional stability. It was concluded that G-Tape 3000 series can be used in building construction fields for a long time (at least 20 years) with high weather resistance and excellent dimension stability.

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