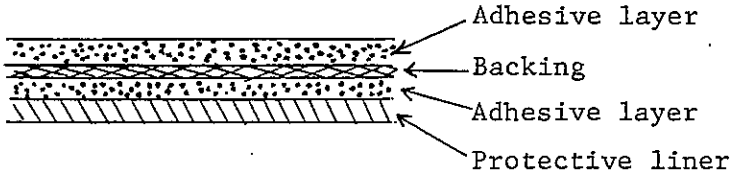
NITTO PRODUCT INFORMATION

Ref. No. IMM5251-D04-E 09'79

NITTO Heat-Bonding Film M-5251

NITTO Heat-bonding Film M-5251 is a non-woven film coated with a synthetic resin heat-active adhesive on both sides.
This is an ideal material as a nameplate adhesive and also performs excellently in general purpose bonding.

1. Construction



2. Features

1) With this film, short-time and low-temperature bonding is materialized. Plastic moldings are not damaged.
2) Provides high adhesive strength in a wide range of temperature.
3) Excellent durability.

3. Applications

1) Mounting nameplates, decorative plates, etc.
2) Bonding metal, leather, plastic plates, etc.

4. Size

Table 1 Standard Sizes

Thickness (mm)	Width (mm)	Length (M)
0.08	400	50

5. Adhesive Characteristics

5.1 Adhesive Strength to Various Substrates

Test Method : 90° Peeling Test

Backed with : 0.4 mm thick aluminum plate
Laminated to aluminum plate at: 140° C x 1 m/min.
Bonding condition : 130° C x 3 kg/cm^2 x 10 sec.
Peeling rate : 50 mm/min.

Table 2 Adhesive Strength to Various Substrates

Substrates (plate form)	Adhesion (kg/25mm)
ABS	8.6
Polystyrol	8.5
Bakelite	9.2
Acrylic	8.8
Polycarbonate	8.0
Stainless steel	8.6
Aluminum	8.2

5.2 Adhesive Strength/Temperature

Test Method : 90° Peeling Test

Backed with : 0.4 mm thick aluminum plate
Substrate : styrol plate
Laminated to aluminum plate at: 140° C x 1 m/min.
Bonding condition : 130° C x 3 kg/cm^2 x 10 sec.
Peeling rate : 50 mm/min.

Test Result :

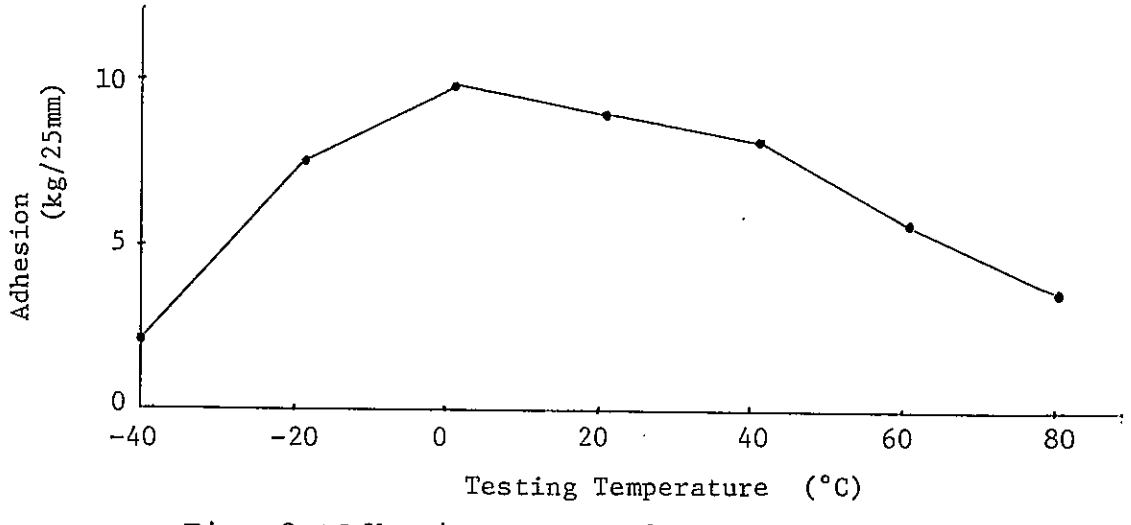


Fig. 2 Adhesive Strength & Temperature

5.3 Repulsion Test

Test Method : 90° Peeling Test

Substrates : 0.4 mm thick aluminum plate
ABS plate

Laminated to aluminum plate at: 140° C x 1 m/min.

Bonding condition : 130° C x 3 kg/cm^2 x 10 sec.

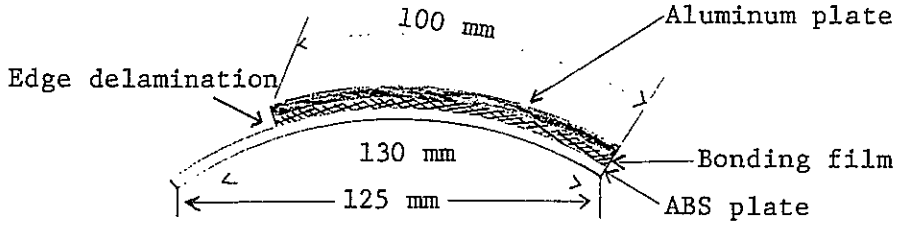


Fig. 3 Test Sample

Test Result:

Table 3 Edge Delamination in mm

Left at(°C) / Specimen for (hrs.)	60		80	
	4	24	4	24
NITTO M-5251	0	0	0	0.5
Cpmpetitive Item	0	1	3	4

6. Adhesion and Bonding Conditions

Test Method : 90° Peeling Test

Backed with : 0.4 mm thick aluminum plate

Substrate : polystyrol plate

Laminated to aluminum plate at: 140° C x 1 m/min.

Peeling rate : 50 mm/min.

Test Result: See Fig. 4 and Fig. 5 on the following page.

Test Result:

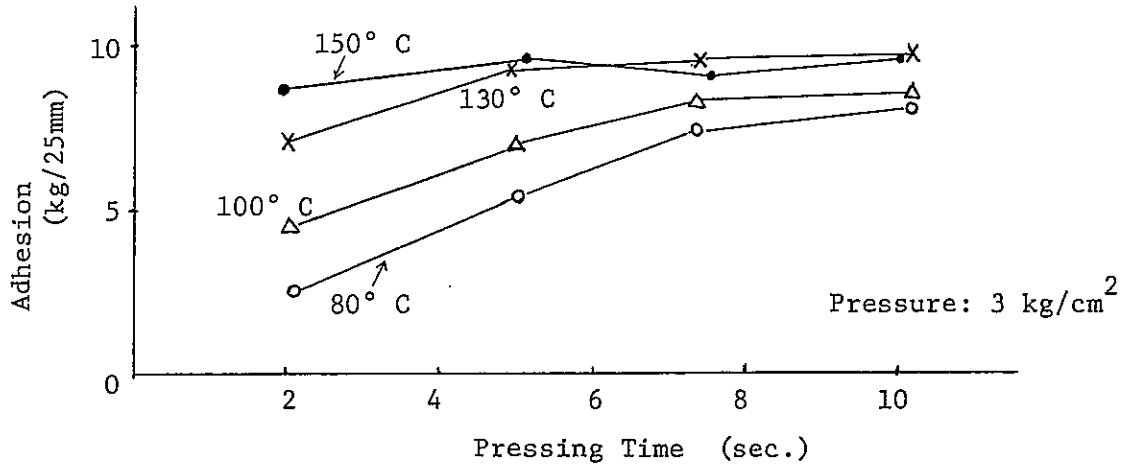


Fig. 4 Bonding Temperature/Time - Adhesion

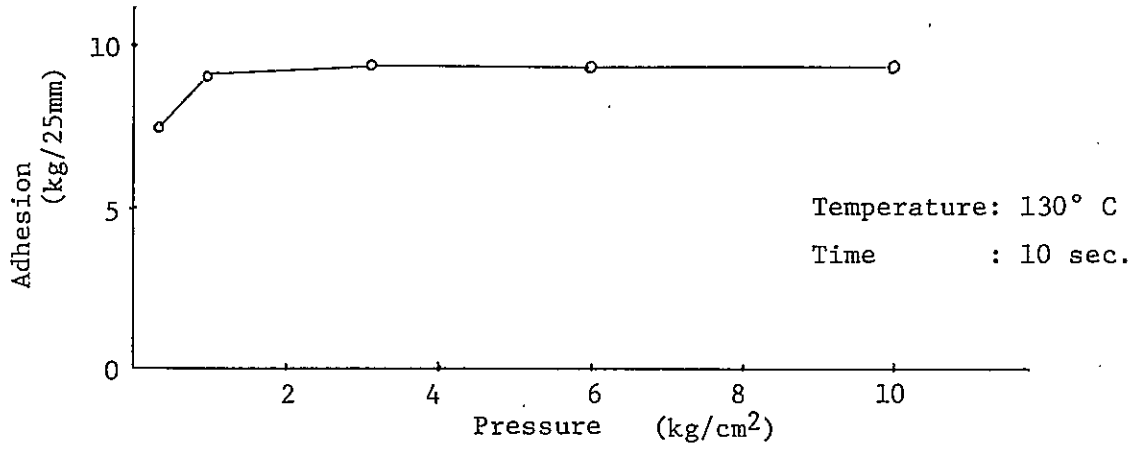


Fig. 5 Bonding Pressure - Adhesion

7. Precautions

1) Remove oil, grease, moisture, dust, dirt, etc. from the surface where this sheet is to be applied.

2) Store this product at a cool and dark place, keeping away from the sun.