NITTO DOUBLE – COATED ADHESIVE TAPE NO.511
For Mounting Printing Plates

1. Outline

NITTO DOUBLE – COATED ADHESIVE TAPE NO.511 is designed specifically for use in mounting printing plates by adopting requests of people in printing offices and plate – makers shops. It has superior heat and solvent resistance. It can be safely used for typography or color printing by high speed rotary press, for example, printing 100,000 copies per hour.

2. Construction

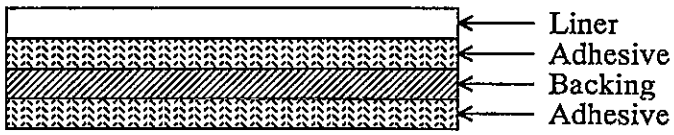

Fig. 1

3. Features

1) Superior adhesion.
2) Usable in a wide range of temperatures.
3) High heat resistance of the tape prevents deviation of the printing plate during printing.
   It is surely durable against frictional heat.
4) High solvent resistance.
   Seldom attacked by gasoline, thinner, benzine, kerosine. Even if the printing plate is cleaned with a solvent during printing, the printing plate is not deviated nor oozes out the adhesive.
5) Excellent storage stability.

4. Uses

For mounting printing plates, especiallly when heat and solvent resistance is required:

1) Mounting printing plates for carbon process by heat,
2) Mounting stand – by printing plates for extended terms and
3) Mounting synthetic rubber printing plates.

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5. Standard Sizes

Table 1

Thickness (mm)		Width (mm)	Length (m)
Tape	Liner		
0.13 ± 0.01	0.065	25, 50, 75, 100	30

6. Properties

6.1 Tensile Strength, Peel Strength

Table 2

Item		Unit	Measured Values
Tensile strength		kg/15mm w.	Ave. 6.41 (5.98~6.75)
Peel strength	Stainless steel 20 ℃	g/20mm w.	Ave. 698 (734~662)
	Stainless steel 40 ℃		Ave. 567 (582~546)
	Stainless steel 0 ℃		Ave. 674 (810~562)
	Iron 20 ℃		Ave. 842 (867~656)
	Aluminum 20 ℃		Ave. 716 (850~598)
	Copper 20 ℃		Ave. 885 (967~778)

Test method: in accordance with JIS C 2107

6.2 Shear Strength

Table 3

Substrate	Unit	Measured Values
Copper to Copper	kg/c m²	5.1
Copper to Iron		4.9
Copper to Stainless steel		5.4
Copper to Aluminum		3.8

Test method: Each couple of substrates were lap – jointed with No.511 (10mm x 20mm) and the force to fracture was measured at 20 ℃ at a pulling rate of 250mm/min.

6.3 Deviation

Table 4

Measuring Temperature (°C)	Load (g)	No.511	Competitive Item (abroad)	Competitive Item (domestic)
0	500	0	0	0
20	500	0.5mm	1mm	1mm
40	200	1mm	Fell after 4hrs.	Fell after 4hrs.
70	50	0	Fell after 2hrs.	Fell after 2hrs.

Test method: A test specimen of 10mm x 20mm was applied to the substrate and loaded constantly and vertically. After the lapse of 4 hours, the deviation was measured at each temperature.

6.4 Solvent Resistance

Table 5

Solvent	No.511	Competitive Item (abroad)
Gasoline	Good after immersion for 20hrs.	After 30min., the edge started to be dissolved. After 20hrs., the test specimen was completely dissolved.
Thinner	Good after immersion for 5hrs.	
Toluene	Good after immersion for 20hrs.	

Test method: A test specimen of 20mm x 30mm was applied to the aluminum foil and immersed in each solvent. After the lapse of pre − determined hours, the condition was observed.

6.5 Heat Resistance

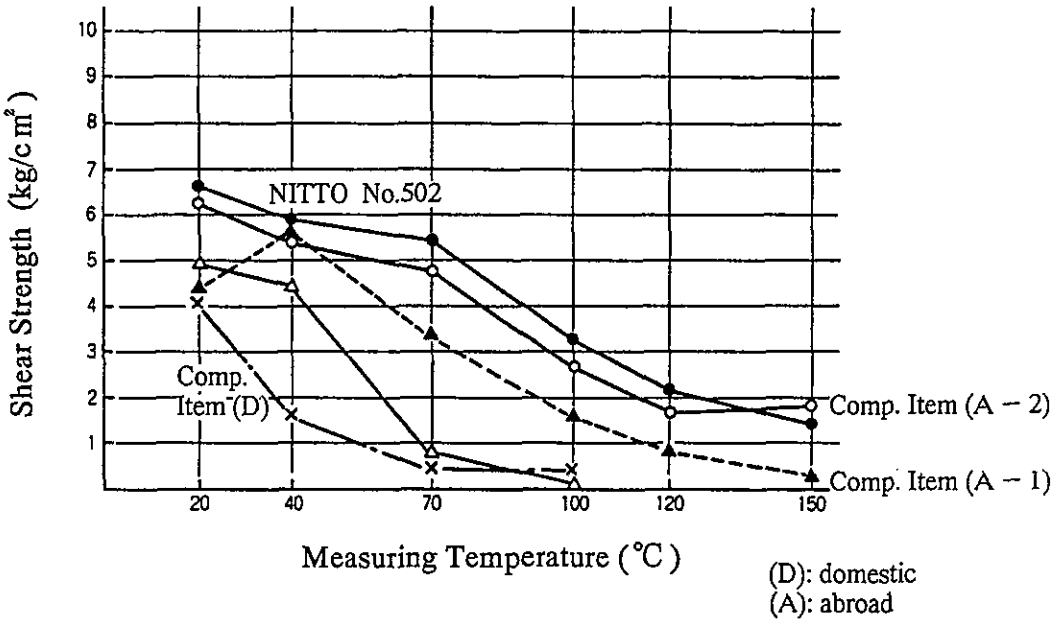

Fig. 2 Shear Strength vs. Temperature

Measuring condition:

Tester: "Tensilon" type tensile tester

Pulling rate: 200 mm/min.

Bond area: 10mm x 10mm

Substrate: Aluminum foil (0.08mm thick)

Testing method:

A pair of aluminum foil were lap – jointed with a test specimen of 10mm x 10mm and the shear strength was measured at each temperature.

7. How to Use

7.1 How To Remove the Liner

Apply the tape with the liner to the printing plate, metal base or cylinder.

For removal of the liner, use a NT cutter, gimlet, etc. Make the corner of the liner loose with the cutter edge as shown below. Then, fold back the corner with the inside of the thumb and lift the liner, and the liner will be easily removed.

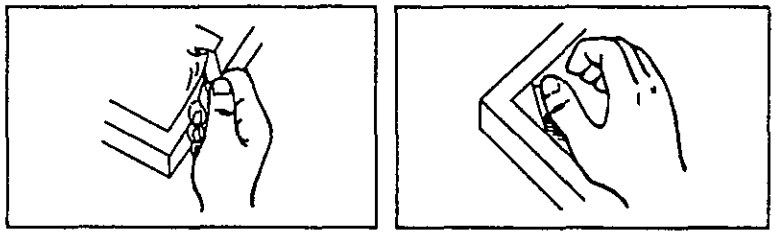

Fig. 3

7.2 Cleaning of the Printing Plate During Printing

Clean the printing plate with a solvent suitable for the printing ink now in use, gasoline, thinner, kerosene, benzine, etc. No.511 has excellent solvent resistance, so deviation of the printing plate or adhesive oozing does not occur.

7.3 Removal of the Printing Plates

No.511 has excellent solvent resistance and high adhesion, especially at high temperature. The following procedures are recommended.

7.3.1 Removal by Heat

Recommended heating conditions:

Ring burner (city gas)	2 ~ 3 min.
Electric heater (600W)	10 ~ 12 min.
Dryer (130℃)	20 ~ 25 min.

Size Printing plate : 0.5mm x 100mm x 100mm

Metal base : 22mm x 220mm x 155mm

NOTE : Too long heating may cause the adhesive to be left on the substrate. If so, remove the adhesive residue with trichloroethylene.

7.3.2 Removal with Trichloroethylene

Pour trichloroethylene between the tape and the substrate and push the spatula between them. Repeat the job, then, the tape will be removed without damage on the plate or the metal base.

NOTE : If forcibly the spatula is pushed or the plate is removed, the plate may be damaged.

7.4 Trichloroethylene

Trichloroethylene is the most familiar industrial organic solvent and widely used. That is because it is not explosive or flammable. Therefore, it is not governed by the Fire Protection Law. Its toxicity is relatively weak. Accordingly, it seldom causes accidents if it is carefully handled.

7.4.1 Trichloroethylene is not explosive or flammable at room temperature. Usually, it is used as a noninflammable solvent.

Boiling point : 86.9℃ Firing point : 410℃

7.4.2 The toxicity of trichloroethylene is relatively weak among the organic solvents and equivalent to toluene, xyrol, methyl alcohol, etc. which are used as a solvent for paint. The max. ave. concentration for safety is 200ppm. Accordingly, the job in the normal working condition does not injure human health, however, sufficient vnetilation is recommended.

8. Precautions for Use

1) Before application, remove oil and grease, moisture and water, dirt and dust from the surface of the substrate.
2) In the case of entrapped air, make a hole with NT cutter or gimlet and expel the air.
3) No.511 has excellent storage stability, but store it in a cool and dark place.

9. Others

1) We have another printing plate mounting tape, No.513.

No.513 is featured by

1. Easy fitting or removal of the printing plates.
2. Excellent freeze resistance and storage stability.
3. Superior adhesion to natural rubber – based printing plates used for printing corrugated board.

Recommended uses:

No.511 Mounting the carbon process printing plates by heat.
Mounting stand – by printing plates for a long term.
Mounting synthetic rubber – based printing plates.

No.513 Mounting printing plates for a short term.
Mounting natural rubber – based printing plates.

2) Technical data figures herein presented are typical and should not be used for any specification purpose.