NITTO DENKO
PRODUCT DATA SHEET

ABDJ No. WA-0003
Nitto Denko Corporation
Tape Products Business Division
Double Coated Products Business Department

Double-sided adhesive tape No. 5000NS

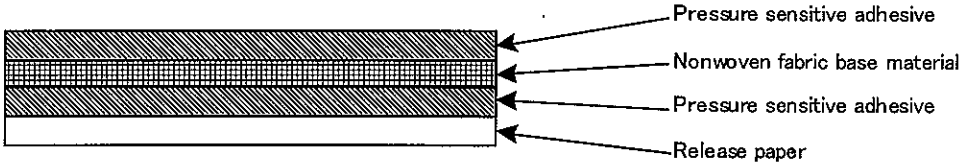
(Recyclable, double-sided adhesive tape)

1. Outline

NITTO DENKO double-sided adhesive tape No. 5000NS is made by impregnating a flexible and strong nonwoven fabric with NITTO's own powerful, pressure sensitive adhesive. This double-sided adhesive tape will stick to a variety of substrates such as metals, plastics and urethane foams. It has excellent holding properties that make it shock resistant and durability.

Since Nitto 5000NS tape has superior tensile strength, it is hard to remove by peeling but, when it is removed, the glue does not stay on the substrate. This is true even when the tape has been left bonded to a substrate for a long time. Therefore, this double-sided adhesive tape is definitely removable and it is suitable for use in situations where recycling by dismantling is required.

2. Construction



(* The product number, No. 5000NS, is printed in purple on the outer surface of the release paper.)

3. Standard size

Tape thickness (mm)	Width (mm)	Length (mm)
0.16	400	50

* If this size doesn't meet your needs, tapes 2 to 1,200 mm wide and 50 to 200 mm long are also available. For more details, please consult us.

4. Features

(1) Since the tape base does not tear easily, the entire tape product can be removed from the substrate completely.

Since the tape fabric's tensile strength has been greatly improved, when the tape is peeled off it does not tear, which makes the tape product easily removable.

(2) The glue is not left behind on the substrate, leading to quick, clean removal of the tape.

Even after the tape has been attached to various substrates for a long time, when it is peeled off, the glue stays with the tape fabric base, not on the substrate.

(3) Wide range of uses

The tape demonstrates a uniform adhesive strength when bonded to urethane foam, metals or plastics (including polyolefin plastics, also known as polypropylene (PP), that were previously considered difficult to bond to).

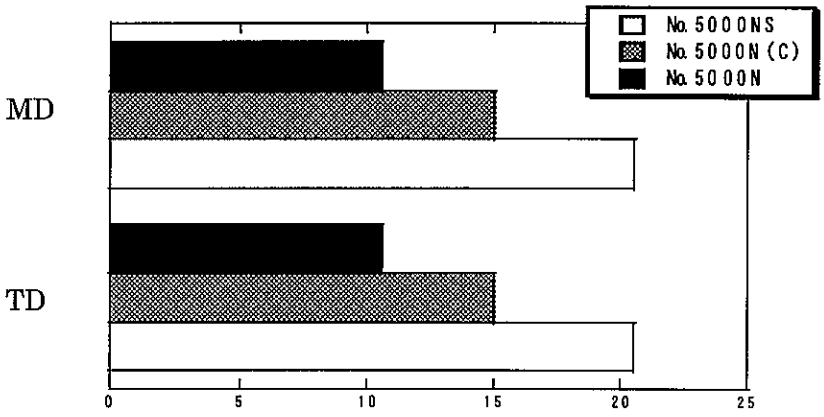
(4) Wide range of working temperatures

The tape shows excellent adhesiveness across a wide temperature range.

(5) The tape has excellent shock resistant properties.

5. Characteristics

5-1. Tape tensile strength



Tape tensile strength [N/10mm]

<Peel testing method>

Sample size: 10 mm wide [cut along both the machine and table directions]

Measurement: Measured at a peel speed of 100 mm/min, at normal temperature, using a tensile tester with the chucks 50 mm apart from each other.

5-5. Removable qualities

	No.5000NS		No.5000N(C)		No.5000N	
	Peel properties	Glue residue	Peel properties	Glue residue	Peel properties	Glue residue
Stainless steel	○	○	○	○	×	○
Aluminum	○	○	○	○	×	○
PP	○	○	○	○	○	○
ABS	○	○	○	○	×	○
Acrylic	○	○	○	○	×	○
PSt	○	○	○	○	×	○
PC	○	△	○	△	×	△
PVC	○	△	○	△	×	△
PET	○	○	○	○	×	○
Glass	○	○	○	○	×	○

Evaluation of the peel properties

○: Peeled off without tearing the tape. ×: Tape was torn when peeled off.

Evaluation of the glue residue

○: No glue residue △: A small amount of glue was left.

×: A considerable amount of glue remained.

<Peel testing method>

Sample size: 3 mm wide [cut along the machine direction]
(Tape sample attached to a piece of urethane foam 5 mm thick)

Application: Applied at normal temperature by rolling across the surface in both directions with a 2-kg roller, one time each.

Measurement: The sample is applied and stored at 60° C x 90 %RH for 15 days. Then, it is left for one day at normal temperature. Next, in a normal environment, it was peeled off at a peel angle of 90° and at a peel speed of 300 mm/min using a tensile tester. While being peeled, a visual check was made to determine if the sample tape peels off continuously without tearing.

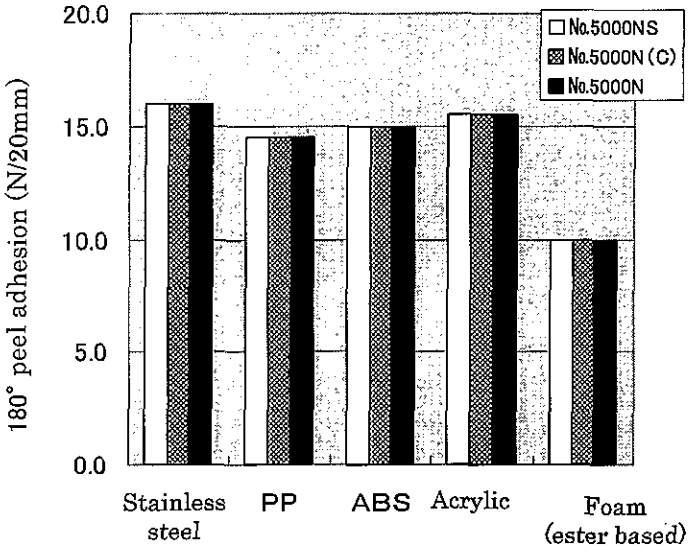
<Glue residue testing method>

Sample size: 20 mm wide (with a 25 μm PET backing)

Application: Applied at normal temperature by rolling across the surface in both directions with a 2-kg roller, one time each.

Measurement: The sample was stored in the same conditions as used for the peel test measurement above. It was peeled off at a peel angle of 180° and at a peel speed of 300 mm/min using a tensile tester. While peeling, a visual check was made to see whether any glue remained on the substrate.

5-3. 180° peel adhesion



[N/20mm]

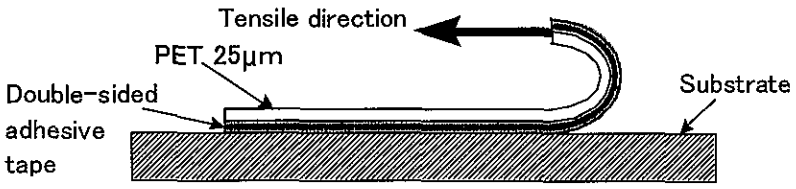
	No.5000NS	No.5000N (C)	No.5000N
Stainless steel	16.0	16.0	16.0
Aluminum	15.0	15.0	15.0
PP	14.5	14.5	14.5
ABS	15.0	15.0	15.0
Acrylic	15.5	15.5	15.5
PCABS	15.5	15.5	15.5
PSt	16.0	16.0	16.0
PC	16.0	16.0	16.0
PVC	19.0	19.0	19.0
PET	15.0	15.0	15.0
Glass	14.5	14.5	14.5
Foam (ester based)	10.0	10.0	10.0
Foam (ether based)	7.0	7.0	7.0

<Testing method>

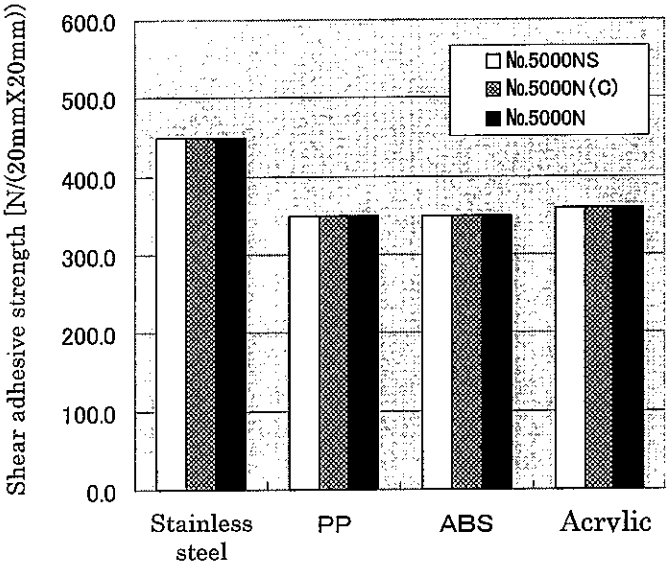
Sample size: 20 mm wide (with a 25 μm PET backing)

Application: Applied at normal temperature (23° C x 65 %RH) by rolling across the surface in both directions with a 2-kg roller, one time each.

Measurement: After applying the sample, it is aged for 30 minutes at normal temperature. Then the sample adhesion is measured at a peel speed of 300 mm/min using a tensile tester.



5-4. Shear adhesive strength



[N/(20mmX20mm)]

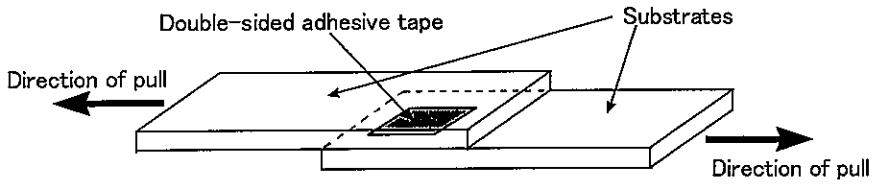
	No.5000NS	No.5000N(C)	No.5000N
Stainless steel	450	450	450
Aluminu	400	400	400
PP	350	350	350
ABS	350	350	350
Acrylic	360	360	360
PCABS	370	370	370
PSt	400	400	400
PC	410	410	410
PVC	500	500	500
PET	400	400	400
Glass	500	500	500

<Testing method>

Sample size: 20 mm x 20 mm

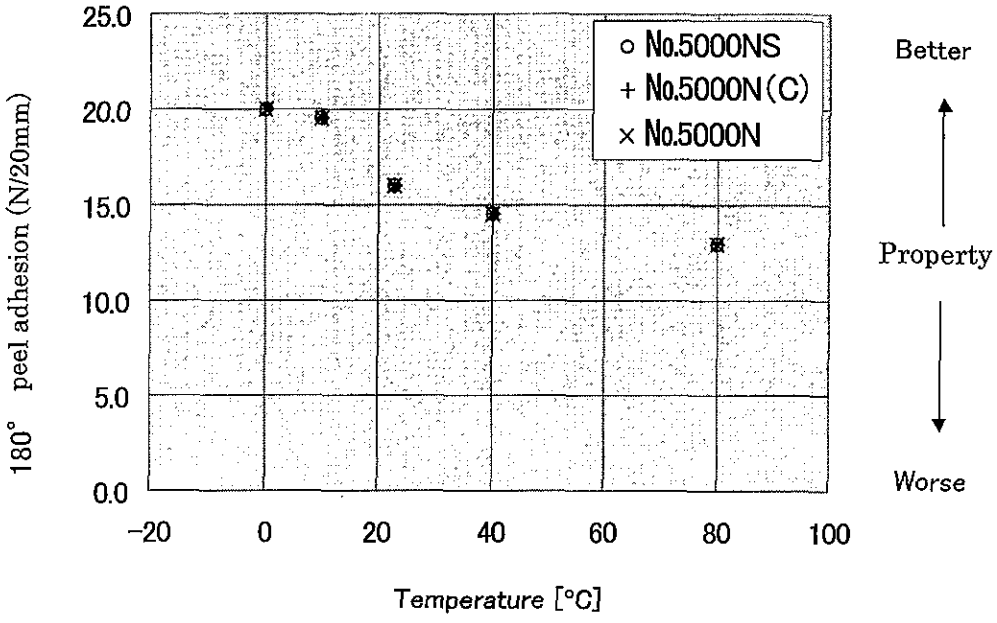
Application: Applied at normal temperature (23° C x 65 %RH) by rolling across the surface in both directions with a 5-kg roller, one time each.

Measurement: After applying the sample, it is aged for 30 minutes at normal temperature. Then the sample adhesion is measured at a peel speed of 50 mm/min using a tensile tester.



5-5. Adhesive properties at various temperatures

5-5-1. 180° peel adhesion



<Testing method>

Sample size: 20 mm wide (with a 25 μm PET backing)

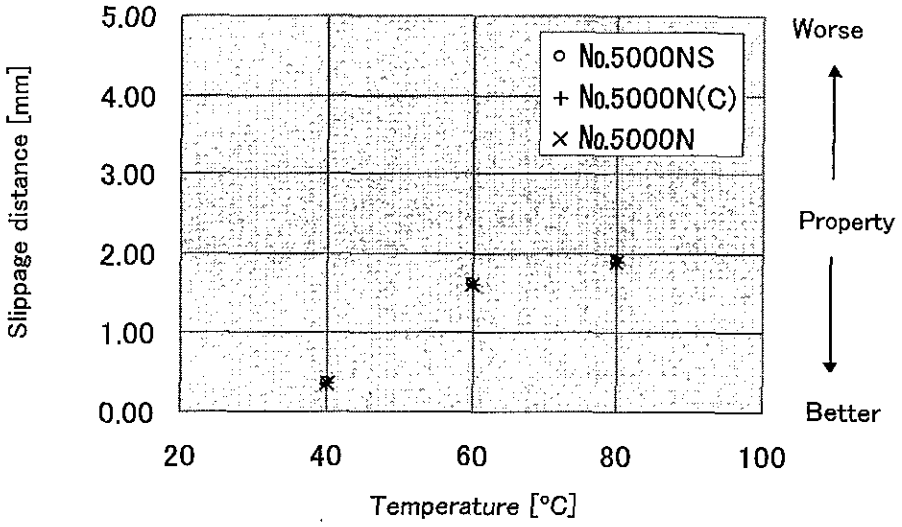
Substrate: Stainless steel

Application/measuring temperature: 0° C, 10° C, 23° C, 40° C, 80° C

Application: Applied at each of the temperatures above by rolling across the surface in both directions with a 2-kg roller, one time each.

Measurement: After applying the sample, it is aged for 30 minutes at each of the specified temperatures. Then the sample adhesion is measured at a peel speed of 300 mm/min using a tensile tester.

5-5-2. Holding power



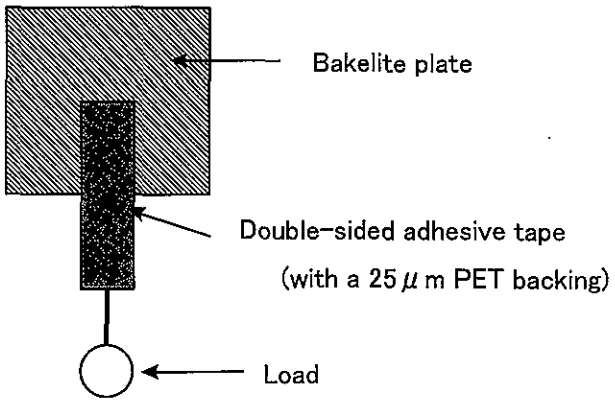
<Testing method>

Attachment area: 20 mm x 10 mm (with a 25 μm PET backing)

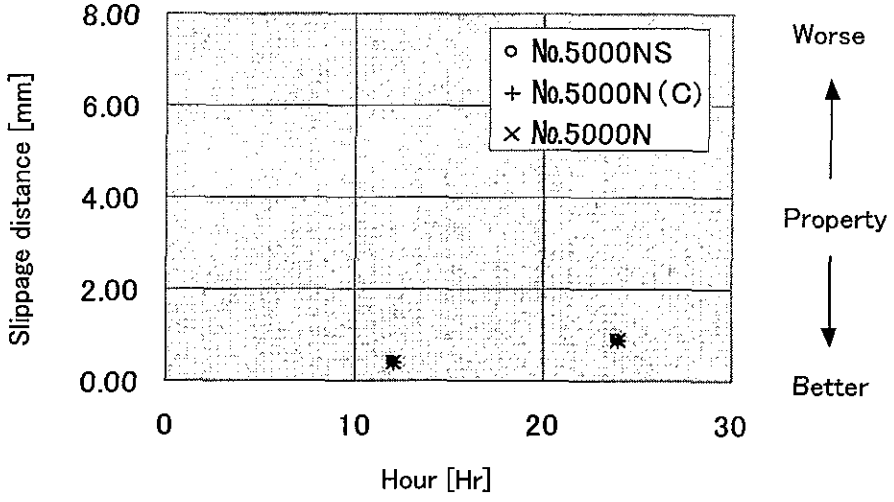
Substrate: Bakelite

Application: Applied hard at normal temperature using a hand roller.

Measurement: After applying the tape, it is aged for 30 minutes at 40°C, 60°C, and 80°C respectively for each test. Then, a load of 500 g is applied to the tape and it is left at that temperature. One hour later, the amount of slippage is measured.



5-6. Constant force peel



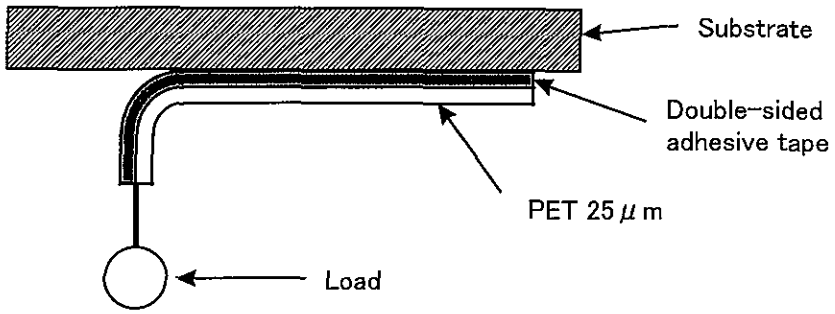
<Testing method>

Sample size: 20 mm wide (with a 25 μm PET backing)

Substrate: Stainless steel

Application: Applied at normal temperature by rolling across the surface in both directions with a 2-kg roller, one time each.

Measurement: After applying the sample, it is aged for 24 hours at normal temperature. Then, a load of 0.1 kg is applied to the sample. At 12 and 24 hours after the load is applied, the amount the sample tape has slipped is measured.



6. Precautions for use

(1) Since the product contains pressure sensitive adhesive, it can be bonded to various kinds of substrates by applying sufficient pressure.

(2) Remove any water, oil, dust, etc. from the surface of the substrates.

(3) Avoid storing the product in places exposed to high temperatures or high humidity, or in direct sunlight.

(4) The product is easily removed. However, when the product is peeled off, pay attention to the following points.
* The angle when peeling the tape (The product is easily peeled off at a peel angle of 90° to 100° .)
* The speed when peeling the tape (The faster the peel speed, the easier the tape will tear.)
* The temperature when peeling the tape (The higher the temperature when peeling, the more glue will remain on the substrate.)

7. Other factors

The numbers presented in the data sheets are typical measurements obtained in our laboratory.
They are not guaranteed values.