Nitto
Innovation for Customers

Product Data Sheet

Double-coated adhesive tape

No.516

Outline

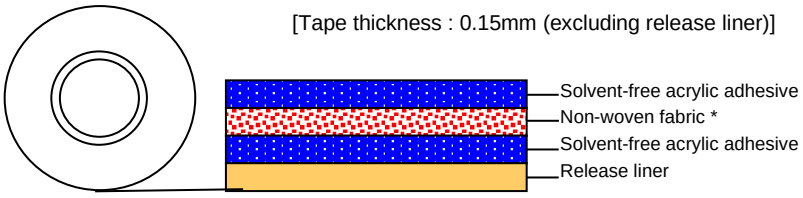
Nitto No.516 is a double-coated adhesive tape that uses solvent-free adhesive to reduce the amount of VOC emitted*. (VOC: Volatile Organic Compounds)
No.516 can be used safely in airtight places such as automobile interior and houses, since VOC emission of 14 specified materials do not exceed guideline value set by Ministry of Health of Japan.

(*): The amount of VOC is reduced 90% from our existing products.

Structure

No.516

[Tape thickness : 0.15mm (excluding release liner)]



[Nitto LowVOCs] is printed on release liner

* "Non-woven fabric" is classified under a law called Customs Act of Fixed Rate Chapter 48 "Paper and paperboard; articles of paper pulp, of paper or of paperboard".

Features

- ●No.516 has no organic solvent such as Toluene, Xylene and Ethyl acetate etc.
- ●No.516 is lowered minimal volatile organic compounds (VOC) and smell.
- ●No.516 VOC emission of 14 specified materials comply guideline of Japanese Ministry of Health.
- ●Follows the contour of the substrate by non-woven fabric carrier.
- ●Excellent adhesion to curved surface.
- ●Ten restricted substances by RoHS are not contained.

Applications

- ●Fixing of metal name plates for home electric appliances / OA equipments and cushioning.
- ●Fixing of plastic display plate.
- ●Fixing for acoustic absorbent of automotive interior materials and floor mats.
- ●Fixing of bonding films or paper.

Sizes

Tape thickness (mm)	Width (mm)	Length (m)
0.15	5-1200	20,50

For more information, please contact us.

Nitto Denko Corporation

Properties

●VOC emission measurement values

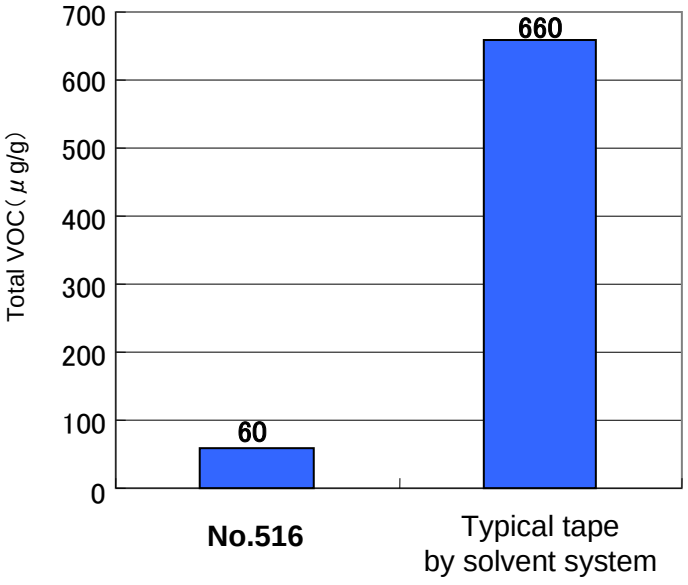
Measurement material	Guideline values [μg/m³]	No.516
Formaldehyde	100	ND
Toluene	260	ND
(o, m, p-) xylene	200	ND
P-dichlorobenzene	240	ND
Ethylbenzene	3800	ND
Styrene	220	ND
Chlorpyrifos	1	ND
Di-n-butyl phthalate	17	ND
Tetradecane	330	ND
Di-2-ethyhexyl phthalate	100	ND
Diazinon	0.29	ND
Acetaldehyde	48	ND
Fenobucarb	33	ND

<Analysis method>
JIS A-1901: 2015
Small sized chamber method
●17th January 2019
Guidelines published by the Ministry of Health, Labor and Welfare (indoor air pollution)

ND=not detected

* VOC emission of No. 516 does not exceed indoor concentration guideline value set by Ministry of Health, Labor and Welfare.

● VOC emission measurement values –heat evolution gas analysis -



Analysis equipment
Head space sampler : Agilent Technologies 7694
Gas chromatography : Agilent Technologies 6890

Measurement condition
Heat condition：80 degree C ×30min
GC column : DB-FFAP

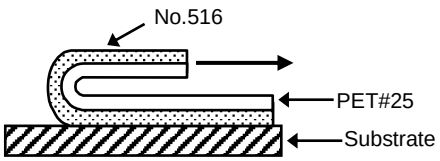
Values are in terms of toluene.

●180 degree peeling adhesion for each substrate

Substrate	No.516
Stainless steel plate	12.0
Aluminum plate	10.0
ABS plate	13.5
Acrylic plate	12.7
PCABS plate	12.8
PS t plate	13.0
PC plate	14.8
Glass plate	9.8
PP plate	10.0
POM plate	11.3

(Unit: N/20 mm)
Tape area: 20mm width
Lining material: PET#25
Pressing condition: 1 pass back and forth with 2-kg roller at 23 degree C, 50%RH
Applying condition : 23 degree C, 50%RH x 30min
Peeling speed: 300 mm/min
Peeling angle: 180 degree
Measurement temperature: 23 degree C, 50%RH

<Test method>



●180 degree peeling strength for each temperature

Temperature	No.516
-20 degree C	22.0
-10 degree C	19.5
0 degree C	17.0
10 degree C	16.0
23 degree C	12.0
40 degree C	11.5
60 degree C	10.5
80 degree C	9.5
100 degree C	9.0

(Unit: N/20 mm)
Tape area: 20mm width
Substrate: Stainless steel plate
Lining material: PET #25
Pressing condition: 1 pass back and forth with 2-kg roller at 23 degree C, 50%RH
Applying condition: Each temperature for 30min
Peeling speed: 30 mm/min
Peeling angle: 180 degree
Measurement temperature:
-20, -10, 0, 10, 23, 40, 60, 80,100 degree C

●180 degree peeling strength after application -Aging after application-

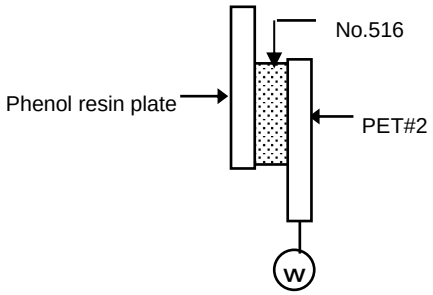
Aging after application	No.516
1 min later	11.5
30 min later	12.0
24 hrs later	12.6
48 hrs later	12.8
72 hrs later	13.5
168 hrs later	14.0

(Unit: N/20mm)
Substrate: Stainless steel plate
Tape area: 20mm width
Lining material: PET #25
Pressing conditon:1 pass back and forth with 2-kg roller at 23 degree C, 50%RH
Applying Condition: 23 degree C/50%RH x 1min,30min,24hrs, 48hrs, 72hrs、168hrs
Peeling speed :300mm/min
Peeling angle : 180 degree
Measurement temperature:23 degree C/50%RH

●Holding power

Measurement temperature	No.516
40 degree C	0.5
80 degree C	1.0

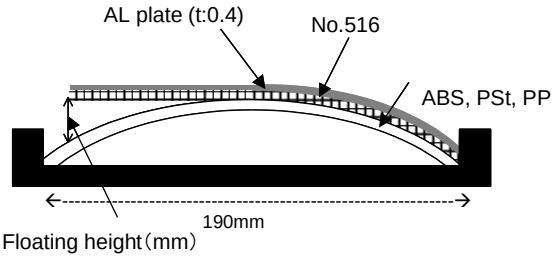
(Unit: N/20mm)
Substrate: Phenol resin plate
Tape area:10mm x 20 ㎜
Applying condition: Measurement temperature x 30min
Measurement temperature:40 degree C, 80 degree C
Load : 4.9N(500g)
Load time : 1 h



● Resistance to repulsion for plastic plate

Substrate	No.516
ABS plate	0
PS t Plate	0
PP plate	0

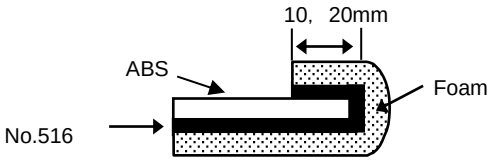
(Unit: mm/72Hr)
AL plate: 20mm x 180mm
Substrate size: 30mm x 200mm
Repulsion condition: Laminate a substrate and AL plate with tape by laminating machine. Fit the left sample into wooden mold then leave it at 70 degree C x 72Hrs and measure the floating height.



● Resistance to repulsion for form material

Condition		No.516
20mm hold	23 degree C x 24h	0
	70 degree C x 2h	0
10mm hold	23 degree x 24h	0
	70 degree x 2h	0.5

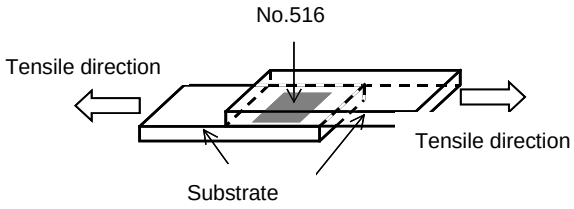
(Unit: mm)
Leaving temperature : 23,70 degree C
Foam material : Ether polyurethane foam
Foam thickness: 10mm
Tape width: 10mm
Bend length :10mm,20mm
Pressing condition: 1 pass back and forth with 2-kg roller
Substrate: ABS plate (2mm thickness)
Measurement condition:
23 degree C-> after setting 24 hours
70 degree C->floating and peeling after 2 hours measured



●Shearing adhesive strength for each substrate

Temperature	No.516
Stainless plate / Stainless plate	520
Aluminum plate / Aluminum plate	470
ABS plate/ABS plate	360

(Unit: N/20mmx20mm)
Tape area :20mm x 20mm
Pressing condition : 1 pass back and forth with 5-kg at 23 degree C/50%RH
Applying condition :23 degree C/50%RH × 30min
Measurement temperature :23 degree C/50%RH
Peeling speed:50mm/min



●Shearing adhesive strength for each temperature

Temperature	No.516
0 degree C	820
23 degree C	520
40 degree C	500
60 degree C	260
80 degree C	120

(Unit: N/20mmx20mm)
Substrate: Stainless plate/ stainless plate
Tape area :20 x 20mm
Pressing condition: 1 pass back and forth with 5-kg at 23 degree C/50%RH
Applying condition: Each temperature for x 30min
Measurement temperature: 0, 23, 40, 60, 80 degree C
Peeling speed : 50mm/min

●180 degree peeling adhesion -Aging(durability) at each condition after applying

Condition		No.516
Initial (23 degree C/50%RH x30min)		12.0
-30 degree C x 30 days		12.1
80 degree C	1 day	15.2
	7 days	19.3
	14 days	19.5
	30 days	23.8
40 degree C 92%RH	14 days	14.8
	30 days	16.0
60 degree C/90%RH x 30days		16.5
Heat Shock [100cycles]*		19.8

(Unit :N/20mm)
Substrate: Stainless plate
Lining material: PET#25
Pressing condition: 1 pass back and forth with 2kg at 23 degree C/50%RH
Applying condition: Refer to the left fig.
Peeling speed : 300 ㎜/min
Peeling angle: 180 degree
Measurement temperature: 23degree C/50%RH

* Heat shock condition
[-40 degree C x 30min <-> 90 degree C x30min] x100cycles

Precautions when using

●Remove all oil, moisture and dirt from the surface of the substrate before applying.

●The tape employs pressure-sensitive adhesive. Be sure to apply pressure with a roller or press when applying. Failure to do so could affect properties or appearance.

●The tape may not adhere well to significantly uneven or distorted surfaces. Level off the surface as much as possible before applying.

●Avoid setting or using such that significant stress is placed on the tape for several hours after application.

Precautions when storing

●Be sure to keep the tape in its box when not using.

●Keep in a cool dark place not exposed to direct sunlight.

Safety precautions

WARNING
●Make sure the product is suitable for the application (objective and conditions) before attempting to use. The tape may come off depending on the substrate to or conditions under which it is applied. ●Use in combination with another method of joining if there is possibility of an accident.

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