



NITTO PRODUCT INFORMATION

Ref. No. 509AIMR-D04-E 07'83

NITTO No.509A Improved Type

This is a No.509A Improved Type in moisture resistance.

1. ADHESION

Table 1 Peel Strength in g/19mm width

| Substrate | Sample Face | NITTO No.509A | | 3M |
|-----------------|-------------|---------------|----------|------|
| | | Improved | Existing | #906 |
| Stainless steel | 1st | 378 | 640 | 229 |
| | 2nd | 348 | 620 | 265 |
| Paperboard | 1st | 428 | 683 | 499 |
| | 2nd | 403 | 642 | 564 |

Test Method:

Test specimen shall be conditioned at 23°C and 65%RH for 4 hours or longer, then, applied to a substrate, passing a 2kg rubber roller once in each direction. After the duration of 30 minutes, the 180° peel strength shall be measured by using Schopper tensile tester at a rate of 300mm/min.

2. SHEAR STRENGTH

Table 2 Shear Strength at 23°C

| Sample | NITTO No.509A | | 3M |
|------------------------------------|---------------|----------|------|
| | Improved | Existing | #906 |
| Shear Strength (kg/19mm x 20mm) | 9.3 | 7.6 | 6.9 |

Test Method:

After conditioning similarly as mentioned above in 1. ADHESION, test specimens shall be applied to both surfaces of paperboard. After the duration of 30 minutes, the force required to cause shear failure shall be measure by using Schopper tensile tester at a rate of 300mm/min.

3. OOZING

Table 3 Oozing Test Result

| Sample Paper | NITTO No.509A | | 3M |
|--------------------|---------------|----------|------|
| | Improved | Existing | #906 |
| High Quality Paper | AA | ZZ | AA |
| Low Quality Paper | AA | ZZ | AA |
| Coated Paper | AA | BB | AA |

Criteria: AA= no oozing, BB= slight oozing, ZZ= oozing over the whole surface.

Test Method:

Test specimens shall be applied to each type of paper as specified under a pressure of 800g/sq.cm by means of a press. After the duration of 1 hour at 40°C, the oozing of the adhesive shall be examined.

4. WATER-SOLUBILITY

Table 4 Water-Solubility

| Sample pH | NITTO No.509A | | 3M |
|--------------|---------------|-----------------------|-----------------------|
| | Improved | Existing | #906 |
| 3 | Soluble | Not soluble | Not soluble |
| 7 | Soluble | Partially not soluble | Partially not soluble |
| 10 | Soluble | Soluble | Soluble |

Test Method:

Test specimens measuring 19mm x 190mm each shall be put into a maceration machine standard type specified by JIS-P-8209 (Hand-laid paper conditioning method for pulp testing) with 1800ml of water at 20°C. The machine shall be operated for 30 minutes for high speed stirring (3000rpm), then, the solution shall be filtered with a paper filter. The residue on the paper filter shall be examined.

5. INITIAL TACK

See the graph attached hereto.

Test Method:

Test specimens without a paper liner shall be conditioned as specified. After a certain period of time, they shall be taken out and applied on the center of the PTFE plate of the specimen holder. The bottom face of 5mm ϕ (10g) measuring part of Schopper tensile tester shall be gently put on the adhesive face. After the duration of 10 seconds, the measuring part shall be peeled out from the adhesive face and the maximum value shall be read.



