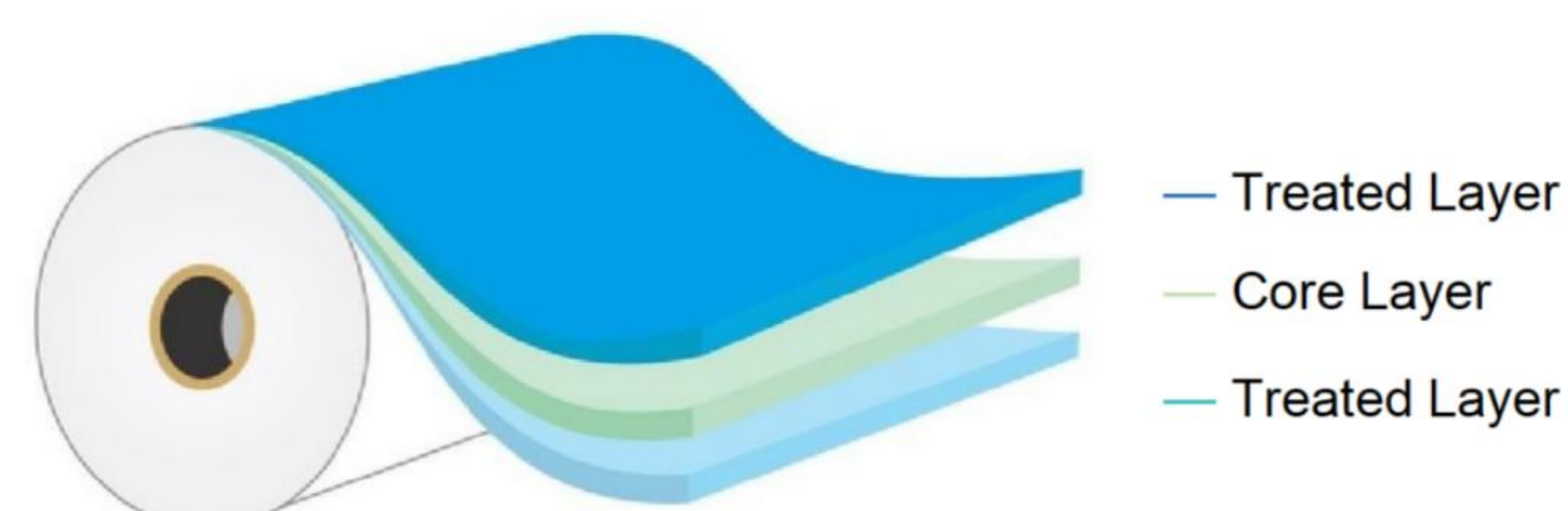


# Transparent Lamination Film

## 12S 12μm

### Technical Data

#### Structure



#### Description

Transparent, non-heat sealable film with low static properties; double-side corona treated with stronger treatment on the inner surface to enhance printability and adhesion.

#### Application

Designed for lamination with printed or unprinted paper and paperboard, enhancing gloss and scuff resistance for cartons, gift boxes, and similar packaging applications.

| Properties                       | Ref.  | Units                   | ASTM #/<br>Test Method | 12S       |         |       |           |       |          |       |
|----------------------------------|-------|-------------------------|------------------------|-----------|---------|-------|-----------|-------|----------|-------|
| Physical Data                    |       |                         |                        |           |         |       |           |       |          |       |
| Average Thickness                |       | micron                  | D-374-C                | 8         | 10      | 12    | 15        | 18    | 20       | 30    |
|                                  |       | gauge                   |                        | 31        | 39      | 47    | 59        | 71    | 79       | 118   |
|                                  |       | mils                    |                        | 0.3       | 0.4     | 0.5   | 0.6       | 0.7   | 0.8      | 1.2   |
| Thickness Variation              |       | %(±)                    |                        | 5         |         |       | 3         |       |          |       |
| Density                          |       | g/cc                    |                        | 0.905     |         |       |           |       |          |       |
| Average Substance                |       | g/m                     |                        | 7.2       | 9.1     | 10.9  | 13.6      | 16.3  | 18.1     | 27.2  |
| Surface tension(min)             | IN    | dynes/cm                | D-2578                 | ≥38       |         |       |           |       |          |       |
|                                  | OUT   |                         |                        | ≥36       |         |       |           |       |          |       |
| Kinetic COF                      | UT-UT |                         | D-1894                 | 0.20-0.35 |         |       |           |       |          |       |
| Yield                            |       | m <sup>2</sup> /Kg      | D-4321                 | 138.1     | 110.5   | 92.1  | 73.7      | 61.4  | 55.2     | 36.8  |
|                                  |       | in <sup>2</sup> /lb     | D-4321                 | 97109     | 77687   | 64739 | 51792     | 43160 | 38844    | 25896 |
| Optical Data                     |       |                         |                        |           |         |       |           |       |          |       |
| Gloss(45)                        |       | gardner                 | D-2457                 | ≥90       |         |       |           |       |          |       |
| Haze                             |       | %                       | D-1003                 | ≤2.1      |         |       | ≤1.9      |       |          |       |
| Mechanical Data                  |       |                         |                        |           |         |       |           |       |          |       |
| Tensile Strength                 | MD    | kg/cm                   | D-882                  | 120-160   |         |       |           |       |          |       |
|                                  | TD    |                         |                        | 230-320   |         |       |           |       |          |       |
| Elongation at break              | MD    | %                       | D-882                  | 140-180   |         |       |           |       |          |       |
|                                  | TD    |                         |                        | 40-55     |         |       | 50-65     |       |          |       |
| Thermal Data                     |       |                         |                        |           |         |       |           |       |          |       |
| Shrinkage<br>(120°C/248F,5 min.) | MD    | %                       | D-1204                 | 3.0-5.0   | 2.0-4.5 |       | 2.0-4.0   |       |          |       |
|                                  | TD    |                         |                        | 1.5-2.5   | 1.0-2.0 |       | 0.5-2.0   |       |          |       |
| HotTack Strength                 |       | g/15mm                  | @125°C                 | 330       |         |       |           | 350   |          |       |
|                                  |       |                         | @257°F                 |           |         |       |           |       |          |       |
| Barrier Data                     |       |                         |                        |           |         |       |           |       |          |       |
| MVTR(38°C,90%RH)                 |       | g/(m <sup>2</sup> ·day) | F-1249                 | 6.0~13.1  |         |       | 4.0~6.5   |       | 2.5~3.3  |       |
| MVTR(10B,90%RH)                  |       | g/100i/day              |                        | 0.39~0.85 |         |       | 0.26~0.42 |       | 0.16~0.2 |       |

The values given in the above table are typical performance data for reference only. If you have special requirements for product performance indexes, please communicate with business manager.

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