Crisper®

Crisper® is a white opaque biaxially oriented polyester film. This film has numerous voids and is top-coated to promote adhesion to most printing inks and industrial coatings.

Please click here for the construction of Crisper®.

Available Thickness Range

From 1mil to 10mil.

Please click here for the grade chart of Crisper®.

Printing Process

Crisper® can be printed on Flexo, Gravure,Screen, Letterpress and Offset etc.

Computer Imprintable

Thermal Transfer Printable (TTR)

Laser Beam Printing (LBP)

Excellent Adhesion to inks and industrial coatings

Crisper® offers excellent adhesion properties to the following inks and industrial coatings.

- UV Cure Inks
- Solvent Inks
- Synthetic Paper type Inks
- Screen Inks
- Water-based Flexo Inks
- Pencil writable

Numerous voids

Due to the numerous voids, the specific gravity of Crisper® is 1.1g/cm^3 while that of regular polyester film is normally 1.4g/cm^3, which enables Crisper® to offer the following advantage.

1. Better Yield (Please click here.)

Crisper® offers better yield advantage than regular white Pet Film.

Please click here for the yield chart of Crisper®.

2. Longer service life of Die Cutting Blade

Due to the numerous voids, Crisper® offers longer service life of Die Cutting Blade than regular white Pet film.

3. Cushioned Property

Crisper® provides cushioning property.

4. Low Dielectric Loss (Optimal for RFID application)

Crisper® offers the low dielectric loss, which makes it optimal for RFID application.
For RFID application, this property allows for a wider useful range without enlarging the antenna. Due to the low dielectric loss of Crisper®, there will be much fewer errors in reading the chip.

Application

Crisper® is a suitable material for the following applications.

- Label
- Tag
- Card
- Graphic Art
- Business Form
- RFID (ID card, Smart Card, RFID tag)

Please click here for the opacity of Crisper®.
Please click here for the comparison chart with White PP and PET for Crisper®.

Note 1 : We strongly recommend that a trial run be carried out and the careful evaluation be done for a specific application before commercial use.

Note 2 : Crisper® is the trademark by Toyobo Co., Ltd. in Japan.

FILM INFORMATION

“Crisper®”

TOYOBO POLYESTER BASED SYNTHETIC PAPER

Application : **Tag, Label**
Variable Information Label
Business Form

(Type)	:	(Feature)
G2311	:	Inside Chemical Coated
K2411	:	Inside Chemical Coated
K2312	:	Inside Chemical Coated / Outside Corona Treated
K2323	:	Both Sides Chemical Coated

Thickness	G2311	K2411	K2312	K2323
(1mil)	○			
(1.5mil)	○			
(2mil)		○		
(3mil)			○	
(4mil)				○
(5mil)				○
(7.5mil)				○
(10mil)				○

○ : Commercial Production

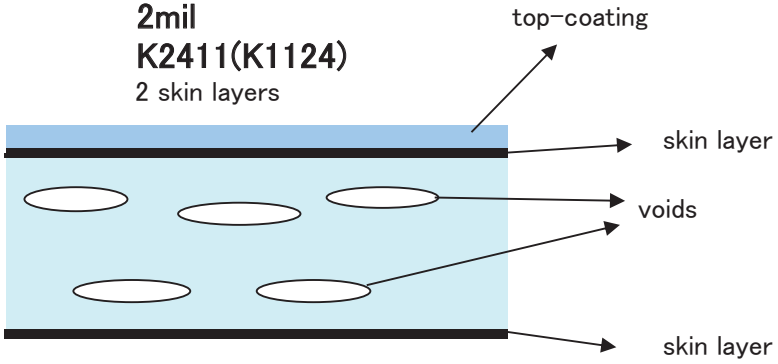
Printing Process : Gravure, Flexo, Screen, Letterpress, Offset

Ink : Solvent Type, UV Cure Type, Synthetic Paper Type
Water – Based Flexo Type

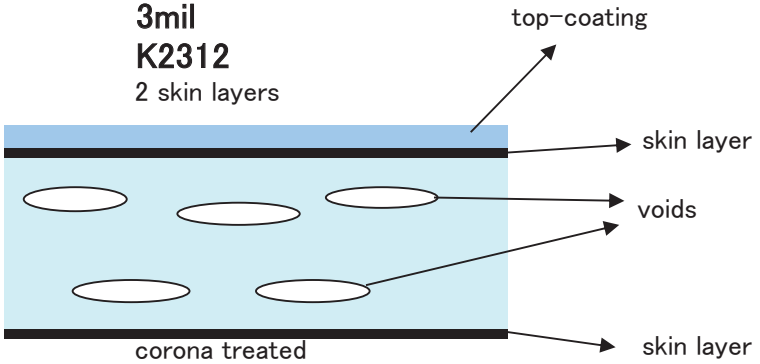
Computer Printable : Laser Beam Printing, Thermal Transfer Printing

•Remark: It is recommended that a trial-run be carried out prior to using Crisper® commercially.
: Corona Treated Crisper® is also available.

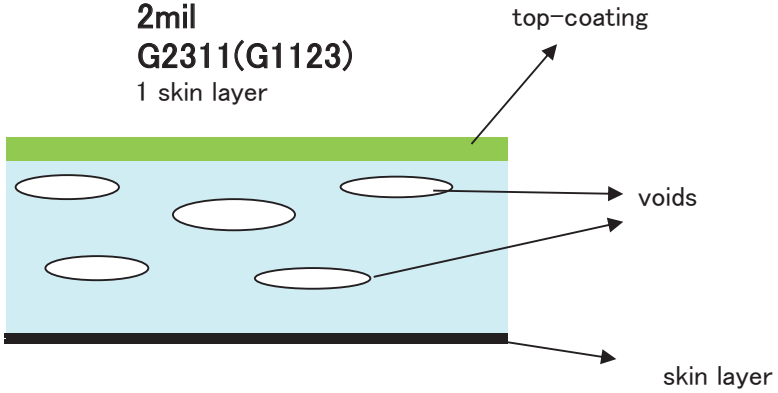
2mil
K2411(K1124)
2 skin layers



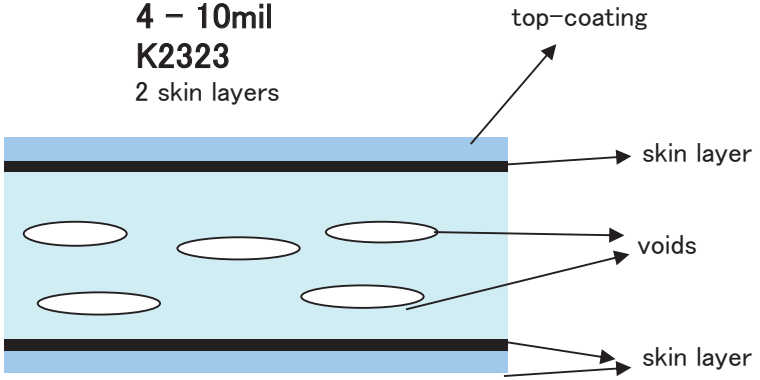
3mil
K2312
2 skin layers



2mil
G2311(G1123)
1 skin layer



4 – 10mil
K2323
2 skin layers



FILM INFORMATION

Opacity of Crisper®

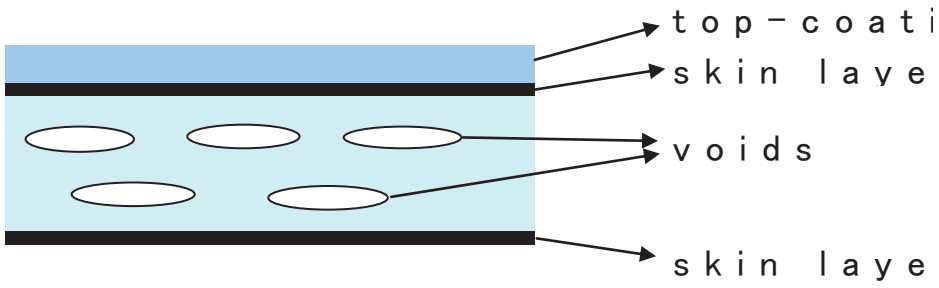
Type	Typical Value (%)
K1211 50 μ m (2mil)	90.2
K2411 50 μ m (2mil)	92.3
K2323 100 μ m (4mil)	95.8
K2323 188 μ m (7.5mil)	98.6
K2323 250 μ m (10mil)	99.1

Test Method: JIS P8138

Remark: Above data is typical value, not guaranteed.

Advantages of using Crisper for RFID applications

Crisper is the biaxially oriented white polyester film which has numerous voids in the film and is top-coated to promote adhesion to most printing inks and industrial coatings. These features allow us to offer the following advantages for RFID application and Crisper is an optimal material for RFID compared to other materials including paper, regular PET film, PP and olefin related film etc.



Numerous voids

① Cushioned Property

Due to the numerous voids, the specific gravity of Crisper is 1.1g/cm^3 while that of regular polyester film is normally 1.4g/cm^3, which enables Crisper to provide its cushioning property.

IC chips and lead wires are embedded in or sandwiched between materials in most RFID labels and tags. In whatever form, during these converting processes, there is an unavoidable amount of pressure applied to the material. This pressure often causes damage to the chips and lead wires, which raises the loss ratio as well as material loss.

The reduction of this kind of loss is a challenge to many manufacturers of RFID tags and labels.
Crisper can dramatically reduce this loss ratio due to its cushioned property compared with the use of regular white PET.

② Low Dielectric Loss

The dielectric constant of Crisper lies between Polypropylene and regular Polyester film.
The dielectric loss of Crisper is smaller than regular Polyester film.
These properties allow for a wider useful range than other materials without enlarging the antenna.

③ Recognition Rate

Because the dielectric loss of Crisper is small, there will be much fewer errors in reading the chip.

④ Self-Insulating Property

Crisper has a self-Insulating property due to its voids in the film. This property is suited to re-write coating for direct thermal. These voids trap heat which allows printed characters to appear and disappear sooner with less energy used than with the other related material.

Biaxially Oriented PET film

① Crisper offer higher heat resistance than paper and polypropylene film.

For some RFID labels and tags, electrically conductive lead(lead wire) is imprinted using copper ink. After printing, some heat has to be applied to the material for curing purposes by a hot-air dryer. Crisper can endure this heat because of being PET base, while paper and polypropylene material cannot.

② Durability

Crisper has better durability than paper and polypropylene film.

The customers can anticipate that the total cost will be reduced with repeated use.

③ Dimensional stability

Crisper has a better dimensional stability than paper and polypropylene film, which makes any converting process easier and faster.

④ Anti-chemical property

Crisper has a better anti-chemical property than paper and polypropylene film.

Top coating

① Printability / Adhesion Property

The unique top-coating of Crisper has an excellent affinity to various printing inks, resins and industrial coatings. Re-write coating for direct thermal can be made on the surface of Crisper.

② Anti - Static property

The top coating includes an anti-static agent, which leads to the reduction of damage to IC chips by static discharge.

Note: We believe this information is the best currently available on the subject. It is subject to revision as additional knowledge and experience is gained. We strongly recommend that a trial run be carried out and the careful evaluation be done for a specific application before commercial use.

FILM INFORMATION

TOYOBO Crisper®

BETTER YIELD

Specific Gravity: (g/cc) Crisper®: 1.1 Regular PET: 1.4

Thickness		Crisper®		Regular PET	
μ m	Gauge	(Sq.m/kg)	(Sq.inch/lb)	(Sq.m/kg)	(Sq.inch/lb)
-					
50	200	18.18	12,780	14.28	10,040
75	300	12.12	8,520	9.52	6,700
100	400	9.09	6,390	7.14	5,020
125	500	7.27	5,110	5.71	4,010
188	750	4.83	3,400	3.80	2,670
250	1,000	3.63	2,500	2.85	2,000

Comparison “Crisper®” with white PET and white PP