

TECHNICAL DATA SHEET & DECLARATION OF COMPLIANCE

TK HT DIGI MATT (BOPP)

(Thermal Matt BOPP Digital laminating film)

Profile: *Thermal Bi-axially Oriented Polypropylene digital laminating film. Non-toxic, environmentally friendly and energy efficient, this film does not produce harmful gases or dangerous substances during application.

Features: *Suitable for use on electro-photographic output from digital presses such as Xerox IGEN3, Xerox C800 Konica, Canon, Hewlett Packard etc. This film exhibits extremely good bonding characteristics with silicone oil, high wax content ink and dry toner with fuser oil.

Accepts: *UV Spot Varnish, Foil Stamping and Screen Printing

Applications: *Book covers, flyers, maps, paper bags, pharmaceutical, cosmetic & flute boxes, promotion materials etc.

PHYSICAL PROPERTIES ± 5%	UNIT	TEST METHOD	VALUES
Film thickness (Bopp / Adhesive)	Microns	GB/T6672	(12/15) = 27
Yield	M ² /kg	----	42.8
Unit Weight	g/m ²	----	
Surface tension (film side/adhesive side)	Dynes/cm	GB/T14216	≥ 40 / ≥ 40
OPTICAL PROPERTIES ± 5%	UNIT	TEST METHOD	VALUES
Haze	%	ASTM D1003	≤ 70
MECHANICAL PROPERTIES ± 5%	UNIT	TEST METHOD	VALUES
Coefficient of friction (film/film)	---	ASTM D1894	≤ 0.4
Heat shrinkage (30 sec at 120°C) MD/TD	%	INTERNAL	≤ 3 / ≤ 1.5

* MD = Machine Direction TD=Transverse Direction

***Recommended laminating Conditions:** 95~120°C Pressure: 2 ~ 6 bar Speed: 10 ~30m/min.

***Recommended Storage conditions:**

Keep in dry, clean location away from direct sunlight, advisably wrapped or packed inside a cardboard container. 20 ~ 25°C, 40% relative humidity.

* **Disclaimer:** The information provided above is to the best of knowledge of the producer, these values provided are test results, which are indicative only and provided for guidelines.

The aforementioned data are given most conscientiously but without any obligation. Any processing details are provided merely for guidance, it is the user's responsibility to check the suitability of the product for the intended application.

Warranty: This product has a warranty of 160 days from the date on the invoice; claims after 160 days from the date on the invoice cannot be accepted. Please always keep the full label details of the roll available for warranty purposes, without full label details claims cannot be accepted or handled.

TK HT DIGI MATT (BOPP)DECLARATION OF COMPLIANCE

(Concerning food contact regulations, Heavy metals, Halogens, RoHs & Recyclability)

The Manufacturer declares that the film, when leaving the manufacturing, has a composition that meet the relevant requirements laid down in the following commission Regulation and Directive.

► Commission Regulation (EU) N° 10/2011 of 14 January 2011 on plastic materials & articles intended to come into contact with food and its amendment 321/2011, 1282/2011, 1183/2012, 202/2014, 865/2014, 2016/1416, 2017/752, 2018/79, 2018/213, 2018/831, 2019/37, 2019/988, 2019/1338, 2020/1245;

► Article 3, 11 (5), 15 & 17 of Regulation (EC) N° 1935/2004 on materials & articles intended to come into contact with food & its amendment 596/2009;

► Regulation (EC) N° 2023/2006 on good manufacturing practice for materials & articles intended to come into contact with food & its amendment 282/2008;

► Regulation (EC) N° 1895/2005 on the restriction of use of certain epoxy derivatives in materials & articles intended to come into contact with food;

► Regulation (EC) N°1333/2008 on food additives & its amendment 238/2010, 1129/2011, 1152/2013, 1130/2011, 232/2012, 380/2012, 470/2012, 471/2012, 472/2012, 570/2012, 583/2012, 675/2012, 1049/2012, 1057/2012, 1147/2012, 1148/2012, 1149/2012, 1166/2012, 25/2013, 244/2013, 256/2013, 438/2013, 509/2013, 510/2013, 723/2013, 738/2013, 739/2013, 816/2013, 817/2013, 818/2013, 913/2013, 1068/2013, 1069/2013, 1274/2013, 59/20147, 264/2014, 298/2014, 497/2014, 505/2014, 506/2014, 601/2014, 685/2014, 923/2014, 957/2014, 969/2014, 1084/2014, 1092/2014, 1093/2014, 2015/537, 2015/538, 2015/639, 2015/647, 2015/649, 2015/1362, 2015/1378, 2015/1739, 2015/1832, 2016/56, 2016/263, 2016/324, 2016/441, 2016/479, 2016/683, 2016/691, 2016/1776, 2017/335, 2017/839, 2017/871, 2017/874, 2017/1270, 2017/1271, 2017/1399, 2018/74, 2018/97, 2018/627, 2018/677, 2018/682, 2018/1461, 2018/1481, 2018/1497, 2019/800, 2019/801, 2019/2019/891, 2019/1676, 2020/268, 2020/279, 2020/315, 2020/355, 2020/356, 2020/771, 2020/1419, 2020/1819;

► Regulation (EC) N° 1334/2008 on flavorings & certain food ingredients with flavoring properties for use in and on foods and its amendment 872/2012, 545/2013, 985/2013, 246/2014, 1098/2014, 2015/648, 2015/1102, 2015/1760, 2016/54, 2016/55, 2016/178, 2016/637, 2016/692, 2016/1244, 2017/378, 2017/1250;

► Regulation (EC) N° 282/2008 on Recycling plastic materials & articles intended to come into contact with foods & its amendment 2015/1906.

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► Council Directive 85/572/EEC laying down the list of simulants to be used for testing migration of constituents of plastic materials & articles intended to come into contact with foodstuffs and its amendment 2007/19/EC, 10/2011;

► Directive 94/62/EC on packaging & packaging waste and its amendment 1882/2003, 2004/12/EC, 2005/20/EC, 219/2009, 2013/2/EU, 2015/720, 2018/852;

► Regulation (EC) N° 1907/2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) and its amendment 1354/2007, 987/2008, 1272/2008, 134/2009, 552/2009, 276/2010, 453/2010, 143/2011, 207/2011, 252/2011, 253/2011, 366/2011, 494/2011, 109/2012, 125/2012, 412/2012, 835/2012, 836/2012, 847/2012, 126/2013, 348/2013, 517/2013, 1272/2013, 301/2014, 317/2014, 474/2014, 895/2014, 2015/282, 2015/326, 2015/628, 2015/830, 2015/1494, 2016/26, 2016/217, 2016/863, 2016/1005, 2016/1017, 2016/1688, 2016/2235, 2017/227, 2017/706, 2017/999, 2017/1000, 2017/1510, 2018/35, 2018/588, 2018/589, 2018/675, 2018/1513, 2018/1881, 2018/2005, 2019/957, 2019/1691, 2020/171, 2020/507, 2020/878, 2020/1149, 2020/2081, 2020/2096, 2020/2160, 2021/57;

This film can be in contact with the following food types:

- All aqueous foods
- All acidic foods
- All fatty foods
- All alcoholic foods

Test Results:

<u>Test Requested</u>	<u>Conclusion</u>
Overall migration	Pass
Specific migration of heavy metal	Pass

Overall migration:

Test Requested: In accordance with Commission Regulation (EU) N° 10/2011 of 14 January 2011 with amendments, to determine overall migration.

Test Method: With reference to commission Regulation (EU) N° 10/2011 of 14 January 2011

Annex III and Annex V for selection of conditions and EN1186-1:2002 for selection of test methods;

EN1186-3:2002 aqueous food simulants by total immersion method;

EN1186-2:2002 olive oil by total immersion method;

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Simulant used	Time	Temperature	Max Permissible Limit	Result of 003 overall migration
10% Ethanol (V/V) Aqueous solution	240.0hr(s)	40°C	10mg/dm ²	< 3.0mg / dm ²
3% Acetic acid (W/V) Aqueous solution	240.0hr(s)	40°C	10mg/dm ²	< 3.0mg / dm ²
Rectified olive oil	240.0hr(s)	40°C	10mg/dm ²	11.5mg/dm ² #

Notes:

- (1) mg/dm² = milligram per square decimeter
- (2) °C = degrees Celsius
- (3) < = less than
- (4) Analytical tolerance of aqueous simulants is 2 mg/dm²
- (5) Analytical tolerance of fatty food simulants is 3 mg/dm²
- (6) # = The conclusion of specimen 002 was drawn without considering the expanded uncertainty. It is possible that the tested result of submitted is/are above the limit.

Specific Migration of Heavy Metal:

Test Request: In accordance with commission regulation (EU) N° 10/2011 of 14 January 2011 with amendments, to determine specific migration of heavy metal.

Test Method: With reference to EN13130-1:2004, analysis was performed by ICP-OES.

Simulant used: 3% Acetic acid (W/V) Aqueous solution

Test condition: 20°C 240.0 hr(s)

Test Items(s)	Max. Permissible Limit	Unit	MDL	Test Result
Migration times	-	-	-	First
Area/volume	-	dm ² /kg	-	6.0
Barium	1	mg/kg	0.25	ND
Cobalt	0.05	mg/kg	0.01	ND
Copper	5	mg/kg	0.25	ND
Iron	48	mg/kg	0.25	ND
Lithium	0.6	mg/kg	0.5	ND
Manganese	0.6	mg/kg	0.25	ND
Zinc	25	mg/kg	0.5	ND

(1) MDL = Method Detection Limit

(2) ND = Not Detected (<MDL)

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TK HT DIGI MATT can contain some other substances for which a specific migration limit (SML) is established. However, the SML will not be exceeded even to a maximum film thickness of 350µm (assuming that 1kg of food is packed with 6 dm² of film).

FCM Substance N°.	Ref. N°.	CAS N°.	SML (mg/kg)
106	89040	057-11-4	25
157	74880	084-74-2	0.3
234	19960	108-31-6	30(T)
283	74640	117-81-7	1.5
433	68320	2082-79-3	6
500	38560	7128-64-5	0.6
661	95360	27676-62-6	5
760	83595	119345-01-6	18

Dual-use additives:

The dual use additives as silicon dioxide and GMS restricted in (EU) N°. 10/2011 and (EC) N° 1333/2008 are present in the film.

FCM substance N°.	E-number	Ref. N°.	CAS N°.	Substance name	SML (T) {mg/kg}
41	E471	56486	-	GSM	-
504	E551	86240	0007631-86-9	Silicon Dioxide	-

However, their migration levels comply with (EU) N°. 10/2011

Other substances:

These mentioned substances followed are not intentionally added to the film:

Phthalates, Lead, Cadmium, Mercury, Hexavalent Chromium, Sum of PBBs, Sum of PBDEs, Halogen, Soluble Heavy Metal Contents, Substances in the Candidate list of SVHC.

Barrier Properties:

None functional barrier is used in the TK HT DIGI MATT film.

USA:

The film is suitable for use in food contact applications in compliance with applicable U.S. FDA food packaging regulations. Specifically, the raw materials used in the composition are in compliance with the requirements of the Federal food & drug (FDA) and Cosmetic act under FDA 21 CFR 177.1520, 21 CFR 175.300; 21 CFR 175.320, 21 CFR 178.2010 and other application regulations in 21 CFR reference therein.

Recyclability:

This film complies with the Regulation DIN EN 13430:10 (Packaging - Requirements for packaging recoverable by material recycling). The combination of raw materials & components suitable for the recycling process.