



**Jindal**  
Films

## Breakthrough polymer substrate that simplifies thermal / barcode printing

**No ribbons. No coatings. Exceptional performance.**

Innovative Platinum Thermal is a white synthetic facestock that requires no heat sensitive coatings (e.g. leuco dye) or thermal transfer ribbons to create a deep black image from standard thermal/barcode printers. Platinum Thermal is your new alternative to both traditional direct thermal (DT) substrates and the use of thermal transfer ribbons (TTR). Sharp, durable, fade proof images are created from within the substrate itself. Platinum Thermal also has a print surface with excellent receptivity to a broad range of pre-print ink chemistries and an adhesive receptive backside surface that is ideal for pressure-sensitive applications.

- Image permanence with no image fade from heat, cold, light or time.
- Image is UV light resistant to a minimum of 18 months outdoors and decades indoors.
- Facestock is heat stable to 121°C/250° F.
- Print surface and printed image are not affected at all by water and many water based fluids even with full submersion or when boiled.
- Low boiling point solvents (e.g. MEK, Toluene, Xylene, IPA) do not permanently darken the image or print surface.
- Durability comparable to printing on BOPP with a wax/resin ribbon.
- Simplifies thermal/barcode printing by eliminating the thermal transfer ribbon especially in mobile thermal printers but durable for a variety of indoor and outdoor market applications.
- FDA Compliant for DIRECT food contact (pending). FDA's Food Types and Conditions of Use are set forth in 1 C.F.R § 176.170 (c), Tables 1 and 2. Contains no BPA.

In addition, Platinum Thermal film offers the potential for a significant cost reduction compared to synthetic DT substrates and labels printed with full resin or wax/resin TTR.

Jindal Films has extensively tested Platinum Thermal film's performance against labels printed with DT and TTR technology. The results are reported here. See for yourself how this groundbreaking technology can deliver cost and performance advantages.





**HEAT EXPOSURE**

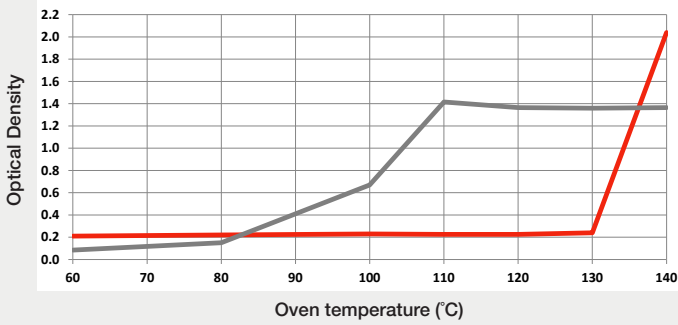
Printed film samples were placed in an oven at the test temperature for 1 hour. White and black optical density was measured.



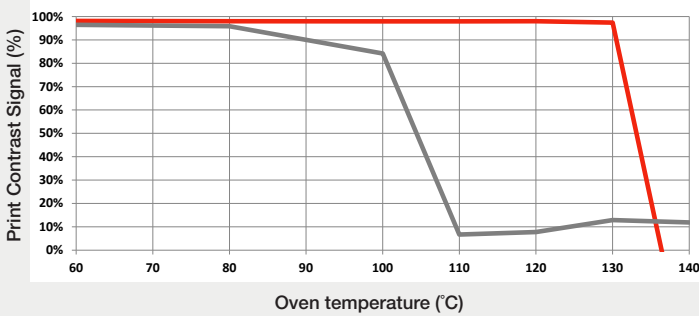
**WEATHER EXPOSURE**

Platinum Thermal™ Film was printed on a Zebra 140Xi4 thermal printer, then evaluated in a QUV Weatherometer according to ASTM, BS, and ISO standards. Test samples were exposed to varying conditions of ultraviolet radiation, moisture and heat.

**Optical Density of white area after 1 hour oven conditioning**



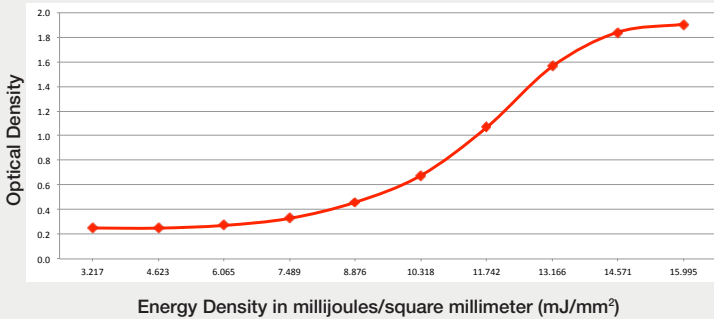
**Print Contrast Signal<sup>1</sup> of white area after 1 hour oven conditioning**



■ Platinum Thermal film    ■ Direct Thermal film

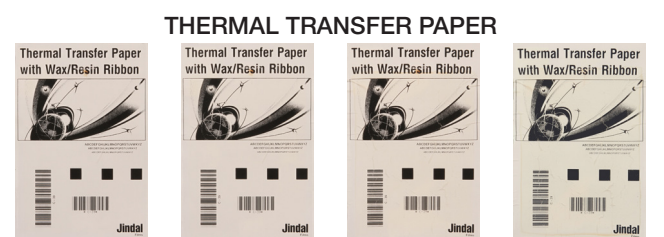
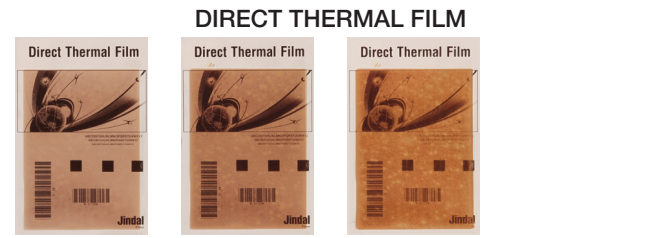
<sup>1</sup> Print Contrast Signal (PCS) – Compares the amount of light reflected by the bars, in contrast to the amount of light reflected by the spaces in a bar code symbol. The Print Contrast Signal value is the bar reflectance expressed as a percentage of the space reflectance. American Barcode and RFID Association.

**Dynamic Sensitivity of Platinum Thermal**



The above chart presents the print density of Platinum Thermal film as measured on an Atlantek Model 400 Thermal Response Test System. Testing was done with the device on the medium setting, and the response measured at each of the ten energy densities.

**AFTER 1 DAY    AFTER 2 DAYS    AFTER 5 DAYS    AFTER 21 DAYS**



Platinum Thermal film is proven to be exceptionally heat-stable up to 121°C/250°F.

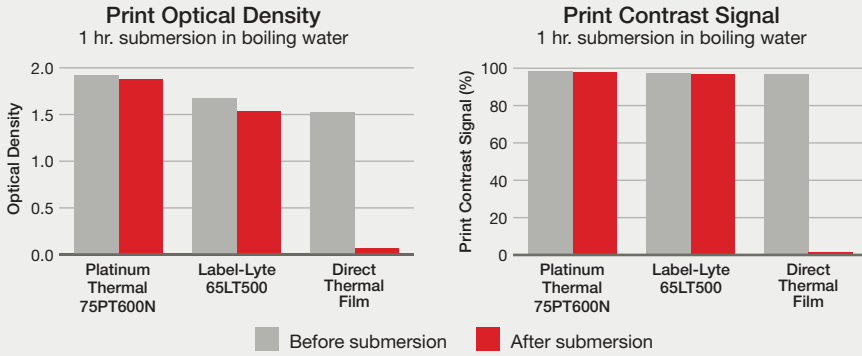


Platinum Thermal film is highly resistant to aggressive weather exposure, outperforming DT and delivering equivalent performance to TTR.



**BOILING WATER**

Boiling water exposure was tested by measuring white and black optical density after submersion in boiling tap water for 1 hour.



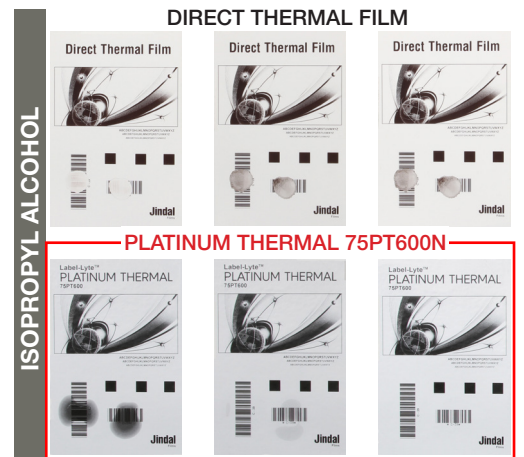
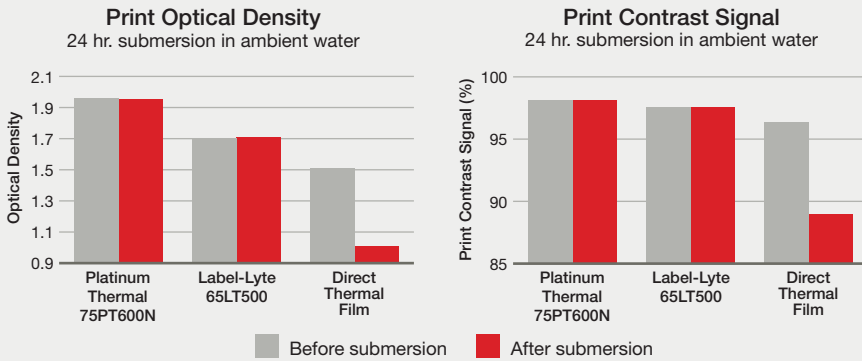
**CHEMICAL EXPOSURE**

Two drops of a test solvent were applied to both the horizontal and vertical bar codes.



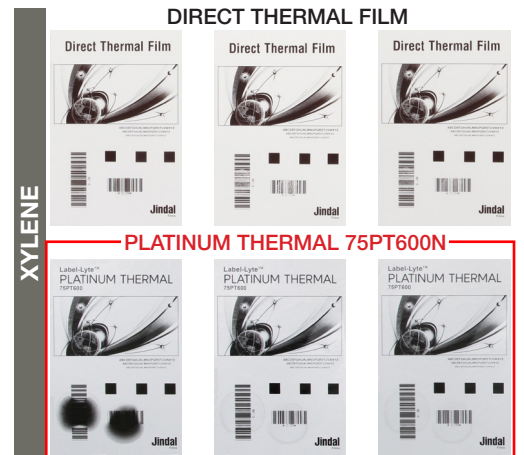
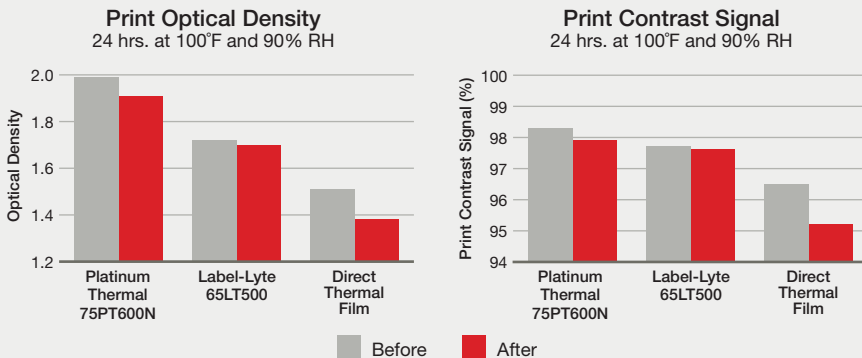
**AMBIENT WATER**

Deionized water exposure was also tested, by measuring white and black optical density after submersion in room-temperature, de-ionized water for 24 hours.



**HIGH HEAT & HUMIDITY**

Printed test samples were also tested before and after 24 hours at 100°F and 90% relative humidity.



Platinum Thermal film significantly outperforms DT film when exposed to water, making it ideal for outdoor applications.



Volatile chemicals evaporate quickly from Platinum Thermal film, leaving the printed image undisturbed.

## Processing methods

Platinum Thermal™ film is compatible with a broad range of print delivery systems.

- Standard thermal/barcode printers (portable handheld and desktops, 3-6 ips)
- Water-based flexographic
- UV flexographic
- UV letterpress
- UV screen
- Solvent rotogravure

## Applications

Platinum Thermal can be used for pressure-sensitive labels, tickets and tags. It is ideal for both indoor and outdoor applications where weather, water or chemical resistance is required. As always, please test in your specific application to determine fitness for use.

- Flower/plant pot label
- Horticulture/nursery label
- Outdoor shelf/rack/pallet label
- Test tube/beaker/slide label
- Blood/urine/bio bag label
- Cold storage label
- Automobile window label
- Chemical/drum label
- Freezer labels
- Tamper evident label
- Industrial/WIP labels
- Retail shelf marking label
- Industrial kitchen food preparation label

## Suggested Printers for Platinum Thermal 75PT600N

Platinum Thermal 75PT600N is designed for use in most thermal barcode label printers including mobile, desktop and industrial units. Lower energy mobile and small desktop units may only achieve a print speed of 3ips while higher energy printers will attain speeds to 6/7ips.

The following list of thermal printers has successfully printed Platinum Thermal at various heat and speed settings (medium-high). Jindal recommends that you conduct print tests with your specific printer.

### Printers

Zebra 104SL Plus, 200 dpi

Zebra 110Xi4, 200-600 dpi

Zebra 140Xi3/Xi4, 200 dpi

Zebra 220Xi4, 200 dpi

Zebra ZM600, 300 dpi

Zebra ZT410, 200 dpi

Zebra GX430t, 300 dpi

Zebra TLP3844-Z, 300 dpi

Zebra QLn420, 200 dpi

Intermec 3400e

TSC 225W

CAB EOS

CAB A+ Series

SATO M84

SATO CLN4X

Citizen CL-S521

Datamax M Class

Printronix T8000

Toshiba/TEC B-EX4T1, T2, D2

Toshiba/TEC B-SX Series



**For more information and details about Label-Lyte™ Platinum Thermal 75PT600N film, contact:**

North America – Michael Gopen at [Michael.Gopen@jindalfilms.com](mailto:Michael.Gopen@jindalfilms.com)

Europe – Frank Smits at [Frank.Smits@jindalfilms.com](mailto:Frank.Smits@jindalfilms.com)

**[www.jindalfilms.com](http://www.jindalfilms.com)**

or email us at [info@jindalfilms.com](mailto:info@jindalfilms.com)

© 2015 Jindal Films. Jindal Films, the Jindal Films logo, and other product or service names used herein are trademarks of Jindal Films, unless indicated otherwise. This document may not be distributed, displayed, copied or altered without Jindal Films' prior written authorization. To the extent Jindal Films authorizes distributing, displaying and/or copying of this document, the user may do so only if the document is unaltered and complete, including all of its headers, footers, disclaimers and other information. You may not copy this document to, or reproduce it in whole or in part on, a website. Jindal Films does not guarantee the typical (or other) values. Any data included herein is based upon analysis of representative samples and not the actual product shipped. The information in this document relates only to the named product or materials when not in combination with any other product or materials. We based the information on data believed to be reliable on the date compiled, but we do not represent, warrant, or otherwise guarantee the accuracy, reliability, or completeness of this information; nor do we warrant, expressly or impliedly, the merchantability, fitness for a particular purpose, freedom from patent infringement, or suitability of the products, materials or processes described. The user is solely responsible for all determinations regarding any use of material or product and any process in its territories of interest. We expressly disclaim liability for any loss, damage or injury directly or indirectly suffered or incurred as a result of, or related to, anyone using or relying on any of the information in this document. This document is not an endorsement of any non-Jindal Films' product or process, and we expressly disclaim any contrary implication. The terms "we," "our," "Jindal Films" and "Jindal" are each used for convenience, and may include Jindal Films Americas LLC, Jindal Films Americas LLC, Films Europe S.A.R.L. or any companies affiliated with them in the production and sale of film products. There are a number of such affiliated companies, many with names including "Jindal" or "Films". Neither the use of these terms of convenience, nor anything else in this document, is intended to override or supersede the legal separateness of those affiliated companies and responsibility for local action and accountability remains with them.