

# Product Information thermoscript

Image Durability | Health | Safety

## Application

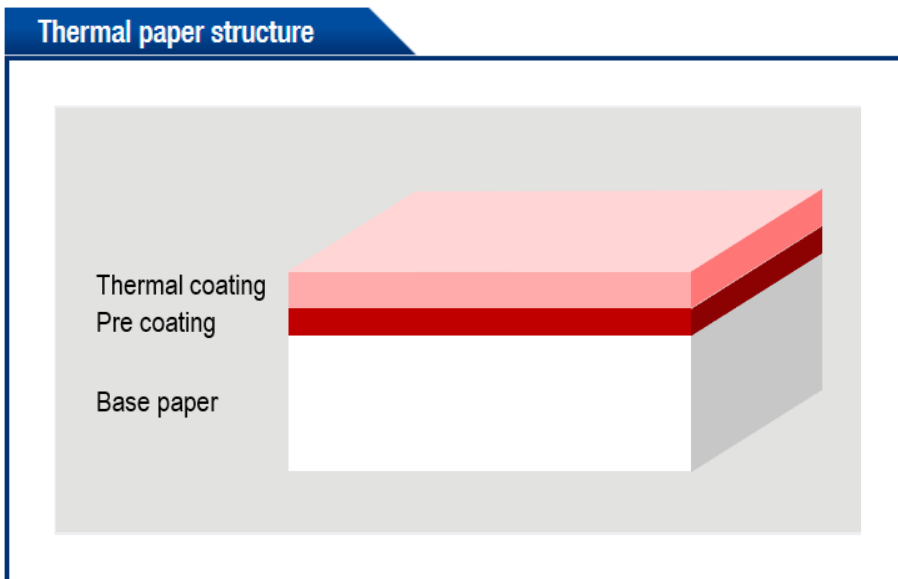
Thermoscript is a brand from Mitsubishi HiTec Paper Europe GmbH incorporating thermal sensitive speciality paper for use in thermal printers.

The image is achieved using a “direct thermal imaging” process.

## Product design

Thermoscript grades consist of a base paper, made from ECF (elementary chlorine-free) pulp with a specially treated clay undercoat and a thermal sensitive coating.

The main chemical components in the thermal layer are wax-type materials, colour former, colour developer and additives which adjust the melting process according to the requirements of the various print heads. The components are fixed on the base paper by a binder. For better thermal printing characteristics as well as better performance of the coating process various other additives and pigments (like calcium carbonate or clay) are added into the coating mixture.



## Product description

Thermoscript resembles a calandered, one-side coated printing paper. Thermoscript thermal papers can be written on with standard writing instruments.

## Image durability

With every grade of thermoscript, Mitsubishi HiTec Paper guarantees a certain durability for the thermal image. The lifespan of the thermal image is based upon a set of optimum storage conditions and a fully developed thermal image. Under these conditions a thermal image will last from 10 years up to 40 (thermoscript PURE) years depending on the grade.

In reality it is recognised that thermal papers are rarely stored in perfect conditions. The paper is often subjected to conditions that can be destructive to the thermal image and/or image contrast. Depending on the application it may be advisable to use a more stable thermal coating. Our experts are readily available to suggest a suitable paper grade for each application.

### Storage conditions

Our thermal papers should be stored at a temperature of between 18 °C and 25 °C and a relative humidity of 40 % to 60 %. When storing unprinted thermal papers, we can guarantee a shelf life of three years from the date of production. Prolonged storage, storage above 40 °C or above 65 % relative humidity can adversely affect the thermal function of the paper and lead to a discoloration of the thermal layer or to a loss of contrast in printing.

Because paper is a natural product, improper storage can also have a negative impact on physical properties.

In the case of an inappropriate ambient humidity, the fibre of the base paper either absorbs or releases moisture, depending on the atmospheric humidity, which leads to a dimensional change and thus to tensions within the paper. As a result, the profile of the paper changes and there is an uneven tension within a roll of paper.

### Handling conditions

Direct sunlight, fluorescent and similar UV light sources should be avoided.

As the printed image can also be affected or destroyed when exposed to the following substances, depending on the duration, avoidance is strongly advised:

- > Carbonless papers
- > Wet-type diazo copy paper
- > Chart papers or adhesives containing tributyl-phosphate, dibutyl-phosphate or other organic solvents
- > Envelopes or folders composed of plastics containing plasticizers
- > Solvents or solvent-containing products, which include alcohol, ketones, esters, ethers or derivatives from this chemical group
- > Petroleum solvents (gasoline/petrol or diesel)
- > Greasy substances like lanolin (e.g. hand-lotion), lard, butter, mineral oil or vegetable oil

### Health

Scientific tests have shown that BPA-free thermal papers pose no risks or danger to health, when used as intended. Legal requirements are strictly adhered to in the manufacturing process and for use.

We guarantee that our products do not contain any of following substances in accordance with ROHS directive 2011/65/EU: lead (Pb), mercury (Hg), cadmium (Cd), chrome (Cr VI), polybrominated biphenyl (PBB), polybrominated diphenyl ether (PBDE) and various phthalates (DEHP, BBP, DBP, DIBP).

Toxicological and dermatological test results:

- > Oral toxicity: Not poisonous or harmful, LD50 > 2,000 mg/kg.
- > Skin Irritation: Tests have proved that there is no skin irritation from direct contact with thermoscript.
- > Sensitivity: Sensitivity or skin related allergies are unlikely using thermoscript.

Furthermore, we declare that all our thermoscript products fulfil the toxicity requirements of the EC Directive 94/62/EC.

Thermoscript complies with REACH directive (EC) No 1907/2006. If a SVHC candidate substance is used in quantities > 0.1 %, according to article 33 of REACH each customer is informed separately.

Nonetheless thermoscript must not stay in direct contact to any food. However, there is no risk from using thermoscript for labelling food packages of on food that is peeled or washed before consumption.

### Environment

Thermoscript thermal papers are available FSC® Mix and PEFC certified. Our pulp suppliers only use wood from sustainably managed forests.

No environmental risks have been found from the use, storage and disposal of thermoscript.

The incineration behaviour of thermoscript is similar to normal uncoated papers. The usual fire extinguishing equipment may be used.

### Recycling & Disposal

From 1 January 2020, all thermal papers will be produced without BPA. In principle, all thermal papers can be disposed of via the wastepaper cycle in the conventional way or via household waste (for incineration).

We recommend that our customers contact local disposal companies, as legal requirements and regional recommendations for recycling thermal papers vary considerably from country to country or region to region.

In case of any further questions please contact our Technical Service:

> [technical.service.mpe@mitsubishi-paper.com](mailto:technical.service.mpe@mitsubishi-paper.com)