

**thermoscript** - Product Information

Oct, 15, 2010

**Image Durability, Health & Safety**

(3 pages)

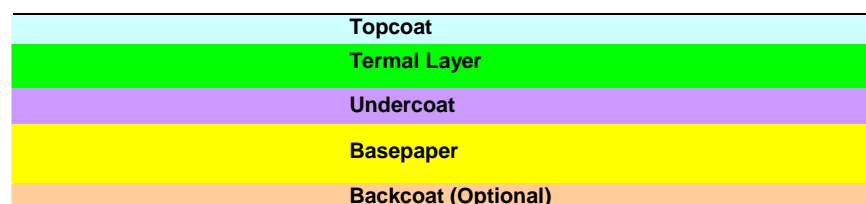
**Application:** *thermoscript* is a brand of Mitsubishi HiTec Paper Europe GmbH and incorporates thermal sensitive speciality paper for use in thermal printers. The process by which the image is created is by "Direct Thermal Print".

**Product design:** Wood free base paper, made from an ECF (elementary chlorine-free) pulp, with a specially treated clay coating and a thermal sensitive coating. Special grades are also given a protective top-coat.

The main chemical components are a wax-type material, colour former, colour developer and additives, which allow the adjustment of the melting process according to the requirements of the various print heads.

The chemicals are coated on the base paper with a binder. In addition, for better thermal printing characteristics as well as better coating various other chemicals and pigments (like calcium carbonate and calcinated kaolin) are also introduced into the coating mixture.

**Standard-Thermal Paper (Eco-Quality)**

**Topcoat-Thermal Paper**


**Description:** *thermoscript* resembles a calendered, one-side coated printing paper. *thermoscript* is odourless and it is possible to use conventional writing implements.

**Image durability:** For every grade of *thermoscript*, Mitsubishi HiTec Paper Flensburg Europe grant a certain life span 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 anywhere between **5 years up to 25 years** depending on the grade.

The reality of day-to-day use is that thermal paper is not stored in perfect conditions. The paper is often subjected to conditions that can be destructive to the thermal image and/or image contrast. It is therefore important that a suitably stable grade be selected for the end application. Expert advice is readily available from Mitsubishi Paper Mills.

**Storage conditions:** As with office paper, printed *thermoscript* should be stored indoor, at temperatures between 18°C and 25°C and with a relative humidity of 40% to 60%. Storage of unimaged *thermoscript* under these conditions will assure satisfactory performance for at least **3 years** from the date of manufacture. Longer term storage at temperatures over 40°C or over 65% relative humidity can lead to a reduction in image contrast or performance of the thermal function.

**Handling conditions:** Direct sunlight, fluorescent and similar UV light sources should be avoided. As the contrast of the printed image can be reduced or destroyed depending on the duration of contact, *thermoscript* should not come into contact with:

1. Carbon and carbonless forms
2. Wet-type diazo copy paper
3. Chart papers or adhesives containing Tributyl-phosphate, Dibutyl-phosphate or other organic solvents
4. Envelopes or folders composed of plastics containing plasticizers
5. Solvents or solvent-containing products, which include Alcohol, Ketones, Esters, Ethers or derivatives from this chemical group
6. Petroleum solvents like Gasoline, Toluene or Benzene
7. Greasy substances like Lanolin (e.g. Hand-lotion), Lard, Butter, Oil or Vegetable Oil.

## Health:

Tests have shown that no health or safety risks can be expected from the use of **thermoscript**. We guarantee that our products do not contain any of following substances:

Lead (Pb), Mercury (Hg), Cadmium (Cd), Chrome (Cr VI),  
Polybrominated biphenyl (PBB) and Polybrominated diphenylether (PBDE).

Toxicological and dermatological test results:

- 1: *Oral toxicity* - Not poisonous or harmful, LD<sub>50</sub> > 2000 mg/kg.
2. *Skin Irritation*- Tests have proved that skin irritation does not occur with the use of **thermoscript**.
3. *Sensitivity* - Sensitivity or allergies of the skin are not likely to be experienced by the use of **thermoscript**.

Furthermore can we declare that all of our **thermoscript** products fulfil the requirements of the EC Directive 94/62/EC Toxicity Form.

Nonetheless **thermoscript** must not stay in direct contact to any food. However, there is no issue to use **thermoscript** for labelling food packaging.

## Environment:

All papers from Mitsubishi HiTec Paper Europe are allowed to carry the FSC-seal (more information on [www.fsc-deutschland.de](http://www.fsc-deutschland.de)).

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

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

## Recycling/Disposal:

It is possible to recycle **thermoscript** by using a de-inking process. Secondary fibres with a relatively high brightness (over 75 points) can be obtained. It is not necessary to keep **thermoscript** separate from other paper waste. The usual methods of disposal can be used, i.e. incineration or disposal plants.