

# Pad Printing Ink Series

with especially environmentally compatible and user-friendly formulations



Of course, all printing ink series by Coates Screen Inks comply with REACH, RoHS and the EuPIA Guidelines. Furthermore a wide range of our ink series conforms to Toy Standard DIN ISO 71-3:2013 or have USP Medical Class VI certification for applications on medical devices.

Due to product/occupational safety or self-imposed guidelines in certain cases printers or end users need substrates and also pad printing inks which are free of certain substances (solvents, resin components). Often only certain individual substances / substance groups are to be excluded but sometimes also a combination of several products.

From our comprehensive product portfolio the following five pad printing ink series meet the extra high requirements with respect to product safety.

**TP 307**

**TP 313**

**TP 340**

**TP 400**

**TPE - HF**



These ink series are free of:

- Aromatics
- Bisphenol A (BPA)
- Butyl glycolate (GB Ester)
- Cyclohexanone
- Phthalates
- Polycyclic aromatic hydrocarbons (PAH)
- Solvent Naphtha
- + All ink series meet the requirements of EN 71-3:2013 (Toy Standard)
- + Moreover, TP 313 and TP 400 have USP Medical Class VI certification (medical devices)
- + Furthermore, TP E-HF is free of halogens according to DIN EN 61249-2-21



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## TP 307

The Extra Resistant

Ink type: Pad printing ink, 2-component  
 Base: Solvent-based ink  
 Degree of gloss: Very high  
 Drying speed: Medium  
 Hardener: TP 219/N (4:1)  
 TP 219/12 (4:1)

- Good printability
- High resistance against chemical cleaning agents
- High abrasion resistance
- Broad range of substrates
- Excellent light and weather fastness

- Main area of application:
  - Automotive
  - Household appliances
  - Electrical devices

Mainly for technical-industrial applications, printing on thermoplastics such as PC, PMMA, PP, PE as well as coated substrates

## TP 313

The Tough

Ink type: Pad printing ink, 1- and 2-component  
 Base: Solvent-based ink  
 Degree of gloss: High  
 Drying speed: Quick  
 Alternative: TP 219/12 (10:1)  
 TP 219/N (10:1)

- Good printability
- For flat and rotation systems
- Broad range of colours
- Broad range of substrates
- Very high abrasion resistance
- Good light and weather fastness
- Medical devices: USP Class VI-certification

- Main area of application:
  - Promotional articles
  - Household appliances (white goods)
  - Toys
  - Packaging
  - Medical devices

As 1-component ink mainly for printing on thermoplastics such as ABS, SAN, PS, PC, PMMA, with hardener also suitable for e.g. PP and PE plastics.

## TP 340

The Superfast

Ink type: Pad printing ink, 1- and 2-component  
 Base: Solvent-based ink  
 Degree of gloss: High  
 Drying speed: Very quick  
 Alternative: TP 219/12 (10:1)  
 TP 219/N (10:1)

- Good printability even at high printing speed
- Very quick drying
- High resistance against
  - alcohol
  - test fuel
  - cosmetics
- High abrasion resistance
- Broad range of substrates
- Good light and weather resistance

- Main area of application:
  - Promotional articles
  - Toys
  - Cosmetics

Mainly for printing on thermoplastics such as ABS, SAN, PS, PC, PMMA.



**BRAUN**



**märklin**

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## TP 400

**NEW**

Modern • Reliable • Versatile

Ink type: Pad printing ink,  
1- and 2-component  
Base: Solvent-based ink  
Degree of gloss: High  
Drying speed: Medium  
Alternative: TP 219/12 (10:1)  
TP 219/N (10:1)

- New formulation
- Excellent printability
- For flat and rotation systems
- Very broad range of colours
- Very broad range of substrates
- Medical devices:  
USP Class VI-certification

- Main area of application:
  - Promotional articles
  - Toys
  - Sports items
  - Packaging
  - Medical devices
  - Household appliances
  - Cosmetics
  - Electrotechnical products
  - Automotive (plastics)

## TP E-HF

The Halogen-Free

Ink type: Pad printing ink,  
1- and 2-component  
Base: Solvent-based ink  
Degree of gloss: High  
Drying speed: Quick  
Alternative: TP 219/12 (8:1)  
TP 219/N (8:1)

- Free of halogens according to  
DIN EN 61249-2-21
- Good printability
- For flat and rotation systems
- Good abrasion resistance
- Broad range of substrates
- Good light and weather resistance

- Main area of application:
  - Promotional articles
  - Toys
  - Cosmetics

Mainly for printing on thermoplastics such as ABS, SAN, PS, PC, PMMA, with addition of hardener also suitable for e.g. PP and PE plastics.

| Suitability Chart Ink - Substrate                                    | TP 307 | TP 313 | TP 340 | TP 400 | TP E-HF |
|--|--------|--------|--------|--------|---------|
| 1- and alternatively 2-component                                     |        | ✓      | ✓      | ✓      | ✓       |
| 2- component ink   | ✓      |        |        |        |         |
| <b>Substrates</b>  |        |        |        |        |         |
| ABS, SAN   | ②      | ●      | ●      |        | ●       |
| Polystyrene (PS)   | ②      | ●      | ●      |        | ●       |
| Polycarbonate (PC)   | ②      | ●      | ●      | ●      | ●       |
| PMMA   | ②      | ●      | ●      | ●      | ●       |
| PVC - rigid  | ②      | ●      | ●      | ●      | ●       |
| PVC - plasticized  |        |        | ●      |        |         |
| Polyamide (PA)   |        | ②      | ②      | ②      | ②       |
| Polypropylene (PP) pre-treated                                       | ②      | ②      |        | ②      | ②       |
| Polyethylene (PE) pre-treated  | ②      | ②      |        | ②      | ②       |
| Polyurethane (PU)  | ②      |        | ②      | ②      |         |
| Polyacetal (POM) post-treatment required                             | ②      | ●      | ●      | ②      |         |
| Polyester  | ②      | ②      | ②      | ②      | ②       |
| Duroplastics   | ②      |        |        | ②      |         |
| Metals   | ②      |        | ②      | ②      |         |
| Coated Surfaces  | ②      | ●      |        | ●      | ●       |
| ● = Preferred for the application   ● = Suitable for the application |        |        |        |        |         |
| ② or ② = Processing with hardener as 2-component ink                 |        |        |        |        |         |

More technical information about processing is available in the product data sheet of the respective ink series.



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To ensure that all guidelines and limits are observed the appropriately suitable thinners, retarders, hardeners and additives must be selected for adjustment of these inks.

| Selection table for thinners and retarders |                  |          |                 |                  |
|--|------------------|----------|-----------------|------------------|
| Products                                   | Evaporation rate | Factor   | Solvent power   | Applicability    |
| Additive C                                 | Very quick       | 0.25     | Medium - Strong | Universal        |
| Additive D                                 | Quick            | 0.5      | Medium          | Universal        |
| <b>Additive U</b>                          | <b>Medium</b>    | <b>1</b> | <b>Medium</b>   | <b>Universal</b> |
| Additive R                                 | Medium           | 3        | Medium          | Universal        |
| VD 60                                      | Slow             | 5        | Medium          | Universal        |
| VZ 35                                      | Very slow        | 25       | Mild - Medium   | Universal        |

## Information about substances not used in these ink series

### Bisphenol A (BPA)

BPA is a starting material for the production of some polymeric plastics such as polycarbonate or epoxy resins. Epoxy resins are often used for the production of cross-linkable, highly resistant coatings, casting compounds or adhesives. BPA is proven to have a weak estrogenic effect so that resorption into the human body should be avoided as far as possible. At the moment there is a controversial discussion among experts how and in what concentration BPA is harmful.

For many years, Coates Screen Inks GmbH has been offering reliable 2-component ink systems based on epoxy resins which may show slight traces of BPA due to the manufacturing process. However, we do not use Bisphenol A as raw material.

### Cyclohexanone

Cyclohexanone is an excellent solvent for coatings and is very universal with regard to its technical properties. Unfortunately inhalation of vapours is harmful which is why exposure limits must be observed for this substance. However, with suitable protective equipment (extraction, ventilation, PPE) the danger for employees can be minimized. The necessary industrial safety measures are technically feasible. The completely dried ink film (printed article) does not present any risk as the solvent has already evaporated then.

### Butyl glycolate (GB-Ester/Glycolic acid butyl ester)

For many years, we have not been using this solvent for new formulations as it is suspected of damaging fertility or the unborn child. A monitoring of exposure at the workplace is not required. Considering GMP danger is low, but cannot be excluded completely.

### PAH, Polycyclic aromatic hydrocarbons

PAH are natural components in coal and mineral oil. They also occur during (incomplete) combustion of organic substances and there is evidence to cause cancer. Polycyclic aromatic hydrocarbons (in total 18) can be found in e.g. tobacco smoke and in grilled and smoked meals. In printing inks they occur in carbon black pigments which are frequently used in black printing inks. Solvent Naphtha, a formerly popular organic solvent or thinner for inks and varnishes, is a fraction of the mineral oil distillation and therefore naturally contains naphthalene which is the smallest and thus most volatile of all PAH's. To be able to observe lowest PAH limits (e.g. GS symbol concession according to AfPS GS 2014:01 PAH) the corresponding printing inks must be completely free of Solvent Naphtha. For black colours special pigments must be used as in our colour shades N58, 68 and 68-HD.



## Coates Screen Inks GmbH

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