

Technical Information

Premium Permanent Ink – PP 170

General Information

Developed to meet the requirements of EN71 Part 9, PP170 is our premium Permanent ink offering all of the features of SP117 with added colour intensity. It is also suitable for use as a CD marker ink.

- Our premium range
- Superior colour intensity
- Extended cap-off protection*
- Suitable for a fine liner nibs
- CD & DVD safe**
- Xylene, toluene and benzene free

Suitable for use on paper, card, OHP film, plastics, metals, glass, ceramics, wood, leather and many other surfaces.

*cap-off tested to ISO 554 (23°C / 50% RH)

Available Colours

| Standard | | Special | |
|-------------|--------------|-----------------|---------------|
| ● Black | ● Yellow | ● Pink | ● Lemon Grass |
| ● Dark Blue | ● Brown | ● Lavender | ● Lime Green |
| ● Red | ● Bright Red | ● Dark Red | ● Turquoise |
| ● Green | ● Sky Blue | ● Scarlet | ● Aqua Blue |
| ● Orange | ● Violet | ● Golden Orange | ● Light Brown |

Typical Physical Properties

| Ink | Viscosity (20°C) (cP) | Density (20°C) (g.cm ⁻³) | Surface Tension (mNm/m) | pH | Drying Time (23°C/50% RH) (secs) |
|-------------|--------------------------|---|----------------------------|------|-------------------------------------|
| ● Black | 4.28 | 0.96 | 27 | 4.95 | 15 |
| ● Dark Blue | 2.65 | 0.94 | 26 | 4.37 | 15 |
| ● Red | 2.81 | 0.93 | 26 | 6.17 | 15 |
| ● Green | 2.76 | 0.93 | 26 | 4.87 | 15 |

cP = centipoise

g.cm⁻³ = grams per cubic centimetre

mNm/m = milli Newton metre per metre

Light Fastness

| Ink | Light Fastness (8 hours exposure to mercury vapour source) |
|-------------|---|
| ● Black | 5 |
| ● Dark Blue | 4 |
| ● Red | 5 |
| ● Green | 5 |

5 = Excellent

4 = Very good

3 = Good

2 = Poor

1 = Very Poor

0 = Failure

Test Method Summary – The colour intensity is assessed visually. The light fastness is assessed visually after exposure to a mercury vapour light source for 8 hours

● Rub Resistance

Metals

| Ink | Steel | Mild Steel | Aluminium | Brass | Galvanized |
|-------------|-------|------------|-----------|-------|------------|
| ● Black | 5 | 5 | 5 | 5 | 5 |
| ● Dark Blue | 4 | 5 | 5 | 5 | 5 |
| ● Red | 4 | 5 | 5 | 5 | 5 |
| ● Green | 5 | 5 | 5 | 5 | 5 |

Plastics

| Ink | Polyethylene Terephthalate (PET) | Low Density Polyethene (LDPE) | High Density Polyethene (HDPE) | Polypropylene (PP) | Polystyrene (PS) |
|-------------|----------------------------------|-------------------------------|--------------------------------|--------------------|------------------|
| ● Black | 5 | 4 | 5 | 4 | 5 |
| ● Dark Blue | 5 | 5 | 4 | 3 | 5 |
| ● Red | 5 | 4 | 5 | 4 | 5 |
| ● Green | 5 | 5 | 5 | 5 | 5 |

5 = Excellent 4 = Very good 3 = Good 2 = Poor 1 = Very Poor 0 = Failure

Test Method Summary – a comparative test where the test surface is repeatedly rubbed with a dry fingertip

● Tape Resistance

Metals

| Ink | Steel | Mild Steel | Aluminium | Brass | Galvanized |
|-------------|-------|------------|-----------|-------|------------|
| ● Black | 5 | 5 | 5 | 5 | 5 |
| ● Dark Blue | 4 | 5 | 5 | 5 | 5 |
| ● Red | 4 | 5 | 5 | 5 | 5 |
| ● Green | 5 | 5 | 5 | 5 | 5 |

Plastics

| Ink | Polyethylene Terephthalate (PET) | Low Density Polyethene (LDPE) | High Density Polyethene (HDPE) | Polypropylene (PP) | Polystyrene (PS) |
|-------------|----------------------------------|-------------------------------|--------------------------------|--------------------|------------------|
| ● Black | 5 | 5 | 5 | 3 | 5 |
| ● Dark Blue | 5 | 5 | 5 | 3 | 5 |
| ● Red | 5 | 4 | 5 | 4 | 5 |
| ● Green | 5 | 5 | 5 | 4 | 5 |

5 = Excellent 4 = Very good 3 = Good 2 = Poor 1 = Very Poor 0 = Failure

Test Method Summary – the tape is applied to the test surface and light pressure is applied with the finger to remove air bubbles. After a period of 10 minutes the tape is removed at an angle of 90°

● Typical Cap-off Performance (23°C, 50% Relative Humidity)

Polyester Chisel tip

| Ink | Cap-off Time (days) | | | | | | | | |
|-------------|---------------------|---|---|----|----|----|----|----|----|
| | 1 | 3 | 7 | 17 | 18 | 21 | 22 | 24 | 28 |
| ● Black | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| ● Dark Blue | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| ● Red | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| ● Green | ● | ● | ● | ● | ● | ● | ● | ● | ● |

Polyester Bullet tip

| Ink | Cap-off Time (days) | | | | | | | | |
|-------------|---------------------|---|---|----|----|----|----|----|----|
| | 1 | 3 | 7 | 17 | 18 | 21 | 22 | 24 | 28 |
| ● Black | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| ● Dark Blue | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| ● Red | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| ● Green | ● | ● | ● | ● | ● | ● | ● | ● | ● |

Plastic Tip Fine Liner

| Ink | Cap-off Time (hours) | | | | | | |
|-------------|----------------------|-------|-------|-------|--------|--------|--------|
| | 2 hrs | 4 hrs | 6 hrs | 8 hrs | 24 hrs | 48 hrs | 72 hrs |
| ● Black | ● | ● | ● | ● | ● | ● | ● |
| ● Dark Blue | ● | ● | ● | ● | ● | ● | ● |
| ● Red | ● | ● | ● | ● | ● | ● | ● |
| ● Green | ● | ● | ● | ● | ● | ● | ● |

● =writing normally

● =marker drying out

● = not writable

Test Method Summary – cap-off is tested to ISO 554 (23°C / 50% RH); the writing performance of the markers is assessed daily until they are not writable

● Approvals

| US | European |
|--|---|
| ASTM D-4236 | EN71-9:2005 |
| 16 CFR 1500.3 (max reservoir capacity is 12ml) | EN71-3:1994 |
| TSCA | TRA |
| Proposition 65 | Annex XVII EU Regulation 1907/2006 (Phthalates) |
| CPSIA Total Lead in Substrates | |
| CPSIA Total Phthalates Content | |

NB: our inks are suitable for use in marker pens intended for children of 3 years and above, however it is the pen manufacturer's responsibility to establish the overall safety and fitness for purpose of the product incorporating Multichem inks.

● Marker Storage Advice

For optimum performance, markers should ideally be stored capped securely.

● **Component Selection Advice**

| Component | Details |
|----------------|--|
| Nib | Polyester, acrylic, extruded (such as POM**) |
| Reservoir | Polyester with polypropylene wrapping |
| Barrel | Polypropylene (PP) |
| Head/Tail Caps | Polypropylene (PP) |

The recording layer of a CD is located just beneath the labelling side, the surface of which is protected by a soft, thin coating. If hard fine point markers are used on a CD, they may scratch or depress the surface of the disc and permanently damage the metal and data layers. Therefore it is recommended to only use markers with soft, felt tip nibs (such as polyester bonded fibre) to prevent scratching and denting. Hard fine point nibs can be employed for other applications, such as for OHP markers.

We strongly recommend you test your components for compatibility with our inks.