Technical Information

Premium Permanent Ink – PP 170

General Information

Developed to meet the requirements of EN71 Part 3, 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	EN71-3:1994
16 CFR 1500.3 (max reservoir capacity is 12ml)	Annex XVII EU Regulation 1907/2006 (Phthalates)
TSCA	
Proposition 65	
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.