SCREEN PRINTING INKS FOR PAPER AND OTHER SUBSTRATES

PERMAPRINT® Premium inks are a revolutionary range of water-based screen printing inks with superior performance and color brightness. **PERMAPRINT® Premium** inks are formulated to provide excellent adhesion on coated (sized) paper, plastics and some coated metals. This highly versatile product range is suitable for use on high lay-down hand printed wallpaper and art reproduction, through to stickers, posters and backlit displays. It exhibits exceptional water resistance once dried.

PERMAPRINT® Premium inks are 100% solvent free, so equipment is easily cleaned with water. **PERMAPRINT® Premium** inks do not contain ozone-depleting chemicals such as CFCs or HCFCs. They are also formulated free of aromatic hydrocarbons, volatile solvent and do not contain PVC resin or any phthalate plasticisers. No solvent fumes means that they are safe for the printer and friendly to the environment.

PERMAPRINT® Premium water-based inks are known for their intense pigments rich in coverage and exceptional color yield. Available in 12 **Aquatone** mixing bases of 9 Colors, Black, White and Extender (Print Paste). The **PERMAPRINT® Premium** range also includes Opaque White, Clear Gloss Varnish and Matting Agent, 4 CMYK Process Colors, 8 Glow Colors and 4 Pearl Colors. The **Aquatone** range is a color matching set. For dark grounds, it is advisable to use Opaque White as an underbase. Opaque White is not part of the color matching set. The **Aquatone** color matching set can be used in conjunction with the **PERMATONE®** Mixing Guide.

Important: Stir well before use.
Compatibility with all substrates should be checked before commencing a production run.

MAIN CHARACTERISTICS

Mesh Range	Monofilament. Polyester 43-120T (110-305 tpi) depending on application for **PERMAPRINT® Premium** Standard, Glow and Process Colors. 43-100T (110-255 tpi) for Metallic Pearl Colors, Opaque White & Matting Agent. Nylon mesh is NOT recommended. It is water sensitive and screen tensions can be affected with water-based inks. Polyester mesh is recommended.
Stencil Type	Emulsions must be water resistant, fully dried and cured. Dual cure direct emulsions such as KIWO POLYCOL® MULTI-TEX/VERSA-TEX™ or Fujifilm Dirasol® 916 or ULANO® 925WR or Chromaline® CP-Tex™ or MacDermid Autotype PLUS 6000 or Murakami TXR®/ T9 are recommended for long print runs and maximum print resolution. Care should be taken to ensure that stencils are properly dried and

	exposed as under-exposure will render most direct emulsions sensitive to premature breakdown with water-based inks.
Coverage	15-21m^2/L with 62T mesh. 611-856 square feet per US gallon with 155 tpi mesh.
Substrates	Sealed paper, cardboard, Tyvek®, polyesters (Mylar®), polycarbonates (Lexan®), some coated metals, polystyrene, PMMA (Perspex®/Plexiglass®), Corflute®/Coroplast®. Care should be taken with some vinyls as plasticizer migration may soften the ink over time. Care should also be taken with some uncoated papers as cockling may occur.
Squeegee	Sharp square urethane squeegees from 55 to 75 Shore hardness are recommended for best image reproduction.
Printing	Screen meshes of 43-120T (110-305 tpi) monofilament polyester are suitable for most **PERMAPRINT® Premium** applications. General purpose work is best with meshes from 77T (195 tpi) to 100T (255 tpi). Ensure that there is adequate ink on the screen for an even print. Between prints, ensure that ink is flooded over the entire image area to prevent drying-in. Ensure that screen emulsions and blockout are water-resistant and fully cured. **IMPORTANT: When printing with PERMAPRINT® Premium, it is essential to flood the image area after lifting the screen following each print stroke. Thin deposits of ink retained in the mesh will dry very fast. By flooding straight away, fresh ink will wet out these deposits and prevent premature drying in.**
Open Time	If drying in the screen too quickly, add 1-2% **PERMASET® Print Retarder**
Drying	For optimum fastness **PERMAPRINT® Premium** inks should be air dried, or may be jet dried at maximum airflow. **PERMAPRINT® Premium** inks dry by simple evaporation over 20-30 minutes, depending on ambient temperature and humidity or may be jet dried at 65-75°C (149-167°F) for approximately 30-45 seconds using maximum air flow. **PERMAPRINT® Premium** inks may also be dried with R.F. or Microwave dryers. When the temperature is below 10°C (50°F) AND only air-dry facilities are available, these inks should not be used.

	In the case of porous substrates, drying is aided by absorption. Drying rates in all cases will be affected by ink thickness. Testing under print shop conditions on common substrates is recommended before commencing any production print run. Ensure that adequate ventilation is provided during drying and that cooling is allowed before stacking to prevent blocking problems. NOTE: Whilst the information above is a guide, any heating schedule used should be chosen to suit the heat resistance of the substrate being printed. Care must be taken with IR dryers. When printing on synthetic substrates, lower temperatures and longer drying times are recommended. If your drying conditions fall outside these recommendations, please contact your local representative for technical assistance. Any drying temperature guidelines quoted above are recommendations for ink deposit temperatures, not dryer temperatures. These should be checked with temperature strips or IR gun to ensure the appropriate temperatures are being achieved.
Fastness	Light Fastness is very good-excellent. Most colors achieve a rating of 8/8 on the Blue Wool Scale (BWS), but all Colors except Glow Colors rate not less than 6/8. Figures for the Glow range are substantially lower, but not quantified at this time.
Thinning & Wash-up	If necessary, thin with up to 1-3% water. Wash screens out whilst still wet with water and detergent. Dried in ink may be washed out with conventional or eco-friendly screenwash.
Applications	High lay-down hand printed wallpaper and art reproduction, through to stickers, posters and backlit displays where maximum detail and transparency is required. Packaging, wrapping paper, notebooks and book covers, cork mats and coasters.
Properties	Solvent-free. Low odour. Intermixable, light fast*, non-bleeding† colors. Aquatone Glow and Pearl colors are satin finish. Process Colors and Clear Gloss Varnish are gloss finish. * All Glow colors exhibit diminished light fastness, particularly in direct sunlight. † Some Glow colors may bleed when over printed. Test before use.
Product Resistance	After air dry, prints exhibit very good water resistance.
Color Range	**PERMAPRINT® Premium Aquatone** Colors Aquatone Black Aquatone White (Transparent) Aquatone Yellow G/S (Primrose)

Aquatone Yellow R/S (Golden Yellow)
Aquatone Orange
Aquatone Red Y/S (Scarlet)
Aquatone Red B/S (Carmine)
Aquatone Magenta
Aquatone Violet
Aquatone Blue
Aquatone Green
Aquatone Extender (Print Paste/Reducer)
Available in 300 mL, 1 L, 4 L & some colors in 15 L containers

PERMAPRINT® Premium Glow Colors*†
Glow Yellow
Glow Orange
Glow Red
Glow Pink
Glow Magenta
Glow Violet
Glow Blue
Glow Green
Available in 300 mL, 1 L & 4 L
* All Glow colors exhibit diminished light fastness, particularly in direct sunlight.
† Some Glow colors may bleed when over printed. Test before use.

PERMAPRINT® Premium Process Colors
Process Black
Process Cyan
Process Magenta
Process Yellow
Available in 300 mL, 1 L & 4 L

PERMAPRINT® Premium Pearl Colors
Pearl White
Pearl Silver
Pearl Gold
Pearl Copper
Available in 300 mL, 1 L & 4 L

Ancillary Products
Opaque White *Available in 300 mL, 1 L, 4 L & 15 L*
Clear *Available in 300 mL, 1 L & 4 L*
Matting Agent (use @ up to 5%) *Available in 300 mL, 1 L & 4 L*
PERMASET® Print Retarder (use up to 2%)
Available in 500 mL, 1 L, 5 L & 15 L.

Environmental Information	**PERMAPRINT® Premium** inks do not contain ozone depleting chemicals such as CFCs and HCFCs. They are also formulated free of aromatic hydrocarbons. **PERMAPRINT® Premium** inks are free of volatile organic solvent and do not contain any PVC resin nor phthalates plasticiser. **PERMAPRINT® Premium** inks are also free from Lead and other heavy metals.
Safety & Handling	**PERMAPRINT® Premium** inks have been formulated to be free of toxic chemicals. The range has no flash point, and as such is exempt from Flammable Liquids regulations. Comprehensive information on the safety and handling of products in the **PERMAPRINT® Premium** range of inks and ancillaries is provided in the appropriate Safety Data Sheets (SDS) which are available on request.
Storage	Containers should be kept in a cool dark place out of direct sunlight and away from sources of heat. Containers should be tightly closed when not in use. Keep out of reach of children.
Suggested Safe Disposal Method	1. Wipe as much excess ink off the screen as possible, first with a squeegee (into a clean bucket for re-use), then with rags/paper (into bin) 2. Hose out the screens in a contained vessel 3. Capture the liquid waste and allow to settle 4. Strain out solids, dry solids in the sun and dispose of as solid waste. 5. Aqueous waste water should be disposed of in sealed containers via a certified waste disposal entity. **Excess ink and wastes from the screen should be disposed of in accordance with the regulations of local regulatory authorities.**

NOTE: The information and recommendations contained in this Technical Data Sheet, as well as technical advice otherwise given by representatives of our business, whether verbally or in writing, are based on our present knowledge and believed to be accurate. However, no guarantee regarding their accuracy is given as we cannot cover or anticipate every possible application of our products and because manufacturing methods, printing stocks and other materials vary. For the same reason, our products are sold without warranty and on condition that users conduct their own tests to satisfy themselves that they will fully meet their particular requirements. Our policy of continuous product improvement might make some of the information contained in this Technical Data Sheet out of date and users are requested to ensure that they follow current recommendations.

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