

Flex-rigid UV curable inkjet inks for indoor and outdoor applications

The **Power V4** series inkjet range is a “flexi-rigid” or “universal” ink set, based upon state-of-the-art acrylate UV-curable formulations developed by Chimigraf Ibérica SL’s R&D laboratories at their headquarters in Rubi near Barcelona, Spain. Chimigraf has been manufacturing UV-curable inkjet inks for OEM’s and the aftermarket in high volumes since 1999, and has hence acquired huge experience in optimizing formulations for adhesion, flexibility and high colour gamut.

The **Power V4** series has superb flexibility, and hence prints particularly well on flexible substrates such as banner vinyl or self-adhesive vinyl, plus other flexible and semi-flexible substrates such as polyolefins, vinyl substitutes, PET, and PC. The ink also has good adhesion to many common rigid substrates such as acrylics, rigid PC, foam boards and corrugated boards.

Chimigraf is one of the very few UV inkjet producers that manufacture their own pigment dispersions in house in UV monomers. This enables Chimigraf to totally control the batch-to-batch consistency and quality of its pigment dispersions, and also enables selection of the very best pigments for a combination of light fastness with exceptionally high colour gamut. All pigments used are rated for light fastness at 7-8 on the blue wool scale. The finished ink products have been tested according to ASTM D-2565-99, and under that test method show a light fastness equal to approximately 24 months outdoor exposure in accordance to Atlas, the total solar radiant exposure in Florida in the range of 300 – 800nm is 3712 MJ/m²/year . However, outdoor exposure conditions and UV levels vary throughout the world, and in some countries may even exceed the conditions of the above test method. Hence the Power V4 series is completely suitable for either INDOOR or OUTDOOR applications, or for printing onto packaging media.

Chimigraf’s **Power V4 series** features exceptionally fine particle size pigment dispersions and uses the highest quality oligomers and monomers, which enables this ink series to give high performance results with an exceptionally wide variety of piezo printheads including Konica 512, SII 510, Fujifilm Dimatix Nova, 256/30 Galaxy and Q-class, Ricoh, Toshiba-TEC and Xaar. Optimum jetting temperature is dependent upon the specific machine configuration, but is usually between 35 and 45^o C.

Chimigraf’s Power V4 series inks are classed as non-hazardous for transport and freight purposes.

Product Name	Code	1 Kg	5 Kg
Power v4 Yellow	12.022.027	01S	05J
Power v4 Magenta	12.022.028	01S	05J
Power v4 Cyan	12.022.029	01S	05J
Power v4 Black	12.022.030	01S	05J
Power v4 Light Yellow	12.026.903	01S	05J
Power v4 Light Magenta	12.023.679	01S	05J
Power v4 Light Cyan	12.023.680	01S	05J
Power v4 Light Black	12.026.902	01S	05J
uvFlush OL	12.023.157	01S	05J

Typical Physical Properties

Property	Range
Viscosity cP @ 40 ^o C	10-12
Viscosity cP @ 25 ^o C	21-23
Surface Tension (dynes)	28-31
Cure dose (mJ/cm Hg-lamp)	280
Particle size (nm)	150-300

UV Curing Information

Actual cure dose required will depend upon ink thickness (8 - 15 microns layer), substrate and the type and age of UV curing lamps being used. Longer wavelength UV lamps such as iron-doped or gallium-doped can offer improved penetration of the UV-light into the pigmented ink layer, which helps to improve through-cure and ink adhesion properties.

Chimigraf recommends that customers test print onto a given substrate, for optimum ink cure conditions and adhesion, prior to printing any large print job. The optimum cure conditions may vary from one substrate to another. For example, dark coloured, non-reflective or transparent substrates may require slower printing / longer cure time than white or reflective substrates.

UV lamps should be cleaned weekly, and replaced regularly. Lamps and bulbs used for longer than the manufacturer's recommended life time may appear to still glow brightly – but actually, UV irradiation is invisible to human eyes and in reality the UV output from old lamps is much reduced, which results in poorer curing of UV inks.

Where possible, Chimigraf recommends that printers / users check the output of their UV lamps, and optimum cure conditions, using a UV dosimeter.

Storage & Shelf Life

UV-curable inks should not be stored close to sources of heat or warmth (such as hot pipes or radiators), nor in direct sunlight. All containers should be kept closed when not in use, to avoid accidental exposure to UV light, or dust contamination.

Maximum storage life is obtained when the ink is stored at temperatures between 5 and 30^oC. When stored under these conditions, the inks have a shelf life of 12 months from date of manufacture.

Packaging Boxes

Power V4 series inks are available as follows:

- Kit: 01S :in 1 kg black bottles (HDPE) – box of 16 x 1kg bottles
- Kit 05J: in 5kg black bottles (HDPE) – box of 4 x 5kg bottles

Safety and Handling

Comprehensive information on safety and handling of Chimigraf UV-curable inkjet inks is given in the appropriate Chimigraf Material Safety Data Sheets (MSDS).

Emergency Phone number: +34935862040

Environmental Information

Chimigraf UV-curable inkjet inks –

- are free of ozone depleting chemicals;
- do not contain solvents or aromatic hydrocarbons;
- have much less impact on the environment than solvent based inks.

The information explained in this Information sheet, as well as technical advice given by representatives of our Company, whether verbally or writing, are based on our present knowledge and believe. However, no warranty regarding their accuracy is given as we cannot cover or anticipate every possible application of our products and because manufacturing methods. For that reason, our products are sold without warranty and on condition that users shall make their own tests to convince themselves that they can meet their specific requirements

CHIMIGRAF

C/ Compositor Carcassi, 6 – 8. Pol. Ind. Can Jardí // Apdo. Correos 197

08191, Rubí (Barcelona) – Spain

Tel. +34.93.586.20.40 – Fax. +34.93.588.56.77

inkjet@chimigraf.com WWW.CHIMIGRAF.COM

