

Application Guide

UVgel Technology



**Breakthrough
Productivity**



**Never Seen
Before
Automation**



**Wide & Unique
Application
Range**



**Low Cost
of Operation**



**Robust
Industrial
Production
Platform**



**Odorless,
Instant Dry
Prints**



**Outstanding
Scratch
Resistance**

The World's Fastest 64" Roll-to-Roll Printer
Powered by Canon UVgel

Introduction & Key Benefits

With the new Canon UVgel technology comes a breakthrough in wide format printing.

UVgel ink combines the strengths and benefits of all the current ink technologies such as EcoSolvent, Latex and traditional UV. At the same time, it eliminates and compensates for much of their typical limitations.



UVgel offers the following advantages in one, new technology

- A wide color gamut, comparable to that of EcoSolvent inkjet printers.
- Printed output that is immediately dry and ready to be processed and can be laminated the minute it comes off the machine.
- The speed and productivity of traditional high-end liquid UV systems. Responding to the call for shorter and shorter lead times.
- Printed output that is odorless and therefore suitable and certified for indoor applications (Greenguard Gold, AgBB to be expected).
- Excellent light-fastness making UVgel very suitable for outdoor applications.
- Prints that have a thin layer of ink and a smooth finish; without the traditional UV texture thus enabling easy lamination.
- Ink that is bendable and flexible compared to traditional UV and at the same time offering a very high scratch resistance.
- UVgel is using a low temperature printing process. This opens up a wider variety of media that can be used.
- UVgel has a very high color consistency as compared to competition.

Wall decoration

Wall covering and decoration is a huge, promising market that has been based on a completely analogue production process for a long time. But it is now slowly but surely turning digital.

Various media and techniques are used:

- Wall paper: the traditional paper roll, often with a texture, that later is glued to the wall/object. Pre-glued papers are also on the market.
- Wall coverings: a textured synthetic media, with or without a self adhesive layer and backing liner.



Media

The most common type used in today's market is a textured, self-adhesive vinyl.

Advantages of UVgel

- Color consistency and uniformity: because of absolute dot gain control, UVgel is a very color-consistent digital printing process. UVgel is color uniform within the same print run, and also over a longer time period, due to the industrial-built, high quality piezo-electric printheads in combination with UVgel ink.
- Dimensional stability: due to the low temperature of the printing process, no stretching or deformation occurs, enabling consistent output every time, even on the longest panels.

- Odorless printed output with key environmental certifications for indoor use.
- High scratch resistance and high washability.

Considerations

Certain porous or absorbent media cannot be used with the current UVgel technology.



POP Advertising – posters, disposable

This is a common, large market application, used for short term promotional advertising and display purposes.

- The application is used both indoor and outdoor. It often consists of short runs with very fast turnaround times.
- The typical lifetime of this application is between a couple of days up to one month.



Application requirements

- Maximum visual impact: you need punchy, vibrant colors and (if indoor) in high quality (despite it being disposable).
- Very short use, so less expensive media is preferred.

Media

The most commonly used media are (poster) paper, self-adhesive vinyl and self-adhesive paper. UVgel does not need special inkjet coating; a regular offset MC coated paper is sufficient.

UVgel advantages

- Wider color gamut at higher speeds: crucial for promotional advertising and brand colors.

- More productive printing speeds in high output quality, enabling short lead-times
- Odorless prints, with certification, immediately ready for indoor use.
- The printed output is highly scratch resistant, not requiring lamination.
- And in addition UVgel will enable you to choose more cost-effective media:
 - » As UVgel has a very limited dot gain, media can be used that don't require an expensive coating (as necessary with solvent based inks for example) and still have vibrant, punchy colors and sharp image quality. A generic inkjet coating is sufficient.

- » UVgel is a low temperature printing process, which opens up a wider and more cost effective variety of media to be used. The cheaper poster papers tend to deform with heat, making it impossible to print on a heat based printing system (head crashes/unsellable output). Also the cheaper self-adhesives are known to curl up after being exposed to heat, giving difficulties in the mounting process.

Considerations

Black liner / background or full transparent film cannot be detected by the machine and is therefore not usable to print.

POP Advertising – long term

This is a common application serving a large market for both indoor and outdoor advertising, branding and display purposes. The lifetime typically ranges from one to six months. Lamination is also often done for additional mechanical protection. This application is often used to build brand identity.



Application requirements

- High quality output.
- A good visual impact and color accuracy.
- Color consistency is needed between different runs, different media and over time.

Media

The media used for this application are (poster) papers, self-adhesive vinyls & synthetic films.

UVgel advantages

- UVgel has the wide color gamut and high color accuracy of EcoSolvent inks but are additionally odorless and therefore better suited for indoors.
- Because of the unique UVgel properties, the color consistency is very good across different types of media, both within a print run, as well as over time.
- UVgel is very scratch resistant and durable.
- If despite this, lamination should still be preferred, UVgel allows for the simplest and cheapest lamination process to be used.

Considerations

Media with a black liner or backing or fully transparent film cannot be detected by the machine at this stage and is therefore not usable to print.

Outdoor & Event banners

This is signage in the form of flexible banners for outdoor use and promotional advertising. Sometimes this application is also used indoors.

The intended lifetime can range from one day (a single event), to several months (seasonal promotion) and even up to one or more years (permanent display).



Indoor film & roll-up banner

Very temporary, short lifetime displays in the form a flexible film and roll-up banners.



Application requirements

- Low cost.
- Outdoor durability: scratch resistance and light-fastness (resistance to colors fading over time).

Media

The media used for this is mostly vinyl outdoor banners of which a wide variety is available.

This is a very competitive market space and prices are under constant pressure. Alternative media such as PET or Tyvek are sometimes also considered, but cost is always an important factor in this market space.

UVgel advantages

- UVgel offers the advantage of being a very fast printing process in combination with low temperature.
- Cheaper media can be used. Where other technologies often suffer from wrinkling and deformation when being printed at high speed and exposed to high temperatures. But not UVgel technology!
- UVgel has also the wide color gamut of EcoSolvent inks but unlike EcoSolvent it is also odorless and thus enables indoor usage.

- For outdoor use, UVgel has the advantage of excellent light-fastness as well as having a very high scratch resistance combining to provide excellent overall outdoor durability.

Application requirements

- High quality prints.
- Using inexpensive film.

Media

The media used is a cost-effective plastic film, most often Polypropylene and PVC.

UVgel advantages

- UVgel has no problem printing on most flexible synthetic films and results in a printed output that is both good in image quality, as well as keeping the printed output flat.
- Heat-based printing systems such as EcoSolvent or Latex often have the undesired effect that the film starts 'cupping' after the film leaves the printer, even when the material is not thermoplastic. None of this occurs with UVgel technology.
- On top of that UVgel allows the choice for more cost effective, thermoplastic media.

Backlit advertising- Light boxes

This is an interesting application as this is typically sold at higher margins, but it has some special requirements.

To print backlit applications, a lot of ink is required on the media in order to block out the light in darker areas and to have fully saturated colors.



Media

The media used is mostly translucent polyester or acrylic film. For wide format light boxes backlit banner is used.

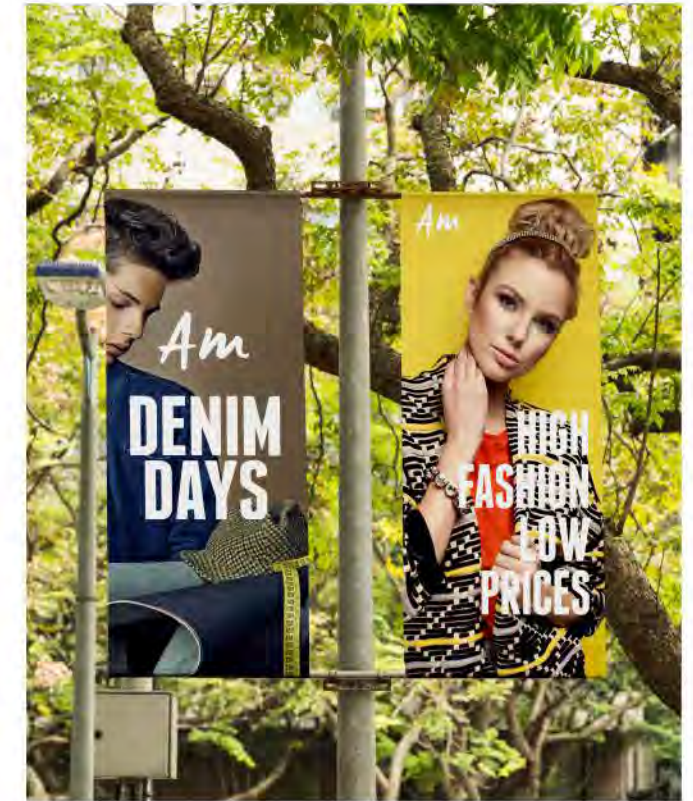
UVgel advantages

- UVgel allows a lot of ink to be deposited on the media without the need for intermediate curing or drying of the ink (as opposed to liquid ink, where drying or curing needs to happen while the ink is being printed).
- The result is that UVgel can print backlit applications at a printing speed that is multiple times faster than conventional ink systems.
- An additional advantage is the low temperature of the UVgel printing process opening up a wider variety of cost effective, thermoplastic media.

Soft signage

Fabrics are used to create lightweight, flexible advertising panels and displays. They are often preferred over standard self-adhesive panels, posters or displays because of the easy handling and more luxurious perception. A second use of soft signage is interior decoration, but this is mostly in the 3,2 meter format.

For a large part of the market, printing on fabric is done with a dye-sublimation process: this requires special printing machines with special dye inks, in combination with a separate transfer and sublimation process. These printers are single purpose machines. UVgel does not intend to offer a replacement solution for dye-sublimation printers, but rather to offer the ability to print on a limited number of textiles.



Media

The media used for this are mostly synthetic (polyester) fabrics.

UVgel can be used to print on a range of soft signage materials.

UVgel advantages

The advantage of UVgel is that images will turn out with dense, vibrant colors, and the printed output is odorless and suited for indoor use.

Considerations

- For open knit fabrics, the option with a backing liner is to be used.
- The fabric needs to have a certain rigidity for the machine to be handled.
- Curing: some limitations with too porous or too absorbant media.

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Fleet & car graphics

This is the decoration and advertising on cars, vans and busses. The lifetime of the application is temporary (an advertising campaign on a bus) to semi-permanent (decoration of a van).



Media

The media used for this are self-adhesive vinyls.

UVgel advantages

- UVgel ink is perfectly suited to do vehicle graphics: the ink is bendable and flexible and can be applied to cover the curves and round edges of vehicles.
- Because of its high scratch resistance, additional lamination is not always necessary.
- Should additional lamination be preferred, then the smooth and thin ink layer allows for an inexpensive and easy cold or hot lamination process.

Considerations

There is a limit to the stretchability of the ink. When the ink is overstretched, crack lines will start to appear, making complex 3D wrapping (around the mirror of a car) a challenge.

Increasing the stretchability would mean compromising on scratch resistance.

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Fine Art- Canvas prints

These are artistic prints, reproductions of paintings or photos on a canvas or a canvas-like medium.

This is an indoor application, with a typical lifetime of a few months up to several years.



Media

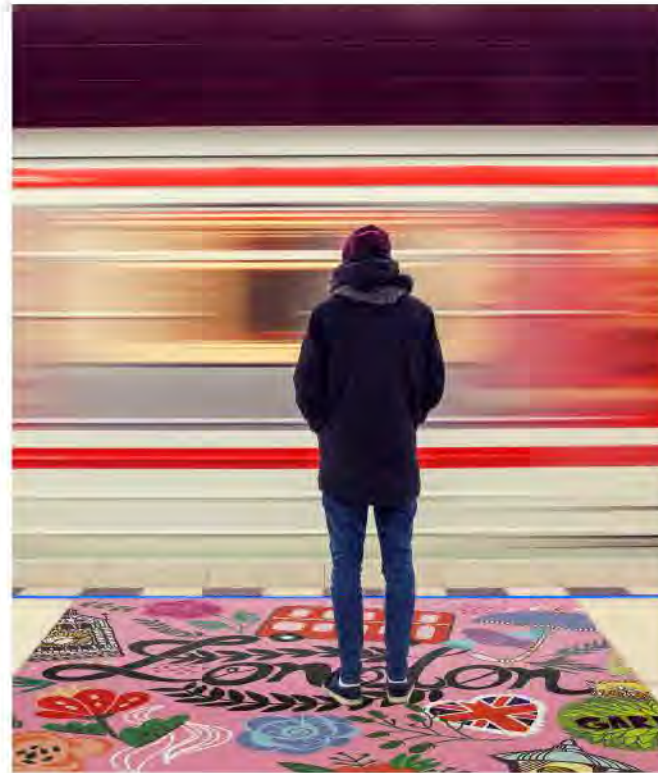
The media that is used for this is usually a coated canvas or a canvas-looking textile or woven synthetic.

UVgel advantages

- UVgel allows for high quality prints at high speed. The inks are designed for indoor use, odorless, and come with the relevant certifications.
- Apart from the higher achievable speeds at high quality we also offer a wide color gamut, excellent color accuracy and color consistency.

Floor Graphics

This is promotional advertising or signage on indoor flooring. The typical lifetime of this application can be very temporary or semi-permanent.



Application requirements

Apart from the regular requirements for promotional advertising such as color gamut and accuracy, the main requirement is mechanical toughness. Especially scratch resistance is crucial.

For example; in a shopping mall an industrial cleaning cart will go over the floor with dry and wet brushes several times a day.

UVgel advantages

There are two ways of doing floor graphics:

1. Directly on a textured vinyl: this is done when the use is only temporary. UVgel is perfectly suited for this because of its excellent scratch resistance, un laminated.
2. Printed on a regular self-adhesive vinyl, and finished with a transparent overlamine: this is for the (semi) permanent floor graphics. Here UVgel has an advantage as well because of the fact that the printed output is immediately ready to laminate (unlike EcoSolvent which requires drying time). An additional advantage is

that UVgel prints can be laminated in the easiest and most inexpensive way with a cold lamination process due to the smooth and thin ink layer.

Perforated Film (window graphics)

This is promotional advertising that is used to decorate glass surfaces and car windows. The perforated film with black backside allows you to look through it from the inside outwards, but at the same time displays the (printed) graphic if you are looking from the outside inwards. The typical lifetime of this application can be very temporary or semi-permanent.



Media

The media used for this application are perforated self-adhesive vinyl's, where the backside (the glued side) is black.

Apart from various types and sizes of perforations, there are two main types:

1. Media with with a single liner: these are aimed to be used for Solvent and Latex printing process
2. Media with a double liner: these are aimed to be used for UV printing processes.

UVgel advantages

- The wide color gamut of UVgel technology gives a clear advantage in reaching powerful, vibrant colours, which are a challenge since you only have "half of the print surface" to reach that colour (the other half being the perforated, empty hole)
- Because of its high scratch resistance, additional lamination is not always necessary.
- Should additional lamination be preferred, then the smooth and thin ink layer allows for a cheap and easy cold lamination process.

- Odorless printed output, with environmental certifications, so it can safely be used for indoor applications (dividing screens/indoor glass surfaces).

Colorado Series

The World's Fastest 64" Roll-to-Roll Printer Powered by Canon UVgel



Canon

Delighting You Always

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