

GV Series Screen Ink has been formulated for printing on vinyl surfaces where a high gloss finish is required. These inks form a positive bond with most vinyl surfaces and will dry to an extremely flexible film which may be vacuum formed. The pigments used in these inks have been carefully selected for fade resistance under outdoor exposure.

Substrates

- Vinyl
- Polycarbonate
- Acrylic

Substrate recommendations are based on commonly available materials intended for the ink's specific market when the inks are processed according to this technical data. While technical information and advice on the use of this product is provided in good faith, the User bears sole responsibility for selecting the appropriate product for their end-use requirements. Reference the 'Quality Statement' at the end of this document.

User Information

Mesh

150-350 tpi (60-120 tpcm) monofilament polyester mesh for most applications.

Stencil

Use direct emulsions and capillary films which are **solvent resistant**.

Squeegee

70 - 80 durometer polyurethane squeegee.

Coverage

Estimated 1200-1800 square feet (112-167 square meters) per gallon depending upon ink deposit. Reference www.nazdar.com for examples of coverage calculations.

Printing

GV Series ink must be thinned approximately 10% by weight prior to printing. (See additives section) Add only enough ink to the screen to be able to print for 5-10 minutes. Add additional ink in small increments throughout the print run to maintain screen stability. Thoroughly mix the ink prior to printing. Improper mixing can lead to inconsistent color and ink performance.

Maintain ink temperature at 65°-90°F (18°-32°C) for optimum print and cure performance. Lower temperatures increase the ink viscosity, impairing flow and increasing film thickness. Elevated temperatures lower the ink viscosity, reducing print definition and film thickness.

Pre-test to determine optimum printing parameters for a particular set of ink, substrate, screen, press, and curing variables/conditions.

Nazdar does not recommend inter-mixing of GV with other inks besides the GV.

Drying / Curing Parameters

GV Series dries by solvent evaporation and will air dry in 20-40 minutes. Good air circulation is necessary to remove the vaporized solvents. Multiple layers of ink may require longer drying times than a single layer.

Clears / Varnishes

Mixing Clear: Use GV170 Mixing Clear to reduce the density of colors or as a clear base for specialty additives such as Metallics.

Overprint Clear: Use GV173 Overprint Clear to provide added surface protection and increase durability.

Common Performance Additives

The market specific performance properties of the GV Series should be acceptable for most applications without the need for additives. When required, any additives should be thoroughly mixed before each use. Prior to production, test any additive adjustment to the ink. Inks containing additives should not be mixed with other inks.

Example for additives: Ink at 100g with 8% of an additive is calculated as:

$$100\text{g ink} + 8\text{g additive} = 108\text{g total}$$

Reducer: Use VF180 Fast Thinner Reducer to reduce the viscosity of these inks. Add up to 15% by weight.

Retarder: Use a blend of VF180 Fast Thinner and VF182 Retarder to improve screen stability during hot climate conditions or for slower drying. Add up to 10% by weight VF180 and 5% by weight VF182.

Adhesion Promoter: None

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Gloss / Flattening Powders / Improved Slip: Use VF178 Sharp Printing Compound to reduce gloss and improve slip. Add up to 20%.

Static Eliminator: Use Care50 for static control in the film. Add ½ -1% by weight.

Thickener: Use VF178 to thicken the ink viscosity. Add 5-10% by weight.

Flattening Additive: Use SIPI413 powder to flatten the ink. Add 1-5% by weight; amount will depend on how much reduction in gloss needed. *Consider using the VF Flat Vinyl Screen Ink line instead of flattening the gloss line.*

Cleanup

Screen Wash (Prior to Reclaim): Use IMS201 Premium Graphic Screen Wash.

Press Wash (On Press): Use IMS301 Premium Graphic Press Wash.

Storage

Store closed containers at temperatures between 65°-78°F (18°-25°C). Ink taken from the press should not be returned to the original container; store separately to avoid contaminating unused ink.

General Information

Ink Handling

All personnel mixing and handling these products must wear gloves and eye protection. Clean up spills immediately. If ink does come in contact with skin, wipe ink off with a clean, dry, absorbent cloth (do not use solvent or thinner). Wash the affected area with soap and water. Consult the GV Series Material Safety Data Sheet [MSDS] for further instructions and warnings.

Adhesion Testing

It is imperative to check adhesion on a fully dried print:

1. Touch of ink surface – the ink surface should be smooth and slick.
2. Thumb twist – the ink surface should not mar or smudge.
3. Scratch surface – the ink surface should resist scratching.
4. Cross hatch tape test – per the ASTM D-3359 method, use a cross hatch tool or a sharp knife to cut through ink film only; then apply

3M #600 clear tape on cut area, rub down, wait for 1 minute, and rip off at a 180 degree angle. Ink should only come off in actual cut areas.

Weathering / Outdoor Durability

At full strength and properly cured, GV colors are formulated to provide 2-3 years outdoor durability when mounted vertically in the Central U.S.A. The use of GV173Overprint Clear increases outdoor durability to 3-4years.

Exceptions: GV139 Majestic Yellow, GV185 Brilliant Pale Gold*, and GV187 Silver have a projected 1 year outdoor durability.

Fluorescent colors fade quickly with exposure to UV light and are not rated for Outdoor Durability.

*Will darken with exposure

Outdoor durability cannot be specified exactly. Slight color change and loss of gloss should be expected. Variables affecting a printed part's durability include:

- Ink film thickness and degree of drying/curing
- Color formulation:
 - Large amounts of mixing clear or white
 - Mixing several colors achieve a specific color
 - Mixing a small quantity of any single color
- Substrate type and age
- Mounting angle and directional orientation
- Geographical location
- Air pollution
- Excessive abrasion

Non-clear coated prints exhibit more color change and loss of gloss

Manufacturer's Product Offering

Based on information from our raw material suppliers, these ink products are formulated to contain less than 0.06% lead. If exact heavy metal content is required, independent lab analysis is recommended.

Standard Printing Colors

Standard Printing Colors have excellent opacity and flow characteristics. These colors are intended to work as supplied.

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Special Effect Pigments

When inks are to be printed with a special effect color, all ink layers must be evaluated for inter-coat adhesion before proceeding with the production run. Pigments may settle in the container; prior to printing, thoroughly mix the ink.

The following special effect pigments may be added to the GV inks. Contact Nazdar for the item number(s) and availability of special effect products. Technical Data Sheets for each of the following special effect pigments can be found at www.nazdar.com.

Metallic Silver (aluminum): Add up to 8% by weight.

Metallic Gold (bronze): Add up to 15% by weight.

Chemical reactions in metallic inks may result in viscosity, color and printability changes over time; due to this, mix only enough metallic ink to be used the same day.

Pearlescent / Interference: Add up to 20% by weight.

Multi-Chromatic: Add up to 10% by weight.

Phosphorescent: Add up to 40% by weight.

Fluorescents: Add up to 40% by weight.
 Fluorescent colors fade quickly with exposure to ultraviolet light.

Color Card Materials

The following is a list of available screen printed samples of the (Ink Series).

CardGV: shows the Standard printing Colors.

Packaging / Availability

Contact your Nazdar distributor for product availability and offering.

All Standard Printing Colors listed below are available in gallon and kilo containers.

All Non-Inventory Colors listed below are special order only and not available for immediate shipment.

As printing demands can change quickly for seasonal markets or larger containers may be desirable for specific projects, it is advised to

confirm packaging availability with Nazdar Ink Technology Customer Service.

Standard Ink Items

Standard ink items listed below are inventoried in gallon and kilo containers. All Non-Inventory Colors listed above are special order only and not available for immediate shipment.

Colors with an item number containing 'LF' indicate a lead-free alternative that replaced a lead containing color. All colors listed in this document are lead-free.

Standard Printing Colors

Item Number	Color
GVLF103	Red
GVLF105	Permanent Red
GV111	Black
GV112	White
GV122	Opaque White
GVLF124	Orange
GVLF130	Primrose Yellow
GVLF132	Lemon Yellow
GVLF134	Medium Yellow
GVLF142	Emerald Green
GV152	Light Blue
GV157	Royal Blue
GV170	Clear Gloss
GV173	Clear Gloss Exterior

Standard Printing Metallic Colors

Item Number	Color
GV185	Brilliant Pale Gold
GV187	Silver

Non-Standard Ink Items

Non-Standard ink items listed below are special order, non-inventoried colors which may require additional lead time. These items are available in gallon containers.

Non-Inventoried Colors

Item Number	Color
GV107	Permanent Maroon
GV110	Transparent Red
GV139	Majestic Yellow
GV149	Permanent Green
GV159	Permanent Blue

v 3 EN

Ref: v 2 EN

Solvent-Based Screen Ink

GV Series Gloss Vinyl Screen Ink

GV162	Purple
GV164	Cerise

Tel: 86-13818301261
 China E-mail: aspac@nazdar.com

v 3 EN

Ref: v 2 EN

Additives / Reducers

Additives/Reducers/Cleaners are available in gallon containers.

Item Number	Color
VF178	Sharp Printing Compound
VF180	Fast Thinner
VF182	Retarder

Nazdar – Singapore
 10, Changi South Street 3 #01-01
 Singapore 486147
 Tel: +65-65434920
 Fax: +65-65433690
 Asia E-mail: aspac@nazdar.com

Cleaners / Clean Up

Item Number	Color
IMS201	Premium Graphic Screen Wash
IMS301	Premium Graphic Press Wash

Nazdar Quality Statement

Nazdar® stands behind the quality of this product. Nazdar® cannot, however, guarantee the finished results because Nazdar® exercises no control over individual operating conditions and production procedures. While technical information and advice on the use of this product is provided in good faith, the User bears sole responsibility for selecting the appropriate product for their end-use requirements. Users are also responsible for testing to determine that our product will perform as expected during the printed item's entire life-cycle from printing, post-print processing, and shipment to end-use. This product has been specially formulated for screen printing, and it has not been tested for application by any other method. Any liability associated with the use of this product is limited to the value of the product purchased from Nazdar®.

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