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	Vinyls, polycarbonate, acrylic

USER INFORMATION

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. See full disclaimer at the end of the document.

MESH	150 – 350 tpi (60 – 120 tpcm) monofilament polyester mesh for most applications
STENCIL	Solvent resistant direct emulsions and capillary films
SQUEEGEE	70 - 80 durometer polyurethane squeegee
COVERAGE	1200 - 1800 square feet (112 – 167 square meters) per gallon depending upon ink deposit

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 inks prior to printing.
	Maintain ink temperatures at 65°-90°F (18°-32°C) for optimum print drying performance. Lower temperatures increase the ink viscosity, impairing both flow and drying. Elevated temperatures lower the ink viscosity, reducing print definition, film thickness and opacity.
	Pretest to determine optimum printing performance for a particular set of ink, substrate, screen, press, and drying variables/conditions.

DRYING	GV Series dries by solvent evaporation and will air dry in 20 - 40 minutes. Jet drying is not recommended. 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 / Metallic Mixing Clear:* Use GV170 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 to extend the weatherability and outdoor durability.

ADDITIVES	All additives should be thoroughly mixed into the ink before each use. Prior to production, test any additive adjustment to the ink.
	Reducer: Use VF180 Fast Thinner 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 of VF182.
	Gloss / Flattening Powders / Improved Slip: Use VF178 Sharp Printing Compound to reduce gloss and improve slip. Add up to 20%.

| **CLEAN UP** | *Screen Wash (Prior to Reclaim):* Use IMS201Premium Graphic Screen Wash. |
| | *Press Wash (On Press):* Use IMS301 Premium Graphic Press Wash. |

| **STORAGE** | Store tightly covered at temperatures between 65°-90°F (18°-32°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 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 will be smooth and slick.
2. Thumb twist – the ink surface will not mar or smudge.
3. Scratch surface – the ink will resist scratching.
4. Cross hatch tape test – 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 dried, GV colors are formulated to provide 2-3 years outdoor durability when mounted vertically in the Central U.S.A. The use of GV173 Overprint Clear increases the projected outdoor durability to 3-4 years. |

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 curing
-   Color formulation:
    -   Adding large amounts of mixing clear or white to any color
    -   Mixing several colors to achieve a specific color
    -   Mixing a small quantity of any single color with any other color
-   Substrate type and age
-   Mounting angle or directional orientation
-   Geographic location
-   Air pollution
-   Exposure to excessive abrasion (for example, brush car washes)
-   Non-clear coated prints exhibit more color change and loss of gloss

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.

PRODUCT OFFERING

STANDARD PRINTING COLORS	The Standard Printing Colors have excellent opacity and flow characteristics.
TRANSPARENT COLORS	The Transparent Colors can be used in color matches or let down with mixing clear.
SPECIAL ADDITIVES	When inks are to be printed over a special effect color, the overprinting ink(s) must be evaluated for intercoat adhesion before proceeding with the production run. To maximize intercoat adhesion, specialty colors should be printed as late as possible in the print sequence. 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. These pigments are available in 1-pound containers. Contact Nazdar® for the item number(s) and availability of each special effect product.

Metallics: Silver (aluminum) - add up to 8% by weight, Gold (bronze) - add up to 15% by weight. Mix only enough metallic ink to be used the same day. Chemical reactions in metallic inks may result in viscosity, color and printability changes over time.

Pearlescents / Interference / Multi-Chromatic: Pearlescent and Interference pigments add up to - 20% by weight, Multi-Chromatic pigments - add up to 20% by weight. See the Pearlescent, Interference, and Multi-Chromatic Technical Data Sheets for more information.

<u>Phosphorescents:</u> Add up to 30% by weight.

COLOR CARD MATERIALS	The following is a list of screen printed samples available.

Conventional Color Card: shows the Standard Printing Colors

Special Effects Color Card: shows Metallic, Pearlescent, Interference, and Multi-Chromatic effects mixed with clear

PACKAGING	All items listed below are available in gallon containers.
'LF' ITEM NUMBERS	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.

Stock Number	Standard Printing Colors	Stock Number	Standard Printing Colors
GVLF103	Red	GVLF132	Lemon Yellow
GVLF105	Permanent Red	GVLF134	Medium Yellow
GV107	Permanent Maroon	GVLF142	Emerald Green
GV111	Black	GV152	Light Blue
GV112	White	GV157	Royal Blue

GV122	Opaque White		GV162	Purple
GVLF124	Orange		GV164	Cerise
GVLF130	Primrose Yellow		GV170	Clear Gloss
			GV173	Clear Gloss Exterior

Stock Number	Transparent Colors		Stock Number	Metallic Colors
GV110	Transparent Red		GV185	Brilliant Pale Gold
GV139	Majestic Yellow		GV187	Silver
GV149	Permanent Green			
GV159	Permanent Blue			

PACKAGING Additives/Reducers are available in gallon containers.
Cleaners are available in gallon, 5 gallon and 55 gallon containers.

Stock Number	Additives/Reducers		Stock Number	Clean Up
VF178	Sharp Printing Compound		IMS201	Premium Graphic Screen Wash
VF180	Fast Thinner		IMS301	Premium Graphic Press Wash
VF182	Retarder			

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®.

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