

RA2000 POP Gloss Roller Coat Clear is a UV curable protective coating to enhance the durability and abrasion resistance of digitally printed graphics. This product shows excellent clarity and flow-out properties. The primary features of this product are as follows:

- **Enhanced exterior performance with resistance to the effects of UV degradation and color fading.**
- **Adhesion to most pressure sensitive vinyls, coated paper, coated cardstock and some plastics.**
- **Fast curing characteristics minimize the risk of “blocking”.**

Substrates

- Pressure sensitive vinyl
- Coated papers
- Coated card stock
- Some plastics

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

Application

RA2000 is designed for roller coat liquid lamination applications.

Printing

RA2000 is formulated to be ready for use. Thoroughly mix the ink prior to applying. Improper mixing can lead to inconsistent flow 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 film thickness.

Pretest to determine optimum printing parameters for a particular set of ink, substrate, curing variables/conditions. .

The ink can be affected by stray UV light. Be aware of skylights, windows and overhead lights curing the ink on the roller; light filters are recommended. Leaving a container uncovered may result in the ink's surface forming a “skin”, caused by reaction with ambient lighting. Keep containers covered.

Nazdar does not recommend inter-mixing of RA2000 with other inks, except RA2500 UV POP Satin RC Clear. RA2000 and RA2500 may be inter-mixed to create a custom gloss level.

It is recommended to achieve a cured print film thickness of 10+ microns for optimum outdoor durability (see Weathering).

Cure Parameters

RA2000 cures when exposed to a single medium pressure mercury vapor lamp emitting millijoules (mJ) and milliwatts (mW) of:

100-120 mJ/cm² @ 600+ mW/cm² UVA

These guidelines are intended only as a starting point for determining cure parameters, which must be determined under actual production conditions. “Undercuring” the ink may result in poor adhesion, lower block resistance, reduced durability, and higher residual odor. “Overcuring” the ink may reduce the flexibility of the printed part.

To increase mJ levels, slow down the processing speed and increase the wattage setting of the UV reactor. To optimize mJ and mW output, maintain the bulb and reflector, and ensure proper focus to the substrate.

These guidelines are representative of measurements taken using an EIT[®] UVICURE[®] Plus radiometer measuring the UVA bandwidth (320-390 nm). To obtain accurate mW readings with the UVICURE[®] Plus, reduce the processing speed to less than 40 ft/min.

Cleanup

For best results use only cleaning products recommended by equipment suppliers suitable for use on the urethane rollers.

Storage / Shelf Life

Store closed containers at temperatures between 65°-78°F (18°-25°C). Storing products outside of these recommendations may shorten their shelf life. Ink taken from the press should not be returned to the original container; store separately to avoid contaminating unused ink.

RA2000 supplied 1 gallon (4 kilo) containers or smaller are useable for a period of at least 24 months from the date of manufacture. Ink packaged in 5 gallon or greater (20 kilo or greater) containers may have a significantly reduced shelf life. For more detail pertaining to the shelf life of Nazdar's ink products, contact Nazdar Technical Service at InkAnswers@nazdar.com or see contact listing at the end of this document.

General Information

Ink Handling

Wear gloves and barrier cream to prevent direct skin contact. Safety glasses are suggested in areas where ink may be splashed. If ink does come in contact with skin, wipe ink off with a clean, dry cloth (do not use solvent or reducer). Wash the affected area with soap and water. Consult the applicable [Safety Data Sheet](#) (SDS / MSDS) for further instructions and warnings.

RA2000 is a one-part, 100% solids UV-curable ink and does not contain N-vinyl-2-pyrrolidone (trade name V-Pyrol[®]).

For assistance on a wide range of important regulatory issues, consult the following Regulatory Compliance Department link at <http://www.nazdar.com> or contact Nazdar Ink Technologies - World Headquarters (see contact listing at the end of this document).

Adhesion Testing

Even when recommended UV energy output levels are achieved, it is imperative to check the degree of cure on a **cooled down** print:

1. Touch of ink surface – the ink surface should be smooth.
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, and rip off at a 180 degree angle. Ink should only come off in actual cut areas.

Full adhesion characteristics at proper cure levels are demonstrated within 4 hours.

Weathering / Outdoor Durability

RA2000 UV POP Liquid Lamination Clear is designed for outdoor resistance to yellowing:

Color permanence is mainly dependent on the quality of inks used to print the graphics. When applied to durable substrates at a cured film thickness of 10+ microns, RA2000 is anticipated to provide 24-30 months of service life to printed graphics mounted vertically in Central USA.

Some loss of gloss over this period should be expected.

Due to the wide variance of laydowns and film thicknesses observed with most roller coaters, no warranty is offered or supplied for these applications by Nazdar.

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:
 - Durability rating of the printed colors.
- Substrate type and age
- Mounting angle and directional orientation
- Geographical location
- Degree of air pollution
- Excessive abrasion

Manufacturer's Product Offering

Based on information from our raw material suppliers, RA2000 is formulated to contain less than 0.06% lead. If exact heavy metal content is required, independent lab analysis is recommended.

UV Roller Coat Ink

Nazkote RA2000 UV POP Gloss RC Clear

Packaging / Availability

Contact your Nazdar distributor for product availability and offering.

RA2000 is packaged in gallon containers. 5 gallon containers are available upon request.

Item Number	Color
RA2000	UV POP Gloss RC Clear

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[®].

Nazdar Ink Technologies

Offices Worldwide

Nazdar Ink Technologies -World Headquarters

8501 Hedge Lane Terrace
Shawnee, KS 66227-3290 USA
Toll Free US: 866-340-3579
Tel: +1 913-422-1888
Fax: +1 913-422-2296
E-mail: NazdarOrders@nazdar.com
Technical Support E-mail: InkAnswers@nazdar.com

Nazdar Limited – EMEA

Barton Road, Heaton Mersey
Stockport, England SK4 3EG
Tel: + (44) 0-161-442-2111
Fax: + (44) 0-161-442-2001
UK Technical Service E-mail: technicalservicesuk@nazdar.com

Nazdar – Asia Pacific

11 Changi North Street 1 #03-03/04
Singapore 498823
Tel: +65-63854611
Fax: +65-65433690
E-mail: aspac@nazdar.com

UV Roller Coat Ink