

Direct Color Systems™

"Creating Customer Profitability Through Continual Innovation"



IR7 REVISION (PIGMENT BASED) TECHNICAL DATA SHEET

Direct Color Systems™ Multisolve™ IR7 pigmented inks are a mild solvent type ink designed exclusively for the 1309, 1314 and 1324 model Direct Jet printers. They can also be utilized in the 1212 and 1320 model Direct Jet printers **only when** a solvent resistant head is installed in these printer models. These inks are extremely versatile and print directly to many different substrates without the need for any pre-coating. Some substrates may require a pre-printing pass of our IR7 clear ink under the CMYK pass for best image quality. Typical uses of these inks will include but are not limited to awards, signage, ad specialty items, novelty items, manufacturing products, equipment plates, name badges, etc. These inks have been formulated over many years to give users continual, trouble free operation with high resolution, detailed images.

The current ink set offering includes Yellow IR7, Magenta IR7, Cyan IR7 and Black IR7 inks along with a White IR5 and Clear IR7 ink and Wash IR7 formulations. The Wash is used for cleaning and purging of ink supply components only. **Do not use the Wash IR7 on other non-approved plastic parts as crazing and melting of plastic may occur.** For cleaning plastic products use Wetting Solution IR3.

- Mild solvent – pigment based formulation
- Formulated for use in both flexible and rigid applications
- High impact, vibrant, high intensity colors with expanded color gamut
- Consistent color density values
- Adhesion and die cutting capability on a variety of substrates
- Precisely manufactured and filtered to eliminate clogging issues
- Consistent printing & processing characteristics

SUBSTRATES

PVC, Ceramic Tiles, Natural Tiles, Wood, Aluminum, Glass, ABS, Polycarbonate, Leather, Engraving Plastics, Paper, Acrylic, Crystal, CDs, DVDs, etc.

*All substrates should be tested for image receptivity and durability with final acceptance and suitability determined by customer. Adhesion should always be tested as adhesion and durability does depend upon curing conditions, age and manufacturer of substrate. Adhesion and image quality may be improved when the substrate is cleaned with a suitable cleaning solvent such as Novus Polish or IPA (isopropanol alcohol). **All adhesion tests should be conducted after a minimum of 12 hours curing time.***

INK MAINTENANCE

Maintain your Direct Jet printer in good working condition. Daily or every other day operation of the printer with an acceptable nozzle check is recommended. Direct Color Systems recommends only using its Multisolve Wash IR7 in the refillable cartridges when purging the head for extended non-working times and this cleaning/maintenance procedure, if not performed daily, should at least be performed weekly. Wash IR7 cartridges can be left installed in the printer for extended periods of time. Any period longer than 3 months should have the cartridges removed and the print head carriage left empty. Please consult the Direct Jet User's Guide for complete ink and printer maintenance directions.

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DRYING TIMES / CURING PARAMETERS

Multisolve IR7 inks are designed to be fast drying. Once printed, a substrate can be moved off of the table without any risk of runs. However, the ink will not be completely dry to the touch for up to another two-three minutes. Forced air and elevated temperature will dramatically accelerate this drying time if desired. Full cure and durability should be considered after a 24 hour period.

CLEAN UP

For best results cleaning up ink from spills or non-plastic products, use the Multisolve Wash IR7. For plastic products use Wetting Solution IR3.

STORAGE

Store ink, wetting solution and wash, in the original tightly sealed bottles, at 65° - 80° F (18° - 27° C) and out of direct sunlight. Ink, wetting solution and wash should always be kept away from heat, sparks, and flames. If stored at a different temperature, the ink should be allowed to reach room temperature before calibration or printing. The shelf life of this product is 12 months from the date of manufacture when stored under prescribed conditions.

INK HANDLING

All personnel mixing and handling these products must wear gloves and eye protection. Clean up all spills immediately. If ink does come in contact with skin, wipe ink off with a clean, dry cloth (do not use solvent or flush solution). Wash the affected area with soap and water. Consult the DCS Multisolve Ink IR7 Material Safety Data Sheet for further instructions and warnings.

EXTERIOR PERFORMANCE & DURABILITY

Multisolve inks are a pigmented based ink. Therefore, they are UV stable when exposed to sunlight for extended periods of time. All Multisolve IR7 prints or images made using Multisolve IR7 inks are warranted by Direct Color Systems for up to two (2) years outdoors, without a clear coat; and up to three (3) years outdoors with one Multisolve IR7 clear ink coating; and up to four (4) years outdoors with an additional Multisolve IR7 clear ink coating or other approved clear coat or lamination. These prints are covered against fading caused by sunlight, moisture and temperature extremes, when printed according to Direct Color Systems recommendations. Note: Direct Color Systems Multisolve IR7 inks are transparent and the target color is influenced / changed by fading or yellowing of the substrate.

In areas of the world with extreme solar energy, and in applications where chemical or abrasion resistance is an issue, the use of a Multisolve IR7 clear coat is always required and the warranty is limited to two (2) years.

If a print fails to perform in accordance with Direct Color Systems product specifications within this time frame, Direct Color Systems will replace the ink and clear coat at no charge. These remedies are exclusive. In no case shall Direct Color Systems be liable for any direct, indirect, or consequential damages, including any labor charges. Any application should be tested by customer prior to determining suitability for any application. For full warranty coverage details, please see the current Multisolve IR7 Pigment Ink Limited Warranty document.

PRODUCT OFFERING

All color, white, clear ink and wetting solution listed below are available in 150 ml containers. Wash IR7 is only available in 1 Liter containers.

| Product Code | Description | Container | Rev # |
|---------------------|---------------------------------|------------------|--------------|
| I-4102 | Black Pigmented Multisolve Ink | 150 ml | IR7 |
| I-2104 | White Pigmented Multisolve Ink | 150 ml | IR5 |
| I-4114 | Yellow Pigmented Multisolve Ink | 150 ml | IR7 |

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|----------|----------------------------------|---------|-----|
| I-4115 | Magenta Pigmented Multisolve Ink | 150 ml | IR7 |
| I-4116 | Cyan Pigmented Multisolve Ink | 150 ml | IR7 |
| I-4113 | Clear Pigmented Multisolve Ink | 150 ml | IR7 |
| I-4100-L | Multisolve Solvent Wash | 1 Liter | IR7 |
| I-1200 | Multisolve Wetting Solution | 100 ml | IR3 |
| I-1200-L | Multisolve Wetting Solution | 1 Liter | IR3 |

SHIPPING

All inks, wash and wetting solution listed above ship ground or air with standard shipping criteria.

FAQs

Q: Can I use both the original IR3 dye based Multisolve inks as well as these new IR7 pigmented inks in the same printer?

A: Yes, both inks can be used in the same printer. However, between using each ink, the IR7 wash should be utilized to flush the previous inks before installed the different style of ink.

Q: If I already own a DCS Direct Jet printer, what is needed to get started with these new IR7 pigmented inks?

A: You will need to purchase a set of inks from or your local authorized DCS distributor along with a new set of standard refillable cartridges and the IR7 wash. Then you will need to update the printer pkg in your RIP software. This can be done using the online update feature in the RIP or you can contact techsupport@directcolorssystem.com for the location and instructions for downloading and updating your printer pkg. Once the inks are installed and a proper nozzle check is achieved, you will select a print mode with the proper resolution and the IR7 name on it for proper printing output.

Q: Can I assume that the new IR7 pigmented inks will perform exactly as my IR3 dye based inks have performed?

A: While the IR7 pigmented inks have many enhanced characteristics and print to many different substrates they are different inks and end users should test all substrates to insure the proper adhesion, print quality and durability are present.

Q: Are the IR7 pigmented inks more durable than the IR3 dye based inks?

A: Yes, the IR7 pigmented inks are inherently UV stable, are resistant to IPA without any clear coat and are more scratch resistant. However, these attributes do depend on the substrate you are printing to. Additionally, some substrates when using our standard Novus polish, can allow the inks to be attacked by IPA. In all instances, all durability testing needs to be conducted after a minimum of a 12 hour curing time.

Q: Is the printing process/substrate preparation utilized by the IR3 dye based inks the same for the IR7 pigmented based inks?

A: Yes. However, some substrates work better with IPA (isopropyl alcohol) as a cleaner vs. our standard Novus cleaner when testing ink durability.

Q: If I use both the IR3 dye inks and the IR7 pigmented inks, can I use the IR7 wash for both or do I need to have both the IR5 and IR7 washes?

A: Yes, you can standardize on the IR7 wash for both ink sets.

Q: Can I expect the colors of my printed images to be identical when printing with either set of inks?

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A: Both sets of inks are profiled and have their own ICC profiles inherent in the RIP so the colors should be close. However, the two ink sets will never print the same identical colors. Colors should be close but dye based inks will always be more colorful and more vibrant than pigmented based inks.

Direct Color Systems™ Multisolve™ Inks (IR7) are formulated for maximum adhesion to an extensive range of materials. Always pretest for acceptable adhesion and durability prior to production. Direct Color Systems (DCS) stands behind the quality of this product. DCS cannot, however, guarantee the finished results because DCS exercises no control over individual operating 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 digital printing, and it has not been tested by any other method. Any liability associated with the use of this product is limited to the value of the product purchased from DCS.