



Application Note



Inks and supplies

Overcoats and continuous inkjet inks

Some inkjet codes applied to parts require resistance to strong solvents and other environmental conditions. The aerospace industry has addressed this by applying an overcoat to protect the code against those harsh conditions. Commercially available overcoats, clear resin fluids, are very difficult to remove once cured and dried. Many major aerospace manufacturers have added Videojet inks to their specifications.

Challenges

While adding a protective overcoat is an excellent concept, certain overcoats may not provide the desired protection for inkjet codes. Some overcoats may cause the ink to lift up and dissolve into the overcoat. This ultimately makes the code unreadable. Two issues should be considered when the code degrades in quality:

1. Overcoat compatibility: Some type of overcoats may lift up the code; others will not.
2. Proper coating thickness: The thicker the coating, the more likely that the ink code will become unreadable.

Process optimization

Application of the overcoat

After an inkjet code has dried, the overcoat can be applied. Dry times for the inks referenced in this application note range from one to five seconds. The best results are often accomplished by applying the thinnest layer of overcoat possible. This can be achieved using a spray, which provides good control over the amount applied. If a brush is the only option, then it is recommended to allow the brush to drip until the thinnest amount of overcoat can be applied in one pass. It is also advised to work with the overcoat manufacturer for best application practices.

Type of overcoat

Testing a number of different overcoats is recommended. For instance, if a polyurethane coating doesn't provide the desired results, a UV coating can be tested. The interaction of ink and overcoat will be different and should show different results. It may be necessary to test a few overcoats to find the ideal compatibility with the inkjet ink.

Videojet does not supply or recommend specific overcoats. Consulting with an overcoat manufacturer for product selection is advised.

Selecting from Videojet ink offerings

Ink selection

Videojet offers three inks that have earned certification by certain aerospace parts manufacturers. These inks offer varying degrees of adhesion and overcoat compatibility.

1. Videojet V421/V4221 ink

- a. Adhesion: This black ink has good adhesion to metals, glass, and some plastics.
- b. Overcoat compatibility: V421/V4221 ink is especially sensitive to overcoat thickness; it needs to be applied as thinly as possible. The longer the ink is allowed to dry, the less likely the code will lift up after applying the overcoat. This ink performs well with UV-type overcoats. Polyurethane overcoats have a tendency to cause V421/V4211 ink to lift and become unreadable.



2. Videojet V485-C ink

- a. Adhesion: This high-contrast white ink offers great adhesion to metal, glass, and some plastics and provides excellent readability on dark substrates.
- b. Overcoat compatibility: V485-C ink is compatible with a wide range of overcoats. It has been shown to work well with polyurethane, epoxy, and UV coatings; it's not as sensitive to coating thickness as V421/V4221.



3. Videojet V484-C ink

- a. Adhesion: This black ink has good adhesion to metal and glass. This is a very dark ink, providing excellent contrast on lighter colored substrates. This ink offers better adhesion than V421/V4221, and can be difficult to remove after printing and before the overcoat is applied. It is capable of resisting several solvents without an overcoat.
- b. Overcoat compatibility: V484-C ink shows excellent compatibility with a wide range of overcoats. It also delivers strong resistance to lifting once an overcoat is applied.



Is an overcoat needed?

Videojet **V485-C** and **V484-C** inks feature excellent adhesion – better than V421/V4221. The inks are extremely difficult to remove after printing. **V484-C** is even capable of resisting several solvents without the addition of an overcoat. If a manufacturer does not specifically require an overcoat on an inkjet code, **V485-C** and **V484-C** may be ideal choices. In any case, testing should be performed to find the best ink for a specific application.



The bottom line

Videojet inks help manufactures meet aerospace specifications when part markings require solvent resistance and code durability.

Ink equivalents

For use in Videojet 1000 Line continuous inkjet (CIJ) printers, Videojet offers inks that are functionally equivalent to inks used in discontinued Videojet Excel series printers.

| Successor Videojet inks for 1000 Line CIJ printers | = | Legacy Videojet inks for Excel series printers |
|--|----------|--|
| V421/V4221 | succeeds | 16-8700 |
| V485-C | succeeds | 16-2520 |
| V484-C | succeeds | 16-2000 |

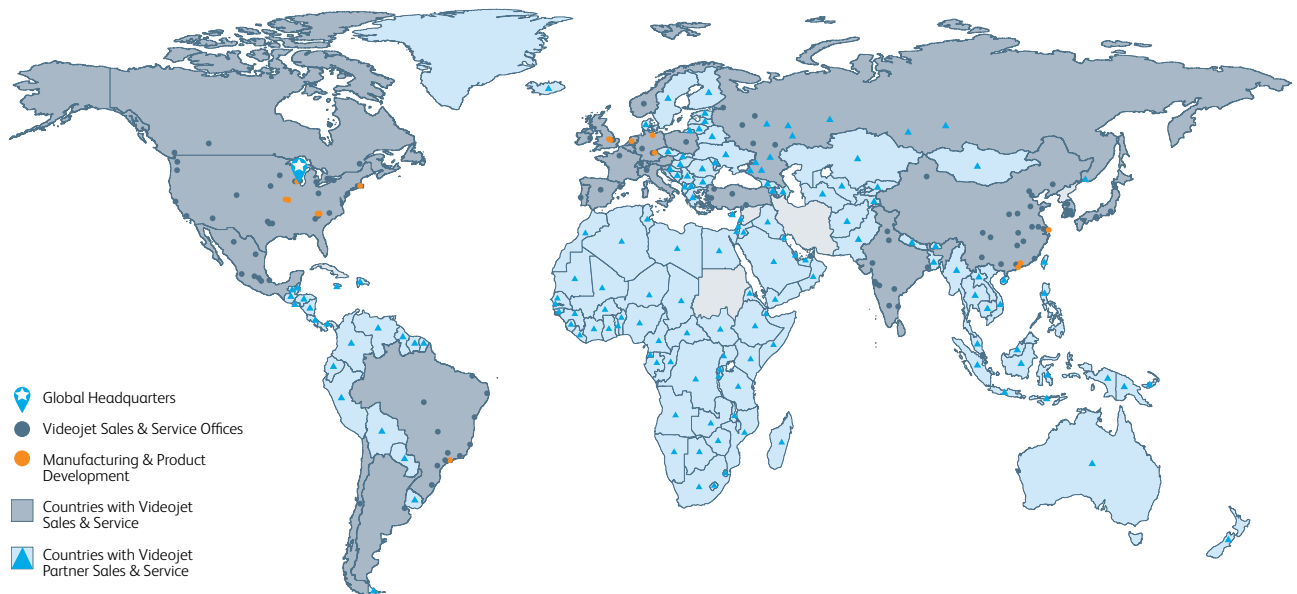
For further assistance with ink selection, please contact our fluids support team via email at fluidssupport@videojet.com.

Peace of mind comes as standard

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Our goal is to partner with our customers in the consumer packaged goods, pharmaceutical, and industrial goods industries to improve their productivity, to protect and grow their brands, and to stay ahead of industry trends and regulations. With our customer application experts and technology leadership in Continuous Inkjet (CIJ), Thermal Inkjet (TIJ), Laser Marking, Thermal Transfer Overprinting (TTO), case coding and labeling, and wide array printing, Videojet has more than 345,000 printers installed worldwide.

Our customers rely on Videojet products to print on over ten billion products daily. Customer sales, application, service and training support is provided by direct operations with over 4,000 team members in 26 countries worldwide. In addition, Videojet's distribution network includes more than 400 distributors and OEMs, serving 135 countries.



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