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Category: 21 – Graphic Arts

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May 13, 1983

Mr. Tom Helms
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U.S. Environmental Protection Agency
Research Triangle Park, NC 27711

CALCULATION OF VOC CONTENT OF GRAPHIC ARTS INKS CONTAINING
COSOLVENT BLENDS WITH NON-VOC SOLVENTS

Dear Mr. Helms:

We are writing you in accordance with a recommendation by David Salman in the Chemicals & Petroleum Branch of the U.S. EPA. It is our hope that you can clarify differing interpretations on the calculation of VOC from graphic arts inks containing the non-VOC solvents 1,1,1-trichloroethane and methylene chloride.

As you are aware, the Federal EPA has exempted these two solvents from the definition of VOC. Federal Register references on that exemption are:

42 FR 35314 of July 8, 1977
42 FR 3274 of January 16, 1979
44 FR 32042 of June 4, 1979
45 FR 32424 of May 16, 1980
45 FR 48941 of July 22, 1980

To date, 92% of the States with SIP's on VOC's have exempted, 1,1,1-trichloroethane from the definition of VOC and from subsequent control of VOC in surface coatings and graphic arts. About 88% of these States have similarly exempted methylene chloride.

In the State of Tennessee, a graphic arts company, which has been working closely with its local EPA representative, is ready to use this option to meet VOC emission limitations. However, a question has arisen on how to treat the non-VOC solvent in determination of VOC content from their gravure inks. Specifically, one materials supplier believes that the way the regulations are written preclude 1,1,1-trichloroethane and methylene chloride being blended with VOC cosolvents. In their opinion, it is an "all or nothing" situation. The various States SIP's read:

Mr. Tom Helms May 13, 1983 Page Two

"The volatile fraction of the ink, as applied to the substrate, contains 25.0 percent by volume or less of organic solvent and 75.0 percent by volume or more of water;"

Since 1,1,1-trichloroethane and methylene chloride are neither (volatile) organic compounds nor water, the supplier interprets the above to mean that any ink using a blend of 1,1,1- trichloroethane and/or methylene chloride with other organic solvents will always calculate to 100% organic solvent.

This has not been the interpretation by other parties for graphic arts or other surface coatings. Interpretation by most State and Federal regulators has been that these solvents should be treated as water is treated in the calculation of VOC. (See the enclosed February 26, 1981, memo on "VOC Content of Coatings with Exempt Solvents" by David Salman.)

We would deeply appreciate whatever guidance you can provide us or the various regional offices of the EPA on the calculation of VOC content of graphic arts inks containing cosolvent blends with the non-VOC solvents. Please feel free to call us for specifics of particular customer usage.

Sincerely,

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Enclosures

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