

DRI-RX 19 LC-E™

The Chelator / Accelerator for Driers for Coatings and Inks

SUMMARY

OMG's Dri-Rx™ product is used broadly by manufacturers of oil-borne and water-borne air-dried coatings and inks in order to reduce the normal air-dry times of a variety of coatings or inks, which are applied to a wide variety of substrates. Dri-Rx™ forms complexes (sometimes called chelates) with oxidative driers containing Cobalt, Manganese, Vanadium, and Cerium to increase their drying activity.

Dri-Rx™ is especially advantageous when used with High Solids alkyd paints, drying oils and drying oil-based coatings, overprint varnishes, polyurethane coatings, and phenolics. However, Dri-Rx™ often is not very effective with most oil-borne conventional alkyd paints, but, interestingly, it is quite effective in water-reducible alkyds and other water-reducible coatings and inks.

DISCUSSION

What Is Dri-Rx™?

The active ingredient in OMG's Dri-Rx™ products is called 2,2'-bipyridyl or sometimes 2,2'-dipyridyl or simply bipyridyl. It is of the class of aromatic heterocyclic diamines. It functions by forming a chelate with the various transition metals that are used as driers. It will chelate with many other transition metals, such as iron. Many of these chelated metal complexes are highly colored, e.g., the iron complex is red and will give a pink cast to white and pastel-colored paints. (This pink coloration has been observed due to in-can corrosion of un-lined cans or due to iron impurities in some raw materials used to make the paint.)

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The Product.

Since pure bipyridyl is a crystalline solid, OMG offers it in glycol ether-based solution for ease of use. Samples and Product Data Sheets are available from OMG upon request.

Typical properties

% 2,2'-bipyridyl	19
Density, g/cm ³ 20°C	0.99
Viscosity, cSt, 20° C	15
Solvent	glycol ether
Colour (Gardner)	8

Note: LC stands for low-crystallization. European production (E).

Crystallization.

The "Dri-Rx™ 19 LC-E" product was developed to alleviate the low-temperature crystallization of the bipyridyl from solution. Crystals will begin to form at about -17 to -12°C, which is below most normal storage temperatures.

Uses.

Dri-Rx™ is effective in both oil-borne and water-borne coatings that require an air or oxidative dry. Dri-Rx™ has been found to be particularly effective in conjunction with cobalt and manganese driers in improving the drying of the new low-VOC High Solids alkyd coatings and of drying oils and of drying-oil based coatings and inks. The suggested dosage is about 0.3% of Dri-Rx 19 LC-E™ product based on the vehicle solids, i.e., the polymerizable resins. Here are some suggested drier combinations:

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High Solids alkyds: 0.04% Cobalt + 0.6% Zirconium + 0.3% Dri-Rx 19 LC-E
or: 0.04% Cobalt + 0.3% Neodymium (Neo-Cem 250) +
0.3% Dri-Rx 19 LC-E

Drying Oils: 0.04% Cobalt + 0.04% Manganese +
0.15% Dri-Rx 19 LC-E

Varnishes (overprint, polyurethane, spar, etc.):

0.1% Cerium + 0.3% Dri-Rx 19 LC-E
or: 0.05% "Light-colored" Manganese + 0.3% Dri-Rx 19 LC-E

Printing Inks: 1.5% of 6% Cobalt + 1.5% of 6% Manganese +
0.15% Dri-Rx 19 LC-E

Note: The % metal values are based on the vehicle solids. Dri-Rx 19 LC-E™ values are the total product, also based on the vehicle solids.

In addition to reducing the dry time, a wide variety of other benefits from the use of Dri-Rx™ have been reported; such as improved gloss, less wrinkling, improved re-coat properties, reduced color in polyurethane varnishes and phenolics, reduced yellowing of High Solids alkyds (upon aging in low-light environments), and even reduced loss-of-dry upon shelf aging.

Please contact your nearest OMG representative to request current pricing and shipping information.

Standard packing: 50 kg drums

The facts stated and the recommendations and suggestions herein are based upon experiments and information believed to be reliable. No guarantee is made of their accuracy, however, and OM GROUP, INC. ASSUMES NO LIABILITY FOR PRODUCT FAILURE OTHER THAN TO SUPPLY REPLACEMENT MATERIAL FOR PRODUCTS SHOWN TO BE DEFECTIVE WHEN DELIVERED OR TO REFUND THE PURCHASE PRICE. Except as stated, THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS OR OTHERWISE. OM GROUP, INC. SHALL NOT BE LIABLE FOR SPECIAL, INCIDENTAL AND CONSEQUENTIAL DAMAGES. No statement contained herein shall be construed as an inducement to infringe existing patents or as an endorsement of products of specific manufacturers.

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