

ISOLEX[®]

**RFI/EMI Shielding Coating Systems
WB-120**

Randolph
PRODUCTS

33 Haynes Circle
Chicopee, MA 01020
413/592-4191 Fax: 413/594-7321

WB-120 Waterborne RFI/EMI Conductive

Key Features

- Environmentally beneficial-because it is waterborne
- Cost effective and user friendly
- Improved coverage because of higher solids
- Excellent attenuation, low surface resistivity
- Excellent adhesion and aging characteristics

It Works for the Environment

Whether the need is to conform to U.S. EPA standards or state air pollution control agency standards, the concern for reducing volatile organic compounds (VOC) is real. The use of solvent based EMI/RFI paints emits VOC's into the atmosphere. Isolex WB-120 coatings offer a way of reducing VOC's without the expense of solvent recovery systems.

Since it is waterborne, Isolex WB-120 contains only a fraction of the VOC's found in solvent based paints. It is formulated to meet the most stringent regulations that have been proposed by the EPA or state environmental agencies – and regulators are focusing on increasingly smaller emission sources.

You can see the dramatic reduction of VOC emissions with Isolex WB-120 coatings, and there is no sacrifice in performance. The potential for explosion and flammability hazards with solvents is also eliminated.

VOC Content of EMI/RFI Shielding Coatings

Error! Not a valid link. User Friendly

- Requires no dilution, just shake or stir and use.
- Needs no primer or other surface preparation.
- Containers can be resealed and stored for later use
- Resists pigment settling.

Typical Properties

Color	Grey
Weight, lbs./gallon	13.5 – 14.5
Solids, % by weight	63.0 ± 1%
Viscosity, Zahn cup #3	14 – 18 sec.
Diluent	Water
Flash point	n/a
Theoretical coverage @ 1 mil	600 – 615 sq. ft./gl.
Volatile organic content	1.8 lbs./gal.

Improved Coverage

Uniquely formulated Isolex WB-120 coatings have a higher percentage of solids and can offer up to 40 percent improvement in surface coverage per gallon.

Theoretical Coverage

<u>Conductive coating</u>	<u>Coverage* (Sq. Ft./Gallon)</u>
Solvent-based A	500
Solvent-based B	425
Waterborne A	400
Isolex WB-120	615

*1 mil, 100% transfer efficiency

Shielding Effectiveness

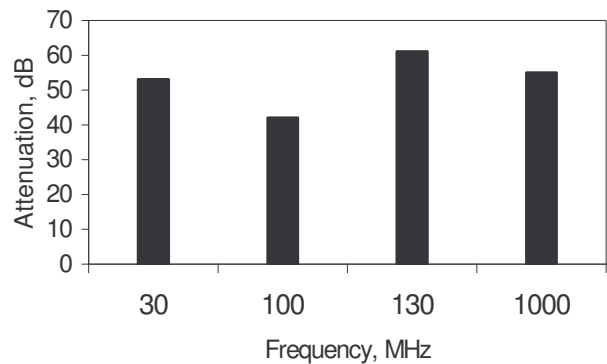
Isolex WB-120 coatings provide a very effective shield from electromagnetic interference for business machines and other electronic devices, with typical surface resistivities less than .5 ohms/square, and they offer equivalent or superior performance to the traditionally used solvent-based shielding coatings.

Attenuation Capability

Isolex WB-120 coatings demonstrate excellent attenuation – up to 50dB – across the FCC mandated frequency range.

Isolex WB-120 Shielding Effectiveness (Dual Chamber Method)

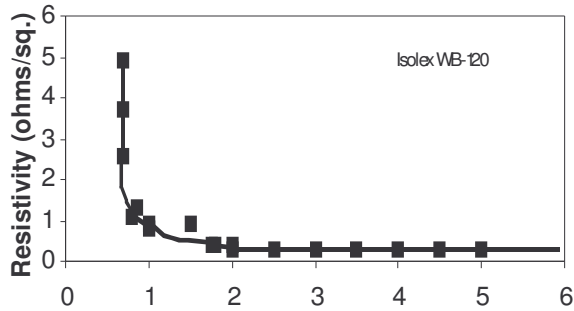
Low Surface Resistivity



Low Surface Resistivity

High conductivity, as indicated by low surface resistivity, provides better EMI/RFI shielding effectiveness. Isolex WB-120 waterborne/nickel coatings are unique in offering lower surface resistivities in thinner films than most solvent-based coatings. This gives them a critical advantage in shielding hard to coat parts.

Relationship Between Surface Resistivity and Coating Thickness



Workable Drying Rates

Under ideal conditions (75°F; 35%RH) Isolex WB-120 is tack free 20 minutes after application and achieves optimum electrical properties after 16 hours. Force drying has been found to be advantageous for production under a wide range of conditions. Full physical properties are achieved in 30 minutes at 140°F.

Aging Characteristics

Unlike earlier waterborne paints, Isolex WB-120 coatings maintain electrical performance equal to the best of the traditional solvent-based coatings – given all the appropriate environmental aging tests. And Isolex WB-120 coatings exhibit no change in adhesion performance under the severest temperature/humidity cycling conditions.

Surface Resistivities – OHMS/SQ.* Coating Thickness – 2-3 Mils

Paint Type	Initial	Temperature ^a	Humidity ^b
		Cycling	Aging
Solvent-based 1	0.3	0.7	0.4
Solvent-based 2	0.4	0.7	1.2
Solvent-based 3	0.3	0.7	0.8
Waterborne 1	1.2		40.0
Waterborne 2	0.5	1.3	55.0
Isolex WB-120	0.3	0.8	0.8

*Substrate – ABS

^a40°C, 0.5 hr.; RT, 5 min.:70°C, 0.5 hr.:10 cycles

^b70°Cm 95% RH, 14 days

Excellent Adhesion

UL-listed Isolex WB-120 coatings provide excellent adhesion to a wide range of thermoplastic substrates, including:

- Modified Polyphenylene Oxide
- Polycarbonate
- ABS
- Polystyrene
- Rigid Vinyl

Isolex WB-120 coatings even provide excellent adhesion to solvent-resisting thermoset plastic substrates such as SMC/BMC.

Underwriters Laboratories (UL QM SS2) has listed Isolex WB-120 conductive coatings under the UL Component Recognition Program on the following trademarked substrates:

- Geon[®] 87371
- Cicolac[®] KJW
- Noryl[®] FN215
- Lexan[®] FL 900
- Styron[®] 6087SF

Minimal Effect on Plastic Substrates Quality Appearance

Isolex WB-120 coatings adhere without aggressive attack on plastic substrates, while solvent-based coatings can attack the substrate and cause problems such as: crazing, loss of impact, warpage and outgassing of the foam substrates. A decided bonus is that the waterborne Isolex WB-120 exhibits a smoother, higher quality finish than the rougher surfaces produced by typical solvent-based conductive paint.

Cost Effectiveness of Isolex WB-120

Not only is there an environmental advantage in using Isolex WB-120 coating, but a cost advantage as well. Comparing the economy of Isolex WB-120 coatings with solvent-based coatings can be very complex, but it must include other factors beyond just price per gallon. You also need to consider:

- Theoretical surface area coverage
- Thickness necessary to achieve conductivity requirements
- Transfer efficiencies
- Total labor costs, including set-up and clean-up times
- Environmental costs

The cost advantages of Isolex WB-120 coatings can be calculated with a good deal of precision. Your BASF Sales representative will be happy to show you how our waterborne coating can work to your advantage.

Geon[®] is a registered trademark of BF Goodrich Company. Noryl[®] Cicolac[®], Lexan[®] are registered trademarks of General Electric Company. Styron[®] is a registered trademark of Dow Chemical. UL[®] is a registered trademark of Underwriter's Laboratories.

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