

Raybo 63 Disperse VOC Compliance Can Improve Profitability

For more than 40 years Raybo Chemical has been promoting dilution of solvent based products using raybo 63 Disperse and tap water. The post addition of 1-3% raybo 63 Disperse facilitates the formation of water-in-oil emulsion capable of accepting up to 40% water by weight without separation. The ability to accept substantial water addition allows conversion of a high quality coating to a lower cost product without reformulation and without sacrificing performance.

The immediate effect of incorporation is a viscosity increase, which varies linearly with water concentration, and the rheology should become buttery with reduced brush drag.

The performance features of raybo 63 Disperse are:

- Reduction in formula cost with addition of water (fig. 1)
- Reduction in VOC (fig. 2)
- No reformulation necessary

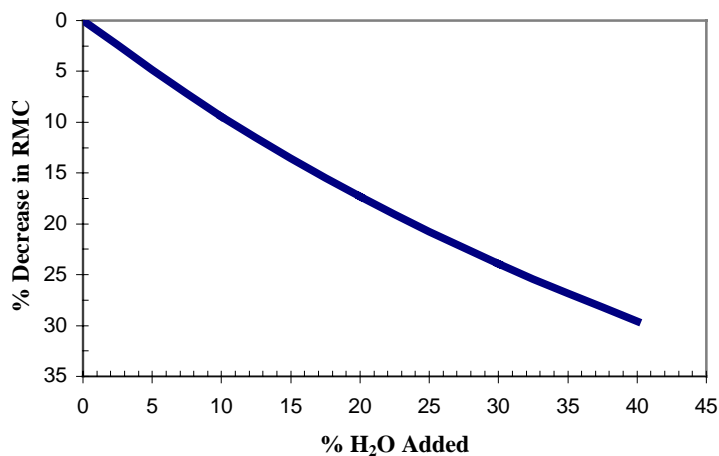


Figure 1. Change in RMC with addition of water.

cont. on page 2.

Suggested Formula: White Medium Oil Alkyd with 1% Raybo 63 Disperse and 40% Water.

Use high speed dispersion to mix the following:

Duramac 51-5135 ¹	155.8
Xylene ²	5.0
Ethanol (95%) ²	0.9
Bentone 38 ³	2.1
MPA-1078X ³	2.1
Hex-Cem LFD ⁴	6.9
Raybo 57 OptiSpurse HS ⁵	3.1

Mix well, then add the following:

Ti Pure R-900 ⁶	201.1
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Disperse to 6.5+ Hegman grind, then add to the letdown:

Duramac 51-5135 ¹	402.1
VM&P Naphtha ²	77.5
Xylene ²	7.3

Premix the following, then add to the letdown:

Xylene ²	2.8
18% Zirconium Hex-Cem ⁴	3.1
12% Cobalt Ten-Cem ⁴	1.2
5% Calcium Ten-Cem ⁴	11.4
Skino #2 ⁴	5.6

Mix well, then add under agitation:

Raybo 63 Disperse ⁵	8.9
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Mix well, then add under agitation:

Water	355.2
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Physical Properties (before H₂O):

Grind (Hegman)	6.5+
Viscosity (cps)	820
Total Weight (lbs)	888.0
Total Volume (gals)	100.0
Density (lbs/gal)	8.88
% Weight Solids	55.3
% Volume Solids	37.5
PVC%	16.0
VOC (lbs/gal) w/ H ₂ O	3.96
VOC (lbs/gal) w/o H ₂ O	3.96

Physical Properties (after H₂O):

Grind (Hegman)	6.5+
Viscosity (cps)	2150
Total Weight (lbs)	1252.1
Total Volume (gals)	143.7
Density (lbs/gal)	8.71
% Weight Solids	39.4
% Volume Solids	26.3
PVC%	16.0
VOC (lbs/gal) w/ H ₂ O	2.76
VOC (lbs/gal) w/o H ₂ O	3.96

Suppliers:

- | | |
|-------------------------------|------------------|
| 1 Hexion Specialty Chemicals | 2 Ashland, Inc. |
| 3 Elementis Specialties, Inc. | 4 OM Group, Inc. |
| 5 Raybo Chemical Company | 6 DuPont |

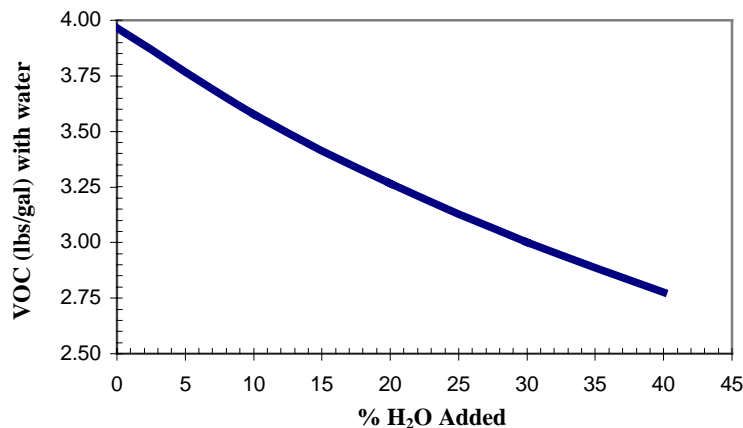


Figure 2. Change in VOC with addition of water.

cont. from page 1.

Raybo 63 Disperse generally has no adverse effects on:

- **Dry time (fig. 3)**
- **Coating hardness**
- **Gloss (fig. 4)**
- **Water resistance**

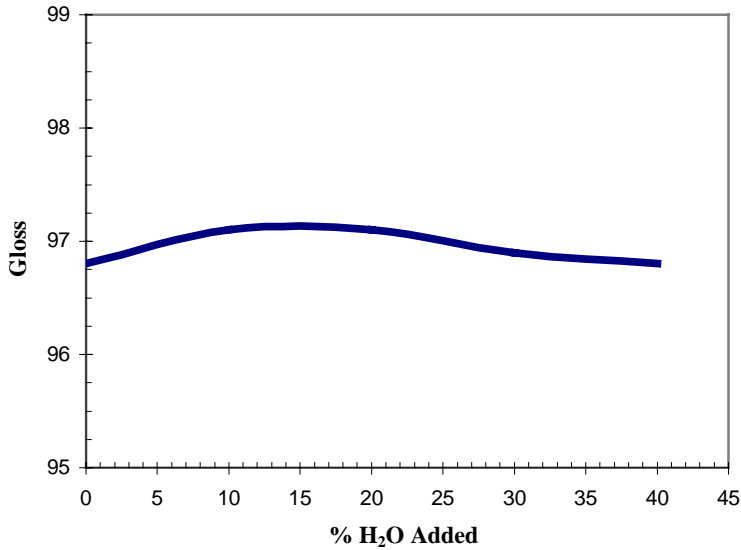


Figure 4. Change in gloss with addition of water.

Not only does raybo 63 Disperse produce an environmentally friendly coating, but when you replace organic solvent with water, you reduce the raw cost of the formulation and enhance the bottom line. With raybo 63 Disperse you do not have to sacrifice performance with a reduction in RMC.

With raybo 63 Disperse, in-can corrosion has never been observed because each water molecule is fully encapsulated in the organic phase and does not

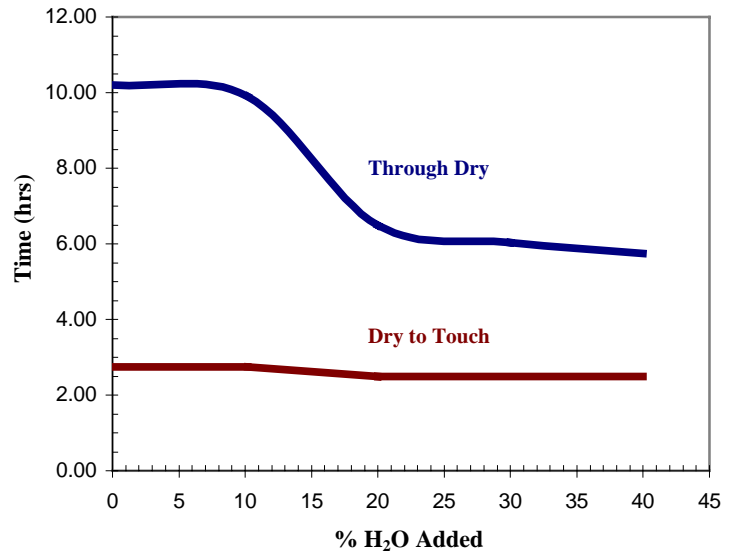


Figure 3. Change in dry time with addition of water.

participate in the corrosion mechanism. Customers have reported no change in shelf stability after water incorporation because raybo 63 Disperse produces a very stable water-in-oil emulsion. The water does not separate from the paint as it does with other emulsifying agents. Since raybo 63 Disperse is not water soluble after the film has dried, it does not negatively impact the water sensitivity of the film. Raybo 63 Disperse contains no silicone or other material which might detract from the film or interfere with adhesion.

For questions or to request a sample, contact your local Raybo Chemical representative.

Or visit: www.raybochemical.com