

Talc and Chlorite in Haloflex Primers

Haloflex resins, originally developed by ICI in Europe, and now sold by Neoresins in the US are unique acidic, water based polymers based on vinyl chloride, vinylidene chloride and acrylic acid. The original ICI literature recommended the use of two Cyprus talc products, Mistron Mist and Beaverwhite 325 in Black Primer Formulation WB-6000A and Red Oxide Primer formulation WB-6002 respectively. These talc products are now sold by **Luzenac America** under the names ***Mistron 554*** and ***Mistron 353*** respectively.

However, extensive field experience with these formulations especially in Europe, indicated that under certain circumstances the polymer would dehalogenate, releasing a chlorine in some form and that in-can stability and anticorrosion performance would be negatively impacted. Extensive testing by Cyprus and ICI showed that another mineral, **chlorite**, was capable of solving this problem. The mineral **chlorite** has nothing to do with chlorine; the name comes from the Greek 'chloros' or green, which is the usual color of the ore. **Chlorite** is a hydrous magnesium-aluminum silicate with a unique talc-zeolite-talc structure that acts as an acid radical scavenger. **Chlorite** is still sold by **Luzenac** in the US under the trade name ***Sierralite***. Because of its unique properties, **Luzenac** recommends substituting ***Sierralite 603HS*** for Mistron 554 and ***Sierralite 402HS*** for Mistron 353 in these formulations.

Luzenac **Sierralite** products have been sold to both solvent and water based industrial applications for many years. Like talc, they are water and acid insoluble and they have been extensively salt spray tested with excellent results. They have lower viscosity build than talc and are much easier to disperse and compatibilize with water based systems.

The formulations are listed on the following pages.

The present availability of all formulation ingredients has **not** been checked

Red Iron Oxide Primer

(adapted from formulation WB-6002)

| Material | Pounds | Gallons | Function |
|-------------------------|---------------|----------------|---|
| Grind | | | |
| Water | 165.4 | 19.8 | solvent |
| Foamaster S | 2.3 | 0.3 | defoamer |
| QR708 (13%) | 11.5 | 1.4 | thickener Preblend 1.5 lb in 10 lb water |
| Methosel J12MS | 47.2 | 5.6 | cellulosic thickener(2.5% in water) |
| Pluronic F87 | 10.6 | 1.2 | Surfactant-stabilizer 30% in water |
| ZP-10 | 65.7 | 2.4 | Zinc phosphate |
| Sierralite 402HS | 203 | 9.2 | Chlorite pigment |
| R-4098 | 32.1 | 0.75 | red iron oxide |

Add the ingredients in the order listed. Disperse at low speed until after the zinc phosphate has been added and then at high speed for 10 minutes to get a 3+ grind

Letdown

Stabilize latex by adding ammonia, and then add surfactant

| | | | |
|--|--------|------|--------------------------------------|
| Ammonia 28% | 3.7 | 0.50 | neutralizing agent |
| Haloflex 202 | 589.7 | 54.6 | resin |
| Pluronic F87 | 23.6 | 2.7 | surfactant-stabilizer(30% in water) |
| Mix well at low speed, then add coalescent | | | |
| Texanol | 11.8 | 1.5 | coalescent |
| Total | 1106.5 | 100 | |

Black Primer

(adapted from formulation WB-6000A)

| Material | Pounds | Gallons | Function |
|-------------------------|---------------|----------------|---------------------------------------|
| Grind | | | |
| Water | 206.6 | 24.8 | solvent |
| Foamaster S | 2.8 | 0.4 | defoamer |
| Methosel J12MS | 14.3 | 1.7 | cellulosic thickener(2.5% in water) |
| Pluronic F87 | 39.4 | 4.7 | Surfactant-stabilizer 30% in water |
| Surfynol 104H | 2.8 | 0.4 | wetting agent |
| Sierralite 603HS | 151.4 | 6.8 | Chlorite pigment |
| K-White 84 | 41.7 | 1.61 | Corrosion inhibitor |
| Kadox 915 | 25.1 | 0.54 | Zinc Oxide |
| Sterling SO | 29.5 | 1.97 | carbon black |

Add the ingredients in the order listed. Mix at low speed until 1/3 of the chlorite has been added and then at high speed to get a 5+ hegman grind.

Letdown

| | | | |
|------------------|-----|------|------------|
| Butyl Cellusolve | 9.4 | 1.25 | coalescent |
|------------------|-----|------|------------|

Adjust the latex to pH 5 prior to adding to the grind

| | | | |
|--------------------|--------|------|---------------------------|
| Ammonia 28% | 3.4 | 0.45 | neutralizing agent |
| Haloflex 202 | 535.2 | 49.6 | resin |
| Methocel J12MS | 25.6 | 3.1 | Thickener (2.5% in water) |
| 10% sodium nitrite | 25.5 | 2.9 | flash rust inhibitor |
| Total | 1112.4 | 100 | |