

MCR 95 AND WATER FOR ALKYD BASED PAINT

PROCESS

Add MCR 95 to the disperser at final stage of your original alkyd based paint manufacturing process for varnishes or synthetic enamels and mix for 5 minutes. Reduce speed to start adding water into the vortex during approximate 15 minutes without interruptions.

[Metallic cans: In case paint is filled to sell in metallic cans, dissolve previously **0.05%** a **0.1% sodium benzoate** into the water. Avoid using sodium nitrite to alkalize water, because of gas emanation could affect stability in time. Plastic or inner lined cans are recommended, because this assures blocking of corrosion and cost difference in cans results insignificant while compared against cost reduction of water addition to the formula.]

During water addition regulate speed to have a laminar flux, emulsion formation in turbulence is very poor. If necessary add a non silicone containing defoamer.

Once finished, continue mixing on laminar flux at about 1100 - 1700 rpm for 15 - 20 minutes, to guarantee a stable emulsion with small particles.

Normally paint heats up spontaneously to 40-50°C during this process, it is recommendable to add **Antiskinning agent** (Metiletilketoxime) only at last instants of stirring before filling cans.

DOSAGE

Dosage of **MCR 95** is between **0,20** and **0,75 %** over paint total formula.

Water quantity to add depends on color and PVC (Solids quantity of pigment plus fillers over solids of binder)

For glossy, low pigmented systems you can add up to 30 % of water for blacks or varnishes without compromising gloss and stability. MCR 95 dosage is that for 0.75 %.

For high pigmented systems (whites and similar) you can add up to 20 % of water without compromising gloss and stability. MCR 95 dosage is that for closer to 0.20 %.

Formulator has the power to balance cost and quality according to market demands. Water addition could be incremented over 30% for cheap paints competing in a very ruff segment. On the other hand you can also focus on premium paints, where VOC reduction and ecological standards are considered together with price and quality.

MCR 95 is used as multifunctional additive in water based paint.

MCR 95 AND WATER IN ALKYD BASED PAINT

Special Considerations:

Use **MCR 95** on your standard alkyd formulas without complementing with any polysaccharide resins. This allows to **lower cost** without changes in manufacturing process, no extra stages nor stability risks, flotation or agglutinations of pigments neither fillers. **You will not have to change your original formula**, also not be forced to use expensive pigment or filler concentrates.

Use **MCR 95** for low viscosity resins, long or medium long in oil. We recommend strongly to use **long in oil resins** to obtain **higher gloss**.

Check all components for tendency to **hydrolysis or yellowing**: Untreated silicas or defoamers containing silicone could destabilize the emulsion. (use BYK 052)

Use **solvents free of alcohols** (their affinity to water can destabilize the emulsion) and you can **replace white spirit by kerosene**, less affine to water, better for emulsion and **specially cheaper!**

Small quantities added of **aromatic solvents** allows to **reduce and regulate viscosity easily**, adjusting to market requirements.

Pigments: avoid using Prussian or Milori Blue because of its affinity to water, replace with Phtalocyanine Blue. Avoid pigment concentrates containing glycols, which forms azeotropes and retards water evaporation increasing drying time.

Humidity: Avoid painting on high humidity days, this difficults water evaporation.

Driers: Manganese in excess destabilizes the emulsion, replace by Cobalt. Calcium and Lead (toxic) in excess contribute to the same, we recommend use of Cobalt, Calcium in a moderate way, Zinc, Zirconium or Strontium. Zinc acts as drying activator for systems with water.

Dosage: In case of drying delays, we recommend to increase Cobalt and complementary driers to following percentages on weight of metal over weight of resin solids: **Cobalt 0.12 % , Calcium 0.1 % , Zirconium 0.45 % y Zinc 0.2 %**

$$\text{Kg of drier} = \frac{(\text{Kg of resin}) (\% \text{ of solids of resin}) (\% \text{ of dosage})}{100 (\% \text{ of metal in drier})}$$

Ex.: Suppose we have a tank full of paint, containing 1200 Kg of alkyd resin of 50 % solids, and we want to dosage: cobalt 0,12 %, calcium 0,1 % y zirconium 0,45 % and Zinc 0.2 %, available in our stock are this octoates: cobalt 10 %, calcium 10 %, zirconium 18 % and zinc 12 %.

7,2 Kg of 10% Cobalt octoate = $\frac{1200 \times 50 \times 0,12}{100 \times 10}$ and in the same way we obtain:

6 Kg of 10% Calcium octoate, 15 Kg 18% Zirconium octoate and 10 Kg 12% Zinc octoate