



Borchi® Dragon High Performance Catalyst Formulation Guide

1. Add Borchi® Dragon high performance catalyst as the last ingredient into alkyd resin or fully formulated alkyd-based paint
 - Leave out any secondary driers or anti-skins in initial testing
2. Test a ladder study to determine optimum loading
 - Borchers recommends 0.5%, 1%, 2% up to 3% Borchi® Dragon, as supplied on resin solids.

Adding too much of Borchi® Dragon can over-dose the system and cause dry retardation

3. To determine drier requirement:

(% resin solids in paint formulation) x (% dosage loading of Borchi® Dragon) x (batch size) = amount of Borchi® Dragon required in paint formulation

Example of adding 1% Borchi® Dragon into 40% resin solids paint formulation for 100g batch size

$$0.4 \text{ (resin solids)} \times 0.01 \text{ (dosage loading)} \times 100\text{g (batch size)} = 0.40\text{g Borchi® Dragon}$$

4. To determine how much Borchi® Dragon is needed for (X) gallons of paint:

W= gallons of paint produced
 Y=density of paint lbs/gallon
 Z= wt/wt dosage of Borchi® Dragon

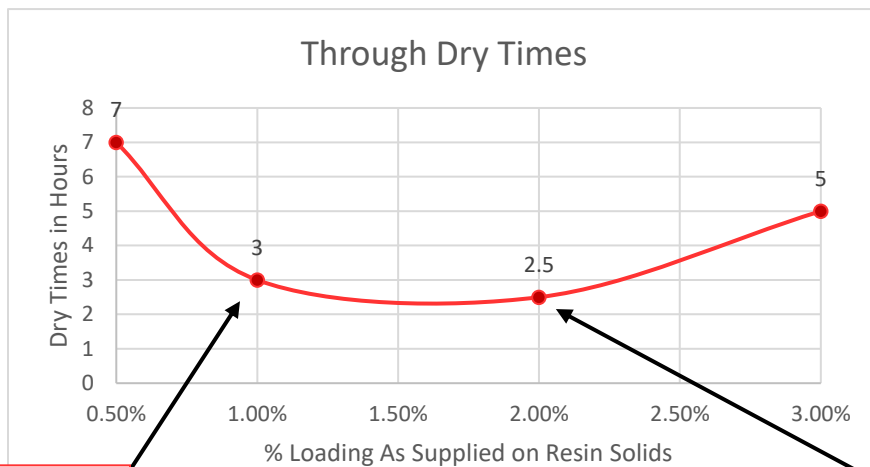
$$\frac{(W)(Y)(Z)}{8.68 \text{ lbs/gal}} = \text{Volume of Borchi® Dragon needed (gallons)}$$

Example of 1% Borchi Dragon into 40% resin solids paint formulation. (0.4g into 100g batch size.) Density of the paint is 8.83lbs/gallon, and 100 gallons of paint is produced annually.

$$\frac{100 \text{ gallons (paint produced)} \times 8.83 \text{ lbs/gallon (density of paint)} \times 0.004 \text{ (wt/wt)}}{8.68 \text{ lbs/gallon}} = 0.41 \text{ gallons Borchi® Dragon}$$



5. Mix in required drier addition at medium to low shear
6. Allow the formulas to sit for 24 hours to allow the Borchi® Dragon to equilibrate
7. After 24 hours drawdown paint formulation on Leneta or customer specific substrate and measure for dry times
 - Circular dry recorders are standard practice
8. Once optimum dosage loading is determined add in secondary driers or anti-skin as needed to achieve desired performance properties
 - Secondary driers such as Zirconium Hex-Cem® can help decrease dry times
 - Secondary driers such as Calcium Hex-Cem® can prevent loss of surface dry by preferentially being absorbed by pigments
 - Secondary driers such as AOC E (aluminum) can help decrease dry times and increase hardness



Add in secondary driers such as Zr to decrease dry times further

Optimum Loading

Additional Information:

Anti-Skinning agents can negatively impact drying performance. It is important to test Borchi® Dragon without anti-skins initially. If an anti-skinning agent is required, a separate ladder study with anti-skins must be performed. Borchers recommends the addition of 0.2% up to 1% Borchi® Shield as supplied on total formula weight.

Borchi® Shield is a MEKO-Free anti-skinning agent synergistically designed for optimum anti-skin performance when used in combination with Borchi® Dragon high performance catalyst.