



Stabilization of pigment suspensions using Laponite® EP

Laponite® EP is a layered silicate manufactured from naturally occurring mineral sources with a proprietary organic modification. It is used to develop a “liquid-gel” shear sensitive structure to water based systems and is particularly effective in formulations which contain high levels of suspended solids or that have highly acidic, or highly alkaline pH levels.

Laponite® EP is a very efficient additive when used to stabilize suspensions of inorganic pigments. A guide formulation is shown below for a **65% suspension of Synthetic Iron Oxide Red Pigment**

Ingredient- add in order shown	Weight (%)	Supplier/ function
Water	15.42	
Laponite® EP	0.20	Rockwood Additives Limited/ suspending agent
<i>Set water stirring at 1000-2000 rpm, e.g. Dispermat mixer fitted with 4cm dia. Cowles blade. Add Laponite powder over 5-10 seconds, taking care to avoid any clumping of the powder. Continue mixing for 30 minutes.</i>		
SMA 1440H (34% solution)	3.33	Sartomer/ wetting agent
<i>Set mixer speed to 2000 rpm; viscosity will increase when this wetting agent is added. Mix for 10 minutes. Some foaming will be seen. Add the following three ingredients in sequence, allowing 5 minutes mixing before adding the next ingredient.</i>		
Triton X405 (70% solution)	3.00	Dow wetting agent
AMP 95	0.27	Angus/Dow/ co-dispersant & neutralizing agent
Foamaster 111	0.025	Cognis/ defoamer
<i>Incorporated air will be released with a corresponding drop in viscosity</i>		
Copperas R1599D	65	Rockwood Pigments/ red iron oxide pigment
<i>Disperse the pigment gradually into the mixture over 10-15 minutes. Increase the stirrer speed up towards 8000 rpm to keep the dispersion flowing.</i>		
Foamaster 111	0.025	Cognis/ defoamer
Water	12.43	Let-down
<i>Add let-down water over ~5 minutes, reducing mixer speed down to 3000 rpm as viscosity falls</i>		
Dowicil 75	0.30	Dow/ preservative
<i>Continue mixing at 3000 rpm for 15 minutes, then change Cowles blade for a paddle mixer blade and stir at low speed for a further 15 minutes. Transfer to a storage container with an airtight seal.</i>		
Instructions are based on making a lab scale prep, e.g. 500g of paste		

For more information - contact the Laponite team on help@laponite.com

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