

the art of coarse painting (revisited)

In June 1985 I first wrote the memo, "The Art of Coarse Painting" – those of you who were not born then will be excused from not being able to repeat it verbatim!

In the paragraph dealing with roller application, I gave the hint that changes in the area of thickener technology could have a significant impact on the choice and design of rollers used. Up until the time of that memo, virtually the only thickeners available for use in waterborne paints were water soluble cellulose ethers. Although there were a range of these cellulose ethers available, the differences in the end paint product were minimal. These thickeners, like their cousins cellulosic wallpaper pastes, delivered a thick 'porridge' in the can; very low viscosity under shear, so one could just keep overspreading the paint; a complete regain of full viscosity the instant the shear was removed meaning no flow and a retention of brush marks, roller marks, 'orange peel' etc. and, the most idiosyncratic feature of all – 'roller fly'.

In the science of rheology, which studies the physical nature and flow of liquids, the rheology of a cellulose ether solution is described as 'pseudoplastic'. Among other properties, this means that, as the roller passes over the surface being painted, 'strings' of paint form between the roller and the substrate. The 'strings' eventually snap, with part of the 'string' forming a small droplet of paint which goes 'flying' off. Umbrellas were recommended equipment when painting ceilings especially.

Although there were a few different paint rollers offered to the market, in reality, it didn't really matter very much what sort of roller was used, the same end result occurred!

How times have changed. Cellulose ethers thicken paints because they are huge molecules, which absorb large amounts of water. Somewhere, some very smart chemist came up with the idea of taking a relatively small, non-thickening, water-soluble molecule (stay

with me here – I know it's becoming a bit turgid) and modifying each end of it by attaching a small hydrophobic (water insoluble) 'tail' at each end.

Voila – one of the greatest steps forward in waterborne paint technology. In water, these relatively small molecules strung themselves together, by associations of the 'hydrophobic 'tails', to form, seemingly, large molecules but with very different rheological properties to the cellulose ethers. Once unleashed, associative thickeners proliferated to the extent that dozens of different types are now available allowing an unprecedented ability to adjust viscosity across the full shear range important to the application of paints – thick brushable paints, which allow one to really load a brush yet will flow out to minimise brush marks without sagging – paints with built in 'high shear brakes', which prevent overspreading and ceiling paints, which can be roller applied in a dinner suit.

The other side of this ability to custom design paints is that now 'one roller does not fit all'. Indeed, the choice of the correct roller can make a good paint superb, while an incorrect roller can make a 'dog's breakfast' of the best paint. Even the hiding power can be significantly influenced.

This is generally not intuitive – in fact many older tradesmen will often call it 'lot of old cobblers' – but the fact remains that it is true. At Resene, we have a specialist tradesman who works alongside the R & D department determining which particular roller or brush is best suited to every new product that is developed. These evaluations are quite lengthy and involved, and the data, and subsequent recommendations, that come out of them are very valuable.

The recommendations given are not to promote any particular brand of brush or roller, but to showcase our products in the very best light and to give our customers the best possible finish.