

PROCEDURE TO ACHIEVE LOW LEVEL OF RESIDUAL MONOMERS IN VEOCRYL LATICES

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Description:

A procedure based on a redox booster system to achieve low levels of residual monomers (< 500 ppm) for hard core/ soft shell Veova-Acrylic (Veocryl) latices is given. The use of Bruggolite®FF6 M as reducing agent further guarantees no release of Formaldehyde or any other VOC.

Procedure:

A stable monomer pre-emulsion (1000 g of monomers) is prepared by adding the monomers step by step to the vigorously stirred aqueous phase according to the recipes. The initial reactor charge, which contains water and anionic surfactant, is heated to 85°C under a nitrogen stream. When the temperature of 85°C is reached, the nitrogen stream is stopped and 2.5% weight of the monomer pre-emulsion is added with the initiator solution (potassium persulfate). A reaction temperature of 85°C is maintained. When this charge has polymerised, the remainder of the pre-emulsion is gradually added over a period of 3 hours at 85°C. The initiator solution is added simultaneously via a separate line. The addition should be 15 minutes longer to improve monomer conversion. After monomer addition, a post-cooking treatment of 1 hour is applied.

After post-cooking the latex is cooled down to 60°C. The agitation is slowed down to about 100 rpm, to avoid any "funnel" into the latex. A 10% solution of sodium carbonate and sodium hydrogenocarbonate (1/1) is added to adjust the pH to ± 4. A first addition of Bruggolite®FF6 M solution is added in one shot (0.40 g Bruggolite®FF6 M in 30 g of demineralised water). After 5 minutes, the remainder of Bruggolite®FF6 M (1.4 g of Bruggolite®FF6 M in 100 g of demineralized water) and the tBHP (2 g of tert-butyl hydroperoxide solution (e.g. Trigonox A W70) in 100 g of demineralized water) are added via two separate lines for 90 minutes.

Finally, the latex is cooled to room temperature. During cooling, ammonia (25% aq.sol.) is added slowly to neutralize the latex. Once at room temperature, the latex is filtered over a 130 micron filter.

