ing prior thickeners, especially as regards efficiency, i.e. the amount of thickneer required to increase the viscosity of the coatings to useful levels. In this regard, the overall rheology of coatings of both the low and high shear type containing thickeners of this invention were studied. The fluid retention of the coatings was compared using an "S. D. Warren" tester, and electronic water retention (EWR) in seconds was measured. The EWR values have a bearing on the overal usefulness of a particular thickener, regardless of the amount used in the coating, and provides evidence of runability of the coating. The results of the tests are presented in Tables IX and X.

TABLE IX

			Paper Coating Formulation*			
			Viscosity, 3000 cps @ 25° C.			
LEC**	Thickener Parts by Weight (Dry)	Brookfield Viscosity-20 RPM (cps @ 25° C.)	Fluid Retention EWR, Sec. 30#/ream	Fluid Retention EWR, Sec. #5 Whatman	Kaltec*** High Shear Viscosity, cm.	Weight Percent Dry Polymer on 100 Parts Coating Clay
3	0.2	830	29	35	3.3	0.40
	0.4	3300				
	0.6	8900				
	0.8	—				
Control	(no thickener)	100	6	22	NR	—

*Dow 620 butadiene-styrene latex 15.0 dry parts, number one coating clay 100 parts solids, 50% coating solids, pH 9.0 by addition of ammonium hydroxide.
**See Table II
***"E" Bob, 4400 rpm; 200,000 spring set.

TABLE X

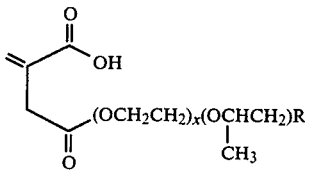
			Paper Coating Formulation*			
			Viscosity, 3000 (cps @ 25° C.			
LEC**	Thickener Parts by Weight (Dry)	Brookfield Viscosity-20 RPM cps @ 25° C.)	Fluid Retention EWR, Sec. 30#/ream	Fluid Retention EWR, Sec. #5 Whatman	Kaltec** High Shear Viscosity, cm.	Weight Percent Dry Polymer on 100 parts Coating Clay
3	0.2	250	25	65	7.8	0.55
	0.4	1200				
	0.6	4000				
	0.8	—				
Control	(no thickener)	100	6	25	NR	—

*National Starch Co. polyvinyl acetate latex 1105 15.0 dry parts, number one coating clay 100 solids parts, 50% solids coating, pH 9.0 by addition of ammonium hydroxide.
**See Table II
***"E" Bob, 4400 rpm; 200,000 spring set.

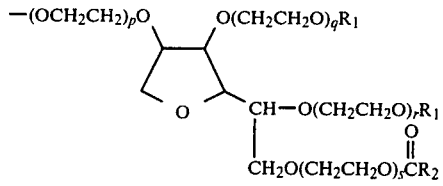
I claim:

1. A copolymer obtained by aqueous emulsion copolymerization of a monomer system comprising

(A) about 1 to about 25 percent of at least one substituted monomer of the formula:



in which x is an integer from 1 to 150, and y is an integer from 0 to 50, where R is alkoxy, alkylphenoxy, dialkylphenoxy, or alkyl carbonyloxy having 5 to 30 carbon atoms, or a sorbitan fatty ester of the formula



where each of p, q, r and s is an integer and the sum of said integers is from 0 to 100, R_1 is H or $—COR_2$ and R_2 is alkyl, alkylphenyl, or dialkylphenyl having 5 to 30 carbon atoms;

(B) about 5 to about 70 percent of a copolymerizable α, β-ethylenically unsaturated carboxylic acid monomer of the formula

$$RCH{=}C(R_1){-}COOH$$

where R is H and R_1 is H, an alkyl group containing from 1 to 4 carbon atoms, or $—CH_2COOX$; R is —COOX and R_1 is H, and X is H or an alkyl group containing from 1 to 4 carbon atoms,

(C) about 10 to about 90 percent of at least one nonionic, copolymerizable α, β-ethylenically unsaturated monomer of the formula

$$CH_2{=}CYZ$$

where Y is H and Z is CN, Cl, —COOR, $—C_6H_4R$,

$$—OCR_2,\ —C(=O)—NH_2,$$

or