

## 29. Polyvinylidenechloride. IV

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The copolymerization of vinylidenechloride with vinylacetate or vinylcyanide under various conditions was studied.

Results obtained:

1). Copolymer of vinylidenechloride and vinylacetate.

Block polymerization ;			Emulsion polymerization ;		
Catalyst : Benzoylperoxide, 0.1 g.			Emulsifier ; "Monogen" 0.2 g. Water ;		
Temperature : 50°,			40 cc. Catalyst ; Potassium persulfate and		
Duration : 10 hrs.			Hydrogene peroxide, 0.2 g. Temp. 30°.		
			Duration ; 10 hrs.		
Vdene Cl. (g)	V. Ac. (g)	Yield (%)	Vdene Cl. (g)	V. Ac. (g)	Y. (%)
10.0	—	68	10.0	—	99
9.9	0.1	64	9.9	0.1	93
9.5	0.5	62	9.5	0.5	86
9.0	1.0	41	9.0	1.0	80
8.5	1.5	29	8.5	1.5	68
8.0	2.0	22	8.0	2.0	67
7.0	3.0	13	7.0	3.0	51
6.0	4.0	9	6.0	4.0	71
5.5	4.5	6			

2). Copolymer of vinylidenechloride and vinylcyanide.

Block polymerization ;			Emulsion polymerization ;		
Conditions were same as above.			Conditions were same as above.		
Vdene Cl.	V. Cy.	Yield	Vdene Cl.	V. Cy.	Yield
9.7	0.3	23	9.9	0.1	94
9.5	0.5	17	9.5	0.5	81
9.0	1.0	5	9.0	1.0	61
8.0	2.0	3	8.5	1.5	75
7.0	3.0	1	8.0	2.0	76
6.0	4.0	—	7.5	2.5	80
			—	2.2	92

The thermal decomposition curves of the polymer of vinylidenechloride and its copolymers with vinylacetate or vinylcyanide were observed by means of thermobalance, and consequently it was found that the copolymers began to decompose at a temperature about 15-20° lower than polyvinylidenechloride which decomposed at 200°.