

EFFECT OF 2,4-HEXADIENE ON SOLVENT POLYMERIZATION

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SUMMARY The effect of the conjugated olefinic double bond on solvent copolymerization of vinyl chloride and vinyl acetate was determined in conjunction with an investigation of solvent polymerization of vinyl chloride from No. 2 unit.

Results indicate that 48 parts per million of 2,4-hexadiene may be present without affecting the polymerization rate, although higher amounts decrease the rate rapidly.

PROCEDURE Glass bombs were charged with 60 per cent vinyl chloride, 15 per cent vinyl acetate, 25 per cent acetone, and 0.15 per cent diacetyl peroxide. Various amounts of 2,4-hexadiene (9.86 to 137 parts per million, based on total charge) were added to the bombs. The bomb charges were polymerized to approximately 31 per cent conversion, and the reaction rates were determined from the amount of resin produced in each bomb. The results are listed in the following table and plotted in the attached figure:

<u>2,4-Hexadiene, parts/million</u>	<u>Rate, per cent/hour</u>
Blank	1.23
9.86	1.23
28.7	1.24
48.6	1.19
94.8	0.97
137.0	0.46

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PROCESS DEVELOPMENT LABORATORY

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EFFECT OF 2,4-HEXADIENE ON SOLVENT POLYMERIZATION OF VINYL CHLORIDE

CHARGE:
60 % VINYL CHLORIDE
15 % VINYL ACETATE
25 % ACETONE
0.15 % DIACETYL PEROXIDE

