

enthalpy of melting values than poly(vinylidene fluoride) in the same phase. As the comonomer size was increased, the entropy and enthalpy of melting decreased.

For samples that have been high-pressure-crystallized the entropy and enthalpy of melting and the melting point all increase when compared with the corresponding values for the low-pressure-crystallized samples.

It has been previously shown [21] that fluoroolefin comonomers with vinylidene fluoride act as pseudo head-to-head linkages and, therefore, the copolymers of VF_2 tend to favor crystallization under atmospheric conditions in phase I. The data in this paper have indicated that high-pressure crystallization of the copolymers also favors crystallization in phase I.

REFERENCES

- [1] B. Wunderlich and T. Arakawa, *J. Polymer Sci.*, **A2**, 3697 (1964).
- [2] P. H. Geil, F. R. Anderson, B. Wunderlich, and T. Arakawa, *J. Polymer Sci.*, **A2**, 3707 (1964).
- [3] P. J. Holdsworth and A. Keller, *J. Macromol. Sci.*, **B1**, 597 (1967).
- [4] A. Turner-Jones, *J. Polymer Sci.*, **62**, S53 (1962).
- [5] T. Davidson and B. Wunderlich, *J. Polymer Sci.*, (A-2)**7**, 377 (1969).
- [6] P. H. Geil, *Polymer Single Crystals*, Wiley-Interscience, New York, 1963, p. 393.
- [7] C. D. Armeniades and E. Baer, *J. Macromol. Sci.*, **B1**, 309 (1967).
- [8] S. Y. Choi, J. P. Rakus, and J. L. O'Toole, *Polymer Eng. Sci.*, **6**, 3 (1966).
- [9] J. L. Kardos, A. Christiansen, and E. Baer, *J. Polymer Sci.*, (A-2)**4**, 777 (1966).
- [10] K. D. Pae, *J. Polymer Sci.*, (A-2)**6**, 657 (1968).
- [11] D. R. Morrow, *J. Macromol. Sci.*, **B3**, 53 (1969).
- [12] C. E. Weir, *J. Res. Natl. Bur. Std.*, **53**, 245 (1954).
- [13] R. I. Beecroft and C. A. Swenson, *J. Appl. Phys.*, **30**, 1793 (1959).
- [14] L. D. Liushits, Y. S. Genshaft, V. C. Markov, and Y. N. Ryabinin, *Vysokomolekul. Soedin.*, **3**, 624 (1961).
- [15] C. E. Weir, *J. Res. Natl. Bur. Std.*, **50**, 95 (1953).
- [16] G. M. Martin and R. K. Eby, *J. Res. Natl. Bur. Std.*, **72A**, 467 (1968).
- [17] S. Hirakawa and T. Takemura, *Jap. J. Appl. Phys.*, **8**, 635 (1969).
- [18] M. Tamayama, T. Anderson, and H. Eyring, *Proc. American Acad. Sci.*, **57**, 554 (1967).
- [19] C. W. F. T. Pistorius, *Polymer*, **5**, 315 (1964).
- [20] G. Natta, G. Allegra, I. Bassi, D. Sianesi, G. Caporiccio, and E. Torti, *J. Polymer Sci.*, **A3**, 4263 (1965).
- [21] W. W. Doll and J. B. Lando, *J. Macromol. Sci.*, **B2**, 205 (1968).
- [22] J. B. Lando, H. G. Olf, and A. Peterlin, *J. Polymer Sci.*, (A-1)**4**, 941 (1966).
- [23] W. W. Doll and J. B. Lando, *J. Macromol. Sci.*, **B2**, 219 (1968).
- [24] Ye. Galperin, L. V. Strogalin, and M. P. Mlenik, *Vysokomolekul. Soedin.*, **7**, 933 (1965).
- [25] N. I. Makarevich and V. N. Nikitin, *Vysokomolekul. Soedin.*, **1673** (1965).
- [26] K. Okuda, T. Yoshida, M. Sugita, and M. Asamina, *J. Polymer Sci.*, **B5**, 465 (1967).
- [27] R. E. Naylor and S. W. Lasoski, *J. Polymer Sci.*, **44**, 1 (1960).
- [28] C. W. Wilson, *J. Polymer Sci.*, **A1**, 1305 (1963).
- [29] C. W. Wilson, *J. Polymer Sci.*, **8C**, 97 (1965).
- [30] W. W. Doll and J. B. Lando, *J. Macromol. Sci.*, **B4**, 309 (1970).
- [31] W. W. Doll and J. B. Lando, *J. Macromol. Sci.*, **B4**, 889 (1970).
- [32] G. Cortili and G. Zerbi, *Spectrochim Acta*, **23A**, 285 (1967).
- [33] G. Cortili and G. Zerbi, *Spectrochim Acta*, **23A**, 2216 (1967).
- [34] J. B. Lando, *J. Polymer Sci.*, **B5**, 917 (1967).
- [35] N. I. Makarevich, *Vysokomolekul. Soedin.*, **8**, 1420 (1966).
- [36] D. Sianesi and G. Caporiccio, *J. Polymer Sci.*, (A-1)**6**, 335 (1968).
- [37] A. Steyermark, R. R. Kamp, D. A. Petras, and E. A. Bass, *Microchem. J.*, **3**, 523 (1959).
- [38] J. L. Kardos and E. Baer, *J. Polymer Sci.*, **A3**, 2827 (1965).
- [39] D. W. Van Krevelen and P. J. Hoftyzer, *J. Appl. Polymer Sci.*, **13**, 871 (1969).
- [40] L. Mandlekern, *J. Polymer Sci.*, **C15**, 129 (1966).

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