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B101/B110

Crystallinity of hydrogenation ...

structure comparable to that of polyethylene. The crystallization extent increased with increasing saturation: 20% with a 70.5%, 60% with a 6.5% unsaturated compound. The macromolecules of PB therefore consist of saturated and unsaturated links in random succession. The occurrence of saturated links does not noticeably change the molecular cross section and cohesion energy, but reduces the flexibility of chains, increases the interaction of links, elevates the melting point (30-110°C), and supports the regular packing of macromolecules in a three-dimensional lattice. The spherulitic structure was studied under an MП-6 (MP-6) polarization microscope. 0.1% solutions of hydrogenated PB in xylene were evaporated in vacuo, melted between the cover glasses at 150°C, and heated in a thermostat at 80-100°C for 15-20 min. Spherulites were only observed at a hydrogenation degree $\geq 50\%$. The formation of spherulites with a considerable content of unsaturated links may be explained by the packet theory of polymer structure proposed by V. A. Kargin, A. I. Kitaygorodskiy, G. L. Slonimskiy (Kolloidn. zh., 19, 131, 1957). There are 2 figures and 12 references: 6 Soviet and 6 non-Soviet. The three references to English-language publications read as follows: C. S. Marvel et al., J. Organ. Chem., 16, 838, 1951; S. L. Aggarwal, G. P. Tillej, J. Polymer Sci.,

Card 2/3

Crystallinity of hydrogenation ...

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B101/B110

18, 17, 1955; J. L. Matthews, H. S. Peiser, R. B. Richards, Acta
crystallogr., 2, 85, 1949.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State
University)

SUBMITTED: January 16, 1961

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Card 3/3

TIKHOMIROV, B. I.

Dissertation defended for the degree of Candidate of Biological Sciences at the Institute of High-Molecular Compounds in 1962:

← ORIGINAL
CHECKED - C.K.

"Investigation of Hydrogenation of Polybutadienes and Properties of
Hydropolybutadienes."

Vest. Akad. Nauk SSSR. No. 4, Moscow, 1963, pages 119-145

S/190/63/005/003/001/024
B101/B186

AUTHORS: Leonova, N. I., Tikhomirov, B. I., Yakubchik, A. I.

TITLE: Determination of the polybutadiene microstructure

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 5, no. 3, 1963, 305-309

TEXT: A method of determining the content of 1,2-, cis-1,4 and trans-1,4 links in polybutadienes was developed on the basis of papers by D. Moreo (Chem. and Ind., 41, 758, 1959) and W. Kimmer, E. O. Schmalz (Rubber Chem. and Technol., 33, 639, 1960). For sodium butadiene containing no cis-1,4 links, and for its hydrogenation products dissolved in carbon disulfide, the absorption coefficient for 1,2 links at 911 cm^{-1} was found to be 286.8 ± 1.6 and for trans-1,4 links at 968 cm^{-1} , 255 ± 3.5 l/mole·cm. In the 968 cm^{-1} absorption band the superposition by neighboring absorption bands was taken into account. The content of 1,2 and trans-1,4 links in polybutadienes was determined with the aid of these absorption coefficients. The content of cis-1,4 links was calculated from the difference between the degree of insaturation determined by the addition of bromo iodine and the

Card 1/2

S/190/63/005/003/001/024
B101/B186

Determination of the...

sum of the 1,2 and trans-1,4 links. There are 2 tables.

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Card 2/2

YAKUBCHIK, A.I.; TIKHOMIROV, B.I.; MIKHAYLOVA, L.N.

Chemical inhomogeneity of the heterogenous catalytic hydrogenation
products of sodium polybutadiene. Vysokom. soed. 7 no.9:
1562-1564 S '65. (MIRA 18:10)

1. Leningradskiy gosudarstvennyy universitet im. A.A. Zhdanova.

YAKUBCHIK, A.I.; TIKHOMIROV, B.I.; KLOPOTOVA, I.A.; MIRHAYDAR, L.N.

Hydrogenation of cis-1,4-polybutadiene in the presence of cobalt catalysts. Dokl. AN SSSR 161 no.6:1365-1367 Ap '65. (MIRA 185)

1. Leningradskiy gosudarstvennyy universitet im. A.A.Zhdanova. Submitted October 15, 1964.

LEONOVA, N.I.; TIKHOMIROV, B.I.; YAKUBCHIK, A.I.; Primala uchastiy
MIKHAYLOVA, L.N.

Determination of the microstructure of polybutadienes. Vysokom.soed.
5 no.3:305-308 Mr '63. (MIRA 16:3)

1. Leningradskiy gosudarstvennyy universitet.
(Butadiene polymers)

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END