

SYMPOSIUM 7

POLIMEROS

**CHAIRMAN: FELIPE AVALOS
BELMONTES**

ORAL PRESENTATIONS

**ROOM MAYA 6
MONDAY SEPTEMBER 31st.**

9:00 - 9:40 GRAFT AND BLOCK COPOLYMERS OF SYNDIOTACTIC POLYSTYRENE WITH ELASTIC POLYMERIC CHAINS S. Ya. Knjazhanski, G. Cárdenas Pliego and C.M. Pérez Berúmen. Research Center on Applied Chemistry (CIQA) Saltillo, Coah., México

A novel Ti based compound/MAO catalytic system was shown to be highly active and stereoselective in both styrene and butadiene polymerizations to produce highly syndiotactic (>99% of syndiotactic pentads in crude product) polystyrenes (sPS) and PBS consisted of as high as 95% of 1,4-cis units (cPBD). Under certain reaction conditions the styrene polymerization could be trend to living fashion what allowed to perform block copolymerization of sPS and cPBD. The resultant block-copolymers combine high stiffness and high elasticity of the two constituents. Random copolymerization of styrene with 4-OR or 4-Ch₂OR substituted vinyl aromatic monomers followed by the hydrolysis of the ether group with BCl₃/H₂O gave well alternated phenoxy and hydroxymethyl functionalised sPS of high molecular weight. The last ones were modified with hydroxy- or carboxy-terminated polybutadienes and polysiloxanes to result in highly crystalline sPS grafted with elastic polymers. A functionalized sPS was also grafted with cPBD. Some properties of the polymers mentioned herein be discussed.

9:40 - 10:00 APPLICATION OF ANALYTICAL METHODS TO THE STUDY OF NYLON 6,12 DEGRADATION BY GAMMA RADIATION. Menchaca^{1,2,3}, H. López-Valdivia⁴, H. Carrasco⁴, A. Alvarez-Castillo², V.M. Castaño⁵. 1) Universidad Autónoma del Estado de Morelos, Facultad de Ciencias Químicas e Ingeniería, Av. Universidad 1001, Col. Chamilpa, C.P. 62215, Cuernavaca, Morelos, México. 2) Instituto Tec. de Zacatepec, Lab. Fernando Andrade, A.P. 45, C.P. 62780, Zacatepec, Morelos, México. 3) IIE. Unidad de Resultados de Sistemas Alternos y Procesos Químicos. Av. Reforma 113, Col. Palmira. 62490 Temixco, Morelos México.

4) ININ, Síntesis y Caracterización de Materiales, A.P. 111, Admon. Correos Lerma, Edo. México. 5) Instituto de Física UNAM, A.P. 1-1010, Querétaro, Querétaro, México.

The application of analytical methods to the nylon 6,12 degradation by gamma radiation is presented. The study includes the evaluation of thermal (differential scanning calorimetry [DSC]), vibrational (Raman spectroscopy) and morphological (scanning electron microscopy) properties as well as spatial structure (X-ray diffraction). The results show that the degradation phenomenon is happening, because low molecular weight species are formed by chain scission, supported by the results found. Changes of melting point and heat of fusion, as compared to the pure Nylon 6,12 polymer (without any radiation), were found. The crystal mean size obtained by X-ray diffraction confirms all results shown. Finally, micrographs obtained by SEM offers a sightseeing of the damage caused by γ -radiation.

10:00 - 10:20 SYNTHESIS OF CATIONIC POLYMER MEMBRANES BY γ -RADIATION GRAFTING. B. Lizama-Soberanis, F. Vázquez and R. López-Castañares. Fac. de Química, UAEM, A.P. A-20, 50000 Toluca, Edo. de Méx.

A direct irradiation method was used to prepare graft copolymers based on low density polyethylene (LDPE) and acrylic (AA) or methacrylic acid (MAA). The copolymers were prepared at different monomer/polymer ratios in order to compare the reaction efficiency. This method was used due to its technical advantage compared to the pre-irradiation or indirect method. The grafting systems were analyzed mainly by infrared spectroscopy (FTIR) and solvent extraction techniques. The mechanical and exchange properties of the prepared materials as ion-exchange membranes were also evaluated.

10:20 - 10:40 COFFEE BREAK

10:40 - 11:00 ESTUDIO DE LA FOTODEGRADACION DE POLIETILENO (PE) UTILIZANDO BENZO-FENONA COMO FOTOACTIVADOR DE LA DEGRADACION. Ma.E. Ramos A., L. Cantú S. F. Avalos B. Facultad de Ciencias Químicas, U.A.de C., Blvd. V. Carranza s/n, A.P. 935, C.P. 25000, Saltillo, Coahuila, Méx.

En esta investigación se formularon muestras a diferentes concentraciones (PE), almidón y benzofenona, las cuales se comprimieron en una prensa hidráulica a una temperatura de 140°C para la elaboración de películas. Estas fueron cortadas en probetas las cuales fueron colocadas al azar para su monitoreo en dos campos de prueba: envejecimiento



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