

Processes and Importance of Producing Polyvinyl Chloride Based on Monomer

Kh.J.Ismailova

Karshi State Technical University, Uzbekistan

Received: 19 February 2025; **Accepted:** 18 March 2025; **Published:** 21 April 2025

Abstract: The article examines the production of polyvinyl chloride cables and electrical wires, artificial leather, hoses, packaging materials, and insulating materials for linoleum. Polyvinyl chloride is used to protect reservoirs, tanks, chemical equipment, and pipelines from the effects of chlorine, hydrochloric, and sulfuric acids.

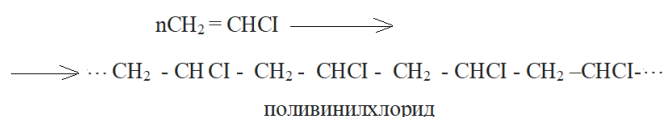
Keywords: Monomer, polymer, polymerization, vinyl chloride, polyvinyl chloride, dichloroethane, thermoplasticity, insulating materials, artificial leather, acetone, ethyl alcohol.

Introduction:

Polymerization (ancient Greek: πολυμερής — consisting of many parts) is the process of forming a high-molecular substance (polymer) by repeatedly adding molecules of a low-molecular substance (monomer, oligomer) to active centers in a growing polymer molecule. A monomer molecule that is part of a polymer forms a so-called monomer (structural) unit. The elemental composition (molecular formulas) of a monomer and a polymer are approximately the same. Monomers are usually compounds containing multiple bonds or cyclic fragments that can open and form new bonds with other molecules, ensuring chain growth.

Literature Review

Polyvinyl chloride polymerizes in the presence of an indicator at a temperature of 20-500C and a pressure of 2-6 atmospheres:



The molecular weight of polyvinyl chloride is 30,000 - 400,000, density 1.4 g / cm³. In industry, polyvinyl chloride is used to obtain different substances with and without adding a plasticizer. Polyvinyl chloride obtained without adding a plasticizer is called viniplast [1]. Viniplast is mechanically and chemically stable, 5 times lighter than cast iron and 8 times lighter than lead. Chlorinated polyvinyl chloride is used to obtain

chlorine fiber, it does not burn, and is not affected by acids and alkalis. Polymerization is a process in which the same monomers combine at high temperature and pressure, forming a high-molecular compound without the formation of intermediate compounds.

Polyvinyl chloride (PVC) is a thermoplastic material obtained by polymerization of vinyl chloride. Polyvinyl chloride occupies a key place among polymer products worldwide. More than 3,000 items are made from this polymer. In 1912, a patent was issued for the industrial production of vinyl halide polymers. In 1935, Regno obtained vinyl chloride by treating dichloroethane with an alcoholic solution of alkali. Polyvinyl chloride has been available as a commercial product since 1935. During storage, it is exposed to heat, light, moisture, oxygen, ozone, aggressive substances and mechanical forces [2-3].

RESULTS

The main raw material for the production of polyvinyl chloride is vinyl chloride (VCC). In demand, it ranks second after ethylene. At room temperature, it is a colorless gas with an ethereal odor, the boiling point is 13.90 C, the density is 970 kg / m³.

Vinyl chloride is soluble in acetone, ethyl alcohol, and insoluble in water. When mixed with air, it is flammable and explosive. When burning, caustic substances and toxic phosgene are released. Vinyl chloride has a strong negative effect on the human body.

It affects the central nervous system, skeletal system, connective tissue, brain, and heart. It causes immune

contaminated with secondary substances and is used in the production of pastes and plastisols. Polyvinyl chloride is an important polymer. The correct choice of initiator, temperature, emulsifiers in the process of its production is of great industrial importance. If vinyl chloride, not participating in the process, is fed back to the reactor, the production efficiency will increase.

REFERENCES

H.Ismoilova, O.Rakhimov, N.Turabaeva, G.Eshdavlatova. Irrigation regime of fine fiber cotton in the karshin steppe. Conference Committee. Indexed in leading databases – Scopus, Web of Science, and Inspec. Scopus & Web of Science indexed.

2. H.D.Ismoilova, G.E.Eshdavlatova // The influence of irrigation regimes on cotton productivity // BIO Web of Conferences 71, 01097 (2 023) CIBTA-II-2023.

<https://doi.org/10.1051/bioconf/20237101097>.

Dilshodovna, A. M., Odylovna, K. F., & Samveilovna, P. K. (2022). Peculiarities of Psychological Disorders in Patients with Acute Coronary Syndrome. International journal of health systems and medical sciences, 1(6), 203-207.

Pulatova, K. S., Pulatov, T. M., & Esankulov, M. O. (2021). THE SPECIFIC FEATURES OF ARTERIAL HYPERTENSION IN OWEWEIGHT PATIENTS WITH PSORIASIS. Academic research in educational sciences, 2(2), 1202-1207.

H.D.Ismoilova, G.E.Eshdavlatova. Analysis of soil composition in experimental areas where scientific research is conducted. E3S Web of Conferences 539, 01022 (2024).

<https://doi.org/10.1051/e3sconf/202453901022>. RSE-III-2024.

G.Eshdavlatova, Kh.Ismailova, O.Rakhimov. Application of Strengthening Compositions in Floral Printing on Mixed Fiber. AIP Conf. Proc. 3243, 020022 (2024) <https://doi.org/10.1063/5.0247303>

Пулатова, К. С. (2023). ВЛИЯНИЕ АНТИГИПЕРТЕНЗИВНЫХ ПРЕПАРАТОВ НА ИНСУЛИНОРЕЗИСТЕНТНОСТЬ И ПОКАЗАТЕЛЕЙ ЛИПИДНОГО СПЕКТРА. European Journal of Interdisciplinary Research and Development, 15, 72-75. Ismailova, H. J., & Sultonov, O. K. (2023). GOLDEN BRAIN. Multidisciplinary Scientific Journal. 1(35), https://t.me/goldenbrain_journal 301–307.

Ismailova H.J. STUDYING THE SALT COMPOSITION IN THE SOILS OF THE KARSHIN DESERT. Innovative Development in Educational Activities ISSN: 2181-3523 VOLUME 2 | ISSUE 24 | 2023. Scientific Journal Impact Factor (SJIF): 5.938 <http://sjifactor.com/passport.php?id=22323>

Ismoilova Xalavat Djabarovna. TUPROQ GRUNTLARINING SUV-FIZIKAVIY VA KIMYOVIY XOSSALARINI TADQIQ QILISH. AGRO KIMYO HIMOYA

VA O'SIMLIKLAR KARANTINI №6. 2023.

Halavat ISMOILOVA. РЕЖИМ ОРОШЕНИЯ ХЛОПКА И ВОДОПОТРЕБЛЕНИЕ НА ЭКСПЕРИМЕНТАЛЬНЫХ ПЛОЩАДКАХ. О'ЗBEKISTON MILLIY UNIVERSITETI XABARLARI, 2023, [3/2/1]. ISSN 2181-7324. KIMYO/ <http://journals.nuu.uz>. natural sciences. 403-405 bet.