
CONFERENCE ARTICLE**Structural Features And Conceptual Fields Of Polymer Chemistry Terminology****Meyliyev Muzaffar Haydar o'g'li**

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ABSTRACT

This thesis investigates the structural, lexico-semantic, and conceptual characteristics of polymer chemistry terminology in English and Uzbek. It focuses on the word-formation patterns of specialized terms, their semantic relationships, and their distribution across major conceptual fields. Particular attention is given to the ways in which the two languages represent scientific concepts and develop terminological systems in response to advances in polymer science.

Keywords: Polymer chemistry, terminology, structural features, lexico-semantic characteristics, conceptual fields, word formation, English, Uzbek.

INTRODUCTION

Polymer chemistry is a rapidly developing branch of science that studies the synthesis, structure, properties, and applications of polymeric materials. Its terminology reflects the increasing complexity of scientific knowledge and the emergence of new materials and technologies. The systematic study of polymer chemistry terminology is important for identifying the linguistic principles governing the formation, organization, and use of specialized vocabulary. A comparative analysis of English and Uzbek terminology also makes it possible to establish similarities and differences in the representation of scientific concepts.

From a structural perspective, polymer chemistry terms can be classified into simple, derived, compound, and multiword terminological units. Simple terms include polymer and monomer, while derived forms such as polymeric, polymerization, and biodegradable demonstrate the role of affixation in scientific word formation. Compound and multiword terms, including copolymer, polymer structure, polymer synthesis, radical polymerization, and molecular weight distribution, express more complex scientific concepts. In Uzbek, corresponding forms include polimer, monomer, polimerlanish, sopolimer, polimer tuzilishi, polimer sintezi, and radikal polimerlanish. These examples demonstrate that English and Uzbek employ different morphological and syntactic resources while expressing equivalent or closely related scientific meanings. English frequently uses prefixes, suffixes, and noun combinations, whereas Uzbek also relies on affixation, grammatical marking, and descriptive word combinations.

The lexico-semantic characteristics of polymer chemistry terminology are reflected in relationships such as synonymy, polysemy, antonymy, and hyponymy. For instance, polymer and monomer represent related but conceptually distinct substances, while polyethylene and polystyrene are specific types of polymers. Terms such as polymerization and degradation describe contrasting processes in polymer science, whereas thermal stability and biodegradability refer to different material properties. Some terms may also acquire specialized meanings depending on their scientific context. Therefore, their interpretation requires attention to definitions, contextual use, and relationships with other units within the terminological system. Such analysis contributes to distinguishing precise

scientific meanings from broader or potentially ambiguous interpretations.

The conceptual organization of polymer chemistry terminology can be divided into several interconnected fields. The first, materials and substances, includes polymer, monomer, copolymer, polyethylene, and polystyrene. The second, structure and molecular architecture, covers polymer chain, branching, molecular weight, and molecular weight distribution. The third, processes and reactions, comprises polymerization, polymer synthesis, copolymerization, and degradation. The fourth, properties and characteristics, includes flexibility, thermal stability, molecular mass, and biodegradability. The fifth, methods and technologies, encompasses extrusion, molding, and polymer processing. These conceptual fields are interrelated because the properties and applications of polymeric materials depend on their molecular structures, composition, and production methods.

The comparative study of English and Uzbek terminology further highlights the importance of terminological equivalence and standardization. Internationally established terms are often borrowed and adapted to Uzbek orthographic and grammatical conventions, while other concepts are expressed through translated or descriptive equivalents. Consistent terminology is essential for scientific publications, educational materials, bilingual dictionaries, and professional communication. Corpus-based analysis can additionally help identify frequently used terms, examine their collocations, and determine how their meanings vary across academic and technical texts.

In conclusion, the structural, lexico-semantic, and conceptual analysis of polymer chemistry terminology reveals the systematic nature of specialized vocabulary in English and Uzbek. The classification of word-formation patterns, examination of semantic relationships, and identification of major conceptual fields provide a foundation for comparative terminological research. The results may contribute to the development of bilingual glossaries, specialized dictionaries, terminology databases, and more consistent scientific communication between the two languages.

References

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