UDC 81’25

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TRANSLATION STRATEGIES FOR ENGLISH CHEMICAL DEFENSE ABBREVIATIONS

Abstract: Current research focuses on the systematic classification of translation strategies within the domain of English chemical defense terminology. Exploring challenges to achieving functional equivalence, the paper outlines the practical application of calquing, transliteration, descriptive translation, and other translation strategies and methods. The research findings emphasize that accurate interpretation of acronyms is crucial for maintaining the clarity and integrity of scientific and technical discourse.

Keywords: translation strategies, chemical defense, abbreviations, acronyms, terminological equivalence, scientific and technical discourse

The current state of chemical safety and protection is characterized by the rapid flow of specialized information, which requires highly efficient and concise forms of communication. As a result, discourse in this field is saturated with abbreviations and acronyms, which serve as important cognitive tools for specialists. However, translating such units from English into Ukrainian is a significant challenge due to the constant evolution of terminology and structural differences between both languages [1, p. 124].

Achieving terminological equivalence is not only a linguistic task but also a critical factor in ensuring operational safety and the accuracy of emergency response protocols. This study aims to bridge the existing gap between new English chemical

defense terminology and its Ukrainian translation. By analyzing various translation strategies, the study seeks to identify the most effective methods for preserving conceptual integrity and clarity in specialized technical communication.

In the sphere of chemical defense, abbreviations serve as more than just linguistic shortcuts; they function as “cognitive condensations” of complex technical data. These units can be categorized into several groups: initialisms (e.g., *CWA – Chemical Warfare Agents*), which are pronounced letter by letter; acronyms (e.g., *HAZMAT – Hazardous Materials*), pronounced as independent words; and complex graphical abbreviations found in laboratory reports and safety data sheets. The high frequency of their usage is dictated by the need for instant recognition during emergency operations where time is a critical factor. Consequently, the translator must treat each abbreviation not as a string of letters but as a conceptual anchor that requires precise decoding before any rendering into the target language.

The conceptual complexity of chemical protection terminology requires a diversified approach to translation, where the choice of strategy depends on the type of abbreviation and its communicative function. To illustrate this, 20 key abbreviations from the safety data sheet (SDS) glossary were analyzed [2]. These units represent different semantic groups, ranging from toxicological indicators (LD50, LC50) to international regulatory frameworks (REACH, GHS). The practical application of translation strategies for these units can be classified as follows:

1. Calquing. This strategy is predominantly used for units with transparent internal structures, allowing for the creation of Ukrainian equivalents that mirror the English source [3, p. 81]. In the chemical defense and safety sector, this often involves the functional adaptation of terms:

SDS (Safety Data Sheet) → ПБ (Паспорт безпеки) [2]. Although the literal translation of “sheet” is «аркуш», the term is rendered as «паспорт» in Ukrainian technical discourse to align with national regulatory standards. The abbreviation SDS functions as a core document identifier, and its Ukrainian equivalent *ПБ* (or often the expanded *Паспорт безпеки хімічної продукції*) maintains the same legal and operational status.

VOC (Volatile Organic Compounds) → ЛОС (Леткі органічні сполуки) [2]. This is a classic example of structural calquing where each component of the English abbreviation is translated and reassembled into a functional Ukrainian acronym.

ATE (Acute Toxicity Estimate) → ОГТ (Оцінка гострої токсичності) [2]. The strategy allows for the preservation of the original semantic hierarchy, which is crucial for the precise interpretation of toxicological data during emergency response.

2. Transliteration and Transcription. This method is effective for preserving the global recognition of regulatory bodies and specific chemical identifiers. In the context of chemical safety, these strategies are often used to prevent the loss of information that can occur during deep linguistic adaptation [3, p. 94]:

REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) → REACH (РІЧ) [2]. The original Latin acronym is often used in Ukrainian specialist discourse owing to its status as an essential international regulation. While transcription (РІЧ) is employed in oral communication, the Latin form REACH remains the dominant identifier in official documentation to ensure immediate recognition by the global scientific community.

ECHA (European Chemicals Agency) → ECHA (ЕКХА) [2]. Transcription is primarily applied here to facilitate the integration of the foreign acronym into the Ukrainian phonetic and morphological system. Since ECHA is the central regulatory authority in Europe, maintaining its original acronym alongside the Ukrainian full name (Європейське агентство з хімічних речовин) allows for precise cross-referencing between national and international safety databases.

CAS number → Номер CAS [2]. The Chemical Abstracts Service number is a universal identifier for chemical substances. In this case, transliteration of the acronym CAS is preferred because it serves as a unique numeric-linked code. Translating or calquing such identifiers would be counterproductive, as the acronym functions as a globally standardized brand that ensures the accuracy of substance identification regardless of the language of the safety data sheet.

3. Descriptive Translation (explication). This strategy is essential for complex multi-component acronyms that do not have a direct or established Ukrainian

equivalent. It involves the expansion of a condensed English unit into a full verbal explanation in the target language to avoid ambiguity in safety-critical contexts [4, p. 34]:

vPvB (very Persistent and very Bioaccumulative) → речовини, що є дуже стійкими та мають високу здатність до біоакумуляції [2]. Given the absence of a standardized Ukrainian acronym, the translator must provide a complete semantic decoding. This ensures that the specific environmental and health risks associated with the substance are clearly communicated to the specialists.

STOT (Specific Target Organ Toxicity) → специфічна токсичність для органів-мішеней [2]. This rendering focuses on the conceptual essence of the term. Descriptive translation here serves as a bridge between a highly condensed "cognitive condensation" in English and its meaningful representation in Ukrainian scientific discourse.

4. Substitution (functional equivalent). This method is employed when an established Ukrainian abbreviation exists that is functionally identical to the English source, even if their structural components do not match [1, p. 156]. This ensures that the translated text remains natural and professional for local specialists:

ADR (European Agreement... by Road) → ДОПНВ (Дорожнє перевезення небезпечних вантажів) [2]. Despite the structural differences between the English acronym (based on the French title) and the Ukrainian one, substitution is preferred because ДОПНВ is the officially recognized term in national legislation.

PPE (Personal Protective Equipment) → ЗІЗ (Засоби індивідуального захисту) [2]. Substituting the foreign unit with a deeply rooted local equivalent like ЗІЗ facilitates instant recognition, which is vital during emergency operations where time and clarity are critical factors.

The study demonstrates that the translation of English chemical defense abbreviations is a complex cognitive and linguistic process that goes beyond simple letter substitution. The analysis of key units from the safety data sheet glossary reveals that the choice of translation strategy is primarily determined by the need to maintain a balance between terminological precision and operational efficiency.

The research findings confirm that while calquing and substitution are effective for rendering standardized terms within national safety protocols, descriptive translation remains indispensable for bridging the conceptual gap in multi-component acronyms. Ultimately, precise interpretation and translation of chemical defense abbreviations are extremely important for ensuring clarity and integrity in professional communication. The strategies presented provide translators with a systematic framework for maintaining conceptual accuracy, which is critical for operational safety in emergency situations and specialized technical discourse.

REFERENCES:

1. Karaban, V. I. (2004). Translation of English scientific and technical literature. Vinnytsia: Nova Knyha.
2. MSDS-Europe. (2024). Abbreviations and acronyms in Safety Data Sheets (Glossary). Retrieved from https://www.msds-europe.com/sds-abbreviations-explained/
3. Newmark, P. (1988). A Textbook of Translation. New York: Prentice-Hall.
4. Baker, M. (2018). In Other Words: A Coursebook on Translation. Routledge.