

An Appropriate and Methodical Qualitative Method Validation Process and Its Application to the Analysis of Substances Pertaining To the Chemical Weapons Convention Using Gas Chromatography-Mass Spectrometry

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Abstract

Introduction

The Chemical Weapons Convention (CWC) was signed in 1997, and it is the only international treaty that prohibits the development, production, stockpiling, use, and transfer of chemical weapons. The CWC has been a significant milestone in the history of international disarmament, and it has led to the destruction of thousands of tons of chemical weapons. The CWC also requires the development of effective methods for the detection and identification of chemical weapons. Gas chromatography-mass spectrometry (GC-MS) is a powerful analytical technique that is widely used for the detection and identification of chemical weapons. However, the use of GC-MS for the detection and identification of chemical weapons requires a rigorous validation process. This paper describes an appropriate and methodical qualitative method validation process for the use of GC-MS in the detection and identification of chemical weapons. The validation process involves the determination of the limits of detection and quantification, the assessment of the accuracy and precision, and the evaluation of the method's robustness. The results of the validation process show that the method is suitable for the detection and identification of chemical weapons. The method is sensitive, accurate, and precise, and it is robust to variations in sample matrix and instrument parameters. The method is also easy to use and requires minimal sample preparation. The method is therefore a valuable tool for the detection and identification of chemical weapons.

1. Application to CWC-related substances: [illegible text]

2. Application to CWC-related substances: [illegible text]