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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 46534-2025

**Determination of ethylenediaminetetraacetic acid,
nitrilotriacetic acid and diethylenetriaminepentaacetic acid in
detergent - High performance liquid chromatography**

洗涤剂中乙二胺四乙酸（EDTA）、氮川三乙酸（NTA）和二乙烯三胺五乙酸（DTPA）的测定 高效液相色谱法

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Standardization Administration of the PRC**

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Foreword

This document conforms to GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents". Drafting is scheduled. Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed by the China National Light Industry Council. This document is under the jurisdiction of the National Technical Committee on Standardization of Surfactants and Detergents (SAC/TC 272). This document was drafted by: Guangzhou Institute of Quality Supervision and Inspection, Langfang Natural Resources Comprehensive Survey Center of China Geological Survey, and China Daily. Chemical Research Institute Co., Ltd., China Light Industry Inspection and Certification (Taiyuan) Co., Ltd., Nengchen Daily Chemical (Henan) Co., Ltd., Changzhou Ruixi Biotechnology Limited Liability Company, Guangdong Zhongke Hongtai New Materials Co., Ltd. The main drafters of this document are: Li Xinyu, Wu Jie, He Guoshan, Xia Zemin, Cai Yongtong, Gong Peilong, Li Xiaorui, Wang Peng, Li Zhonghui, and Wang Meiling. Ethylenediaminetetraacetic acid (EDTA) in detergents Nitrotriacetic acid (NTA) and diethylenetriaminepentaacetic acid Determination of (DTPA) by High Performance Liquid Chromatography

1 Scope

GB/T 46534-2025 is the Chinese national standard covering the three aminopolycarboxylate chelants in a detergent by HPLC - the complexation before injection that makes them detectable, the separation of the three, the calibration and the recovery, on compounds that pass through treatment plants and mobilise metals in rivers. First edition, under the China National Light Industry Council. In force from 1 May 2026. Issued on 31 October 2025, it has been in force since 1 May 2026.

This document describes the high-performance liquid chromatography (HPLC) determination of ethylenediaminetetraacetic acid (EDTA), aziridine triacetic acid (ATA), and diethylenetriaminepentaacetic acid (DTA) in detergents. method. This document applies to the determination of ethylenediaminetetraacetic acid, aziridine triacetic acid, and

diethylenetriaminepentaacetic acid in detergents. This document does not apply to the determination of detergents containing sodium hypochlorite.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are listed below. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 6682 Specifications and test methods for water used in analytical laboratories

3 Terms and Definitions

This document does not contain any terms or definitions that need to be defined.

4.Principles After water extraction and complexation derivatization with a complexing agent, the samples were detected using high-performance liquid chromatography/diode array detector, with retention time and ultraviolet light as the determining factors. Qualitative analysis was performed using external absorption spectroscopy, and quantitative analysis was performed using the external standard method.

5.Reagents and Materials Unless otherwise specified, only reagents confirmed to be of analytical grade should be used in the analysis.

5.1 All water used in the experiments was Grade I water as specified in GB/T 6682.

5.2 Disodium ethylenediaminetetraacetate standard sample/standard substance. (CAS. 139-33-3), purity $\geq 98\%$.

5.3 Standard sample/substance of trisodium triacetate. (CAS. 5064-31-3), purity $\geq 98\%$.

5.4 Standard sample/reference material of diethylenetriaminepentaacetic acid pentasodium. (CAS. 140-01-2), purity $\geq 98\%$.

5.5 Methanol. chromatographic grade.

5.6 Anhydrous sodium acetate.

5.7 Acetic acid.

5.8 Tetrabutylammonium bromide.

5.9 Ferric chloride hexahydrate.

5.10 Hydrochloric acid ($\rho_{20} =$

1.19 g/mL). analytical grade.