
**Surface active agents — Determination
of chloroacetic acid (chloroacetate) in
surfactants —**

**Part 1:
HPLC method**

*Agents de surface — Détermination de l'acide chloroacétique
(chloroacétate) dans les agents tensioactifs —*

Partie 1: Méthode CLHP



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Foreword

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The committee responsible for this document is ISO/TC 91, *Surface active agents*.

ISO 17293 consists of the following parts, under the general title *Surface active agents — Determination of chloroacetic acid (chloroacetate) in surfactants*:

- *Part 1: HPLC method*
- *Part 2: Ionic chromatographic method*

Surface active agents — Determination of chloroacetic acid (chloroacetate) in surfactants —

Part 1: HPLC method

1 Scope

This part of ISO 17293 specifies a method for the determination of monochloroacetic acid (monochloroacetate) and dichloroacetic acid (dichloroacetate) in surfactants by HPLC method.

The method applies for anionic surfactants such as alkyl (phenyl) ethoxylated carboxylate (AEC) or amphoteric surfactants such as alkyl imidazoline carboxylate, alkyl dimethyl betaine, and fatty acetyl propyl dimethyl betaine.

The limit of detection (LOD) is $\leq 0,3 \mu\text{g/ml}$ for monochloroacetic acid and $\leq 0,2 \mu\text{g/ml}$ for dichloroacetic acid; the limit of quantification (LOQ) is $\leq 1,0 \mu\text{g/ml}$ for monochloroacetic acid and $\leq 0,75 \mu\text{g/ml}$ for dichloroacetic acid (using a standard solution).

The LOD, at 5 g of sample weight, is $\leq 6 \text{ mg/kg}$ for monochloroacetic acid and $\leq 4 \text{ mg/kg}$ for dichloroacetic acid; and the LOQ is $\leq 20 \text{ mg/kg}$ for monochloroacetic acid and $\leq 15 \text{ mg/kg}$ for dichloroacetic acid.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 607, *Surface active agents and detergents — Methods of sample division*

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

ISO 5725-2, *Accuracy (trueness and precision) of measurement methods and results — Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method*

3 Principle

The sample is dissolved in the mobile phase in order to analyse by high performance liquid chromatography (HPLC). After injection, it flows through a C₈-bonded silicone gel column. The monochloroacetic acid (monochloroacetate) and dichloroacetic acid (dichloroacetate) are separated in the column and detected by an UV detector.

The contents of monochloroacetic acid and dichloroacetic acid in the sample are achieved by external calibration method.

4 Reagents

4.1 General

During the analysis, use only reagents of recognized analytical grade and the water used shall conform to grade 1 in accordance with ISO 3696, unless otherwise specified.