

Non-fatty foods — Determination of dithiocarbamate and thiuram disulfide residues —

Part 3: UV spectrometric xanthogenate method

The European Standard EN 12396-3:2000 has the status of a
British Standard

ICS 67.050

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW

BSI
Documents

AVA

Document Sharing Hub



National foreword

This British Standard is the official English language version of EN 12396-3:2000.

The UK participation in its preparation was entrusted to Technical Committee AW/-/3, Food analysis — Horizontal methods, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 11 and a back cover.

The BSI copyright notice displayed in this document indicates when the document was last issued.

This British Standard, having been prepared under the direction of the Consumer Products and Services Sector Committee, was published under the authority of the Standards Committee and comes into effect on 15 August 2000

© BSI 08-2000

ISBN 0 580 34878 4

Amendments issued since publication

Amd. No.	Date	Comments

English version

Non-fatty foods – Determination of dithiocarbamate and thiuram disulfide residues – Part 3: UV spectrometric xanthogenate method

Aliments non gras – Détermination des résidus de dithiocarbamates et de bisulfures de thiurame – Partie 3: Méthode spectrométrique UV utilisant le xanthogénate

Fettarme Lebensmittel – Bestimmung von Dithiocarbamat- und Thiuramdisulfid-Rückständen – Teil 3: UV-Spektralphotometrisches Xanthogenat-Verfahren

This European Standard was approved by CEN on 8 April 2000.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Contents

	Page
Foreword.....	2
1 Scope.....	3
2 Normative references	3
3 Principle	3
4 Reagents	3
5 Apparatus	4
6 Sampling	5
7 Preparation of the samples.....	5
8 Procedure	6
9 Expression of the results	8
10 Confirmatory tests.....	8
11 Precision	8
12 Test report	9
Annex A (informative) Precision data	10
Bibliography	11

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 275, Food analysis – Horizontal methods, the Secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2000, and conflicting national standards shall be withdrawn at the latest by November 2000.

This European Standard EN 12396, Non-fatty food – Determination of dithiocarbamate and thiuram disulfide residues, consists of three parts:

- Part 1: Spectrometric method;
- Part 2: Gas chromatographic method;
- Part 3: UV spectrometric xanthogenate method.

Annex A is informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies a UV spectrometric method for the determination of low-level residues of dithiocarbamate and thiuram disulfide fungicides as xanthogenates. Dithiocarbamate and thiuram disulfide fungicides release carbon disulfide under specified conditions (e.g. mancozeb, maneb, propineb, thiram, zineb). It is applicable to such compounds especially in and on those foodstuffs of plant origin for which low maximum residue levels have been set.

Only the quantification of the whole group is possible using this method and not the identification of individual compounds. Generally the maximum residue levels (MRLs) are expressed in terms of carbon disulfide.

2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

ISO 1750	Pesticides and other agrochemicals – Common names.
EN 12393-1:1998	Non-fatty foods – Multiresidue methods for the gas chromatographic determination of pesticide residues – Part 1: General considerations.
EN 12396-1:1998	Non-fatty foods – Determination of dithiocarbamate and thiuram disulfide residues – Part 1: Spectrometric method.
EN 12396-2:1998	Non-fatty foods – Determination of dithiocarbamate and thiuram disulfide residues – Part 2: Gas chromatographic method.

3 Principle

The sample is heated with hydrochloric acid and tin(II)chloride to release carbon disulfide from any dithiocarbamates and/or thiuram disulfides present. The carbon disulfide is separated and purified by distillation and collected in a methanolic potassium hydroxide solution. Under these conditions, carbon disulfide forms potassium xanthogenate. The absorption of this reaction product is measured spectrometrically at a wavelength of 302 nm with base line correction at wavelengths of 272 nm and 332 nm. The mass fraction of dithiocarbamate and/or thiuram disulfide residues is calculated and expressed in terms of milligrams of carbon disulfide per kilogram of foodstuff. For further information on this method, see [1], [2], [3].

4 Reagents

4.1 General

Unless otherwise specified, use reagents of recognized analytical grade, preferably for pesticide residue analysis, and distilled or demineralized water.

Label all standard containers with the name and purity of all pesticides. For the full chemical names and structures, see ISO 1750.

Take every precaution to avoid possible contamination of water, solvents, inorganic salts etc. by plastics and rubber materials. Use only glass containers for storage and handling of all water and reagents.

4.2 Carbon disulfide, colourless, mass fraction of at least 99%. If stored at -20°C it is stable for 2 years to 3 years.

4.3 Methanol.

4.4 Hydrochloric acid, concentrated, $\rho_{20}(\text{HCl}) = 1,16 \text{ g/ml}$.

4.5 Sulfuric acid, concentrated, $\rho_{20}(\text{H}_2\text{SO}_4) = 1,84 \text{ g/ml}$.