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Standards

Irish Standard  
I.S. EN ISO 21427-2:2009

# Water quality - Evaluation of genotoxicity by measurement of the induction of micronuclei - Part 2: Mixed population method using the cell line V79 (ISO 21427-2:2006)

## I.S. EN ISO 21427-2:2009

*Incorporating amendments/corrigenda issued since publication:*

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English version  
Version Française  
Deutsche Fassung

Water quality - Evaluation of genotoxicity by measurement of the induction  
of micronuclei - Part 2: Mixed population method using the cell line V79  
(ISO 21427-2:2006/Cor 1:2009)

Qualité de l'eau - Evaluation de la  
génotoxicité par le mesurage de l'induction  
de micronoyaux - Partie 2: Méthode de la  
population mélangée à l'aide de la lignée  
de cellules V79 (ISO 21427-2:2006/Cor  
1:2009)

Wasserbeschaffenheit - Bestimmung der  
Gentoxizität mit dem In-vitro-Mikrokerntest -  
Teil 2: Verwendung einer nicht-  
synchronisierten V79-Zellkulturlinie (ISO  
21427-2:2006/Cor 1:2009)

This corrigendum becomes effective on 10 June 2009 for incorporation in the official English version of the EN.

Ce corrigendum prendra effet le 10 juin 2009 pour incorporation dans la version anglaise officielle de la EN.

Die Berichtigung tritt am 10.Juni 2009 zur Einarbeitung in die offizielle Englische Fassung der EN in Kraft.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

**EN ISO 21427-2:2009/AC:2009 (E)** **I.S. EN ISO 21427-2:2009/AC:2009**

**Endorsement notice**

The text of ISO 21427-2:2006/Cor.1:2009 has been approved by CEN as a European Corrigendum without any modification.



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Standards

Irish Standard  
I.S. EN ISO 21427-2:2009

# Water quality - Evaluation of genotoxicity by measurement of the induction of micronuclei - Part 2: Mixed population method using the cell line V79 (ISO 21427 -2:2006)

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**I.S. EN ISO 21427-2:2009**

**EUROPEAN STANDARD**

**EN ISO 21427-2**

**NORME EUROPÉENNE**

**EUROPÄISCHE NORM**

March 2009

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English Version

**Water quality - Evaluation of genotoxicity by measurement of the induction of micronuclei - Part 2: Mixed population method using the cell line V79 (ISO 21427-2:2006)**

Qualité de l'eau - Évaluation de la génotoxicité par le  
mesurage de l'induction de micronoyaux - Partie 2:  
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Wasserbeschaffenheit - Bestimmung der Genotoxizität mit  
dem In-vitro-Mikrokerntest - Teil 2: Verwendung einer nicht-  
synchronisierten V79-Zellkulturlinie (ISO 21427-2:2006)

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COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**Management Centre: Avenue Marnix 17, B-1000 Brussels**

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## **Foreword**

The text of ISO 21427-2:2006 has been prepared by Technical Committee ISO/TC 147 "Water quality" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 21427-2:2009 by Technical Committee CEN/TC 230 "Water analysis" 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 September 2009, and conflicting national standards shall be withdrawn at the latest by September 2009.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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### **Endorsement notice**

The text of ISO 21427-2:2006 has been approved by CEN as a EN ISO 21427-2:2009 without any modification.

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**I.S. EN ISO 21427-2:2009**

# **INTERNATIONAL STANDARD**

**ISO  
21427-2**

First edition  
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## **Water quality — Evaluation of genotoxicity by measurement of the induction of micronuclei —**

### **Part 2: Mixed population method using the cell line V79**

*Qualité de l'eau — Évaluation de la génotoxicité par le mesurage de  
l'induction de micronoyaux —*

*Partie 2: Méthode de la population mélangée à l'aide de la lignée de  
cellules V79*



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## **Foreword**

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 21427-2 was prepared by Technical Committee ISO/TC 147, *Water quality*, Subcommittee SC 5, *Biological methods*.

ISO 21427 consists of the following parts, under the general title *Water quality — Evaluation of genotoxicity by measurement of the induction of micronuclei*:

- *Part 1: Evaluation of genotoxicity using amphibian larvae*
- *Part 2: Mixed population method using the cell line V79*

# Water quality — Evaluation of genotoxicity by measurement of the induction of micronuclei —

## Part 2: Mixed population method using the cell line V79

**WARNING** — Persons using this part of ISO 21427 should be familiar with normal laboratory practice. This standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.

**IMPORTANT** — It is absolutely essential that tests conducted according to this part of ISO 21427 be carried out by suitably trained staff.

### 1 Scope

This part of ISO 21427 specifies a method for the determination of genotoxicity of water and waste water using a mammalian *in vitro* test which detects damage, induced by water-soluble substances, to the chromosomes or the mitotic apparatus of V79 cells from the Chinese hamster.

The micronucleus test allows the identification of substances that cause cytogenetic damage which results in the formation of micronuclei containing lagging chromosome fragments and/or whole chromosomes.

The assay is based on the increase in the frequency of micronucleated cells after incubation with and without metabolic activation.

### 2 Normative references

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

ISO 5667-16, *Water quality — Sampling — Part 16: Guidance on biotesting of samples*

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply:

#### 3.1

##### **cell lines**

distinct families of cells grown in culture originated from a single clone

#### 3.2

##### **cofactor solution**

aqueous solution of chemicals (e.g. NADP, Glucose-6-phosphate and inorganic salts) needed for the activity of the enzymes in the S9 fraction

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