

STN	Náterové látky. Zisťovanie rýchlosti uvoľňovania biocídov z protinánosových náterových látok vzdorujúcich účinkom morskej vody. Časť 6: Stanovenie rýchlosti uvoľňovania tralopyrilu určením množstva jeho degradačných produktov v extrakte (ISO 15181-6: 2012).	STN EN ISO 15181-6 67 3038
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Paints and varnishes - Determination of release rate of biocides from antifouling paints - Part 6: Determination of tralopyril release rate by quantitation of its degradation product in the extract (ISO 15181-6:2012)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 10/14

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ICS 87.040

English Version

**Paints and varnishes - Determination of release rate of biocides
from antifouling paints - Part 6: Determination of tralopyril
release rate by quantitation of its degradation product in the
extract (ISO 15181-6:2012)**

Peintures et vernis - Détermination du taux de lixiviation des
biocides contenus dans les peintures antisalissures - Partie
6: Calcul du taux de lixiviation du tralopyril par
détermination de la concentration de son produit de
dégradation dans l'extrait (ISO 15181-6:2012)

Beschichtungsstoffe - Bestimmung der Auswaschrates von
Bioziden aus Antifouling-Beschichtungen - Teil 6:
Bestimmung der Auswaschrates von Tralopyril durch
Quantifizierung seiner Abbauprodukte im Extrakt (ISO
15181-6:2012)

This European Standard was approved by CEN on 8 May 2014.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

The text of ISO 15181-6:2012 has been prepared by Technical Committee ISO/TC 35 "Paints and varnishes" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 15181-6:2014 by Technical Committee CEN/TC 139 "Paints and varnishes" 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of an identical text or by endorsement, at the latest by December 2014, and conflicting national standards shall be withdrawn at the latest by December 2014.

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Endorsement notice

The text of ISO 15181-6:2012 has been approved by CEN as EN ISO 15181-6:2014 without any modification.

**Paints and varnishes — Determination
of release rate of biocides from
antifouling paints —**

**Part 6:
Determination of tralopyril release
rate by quantitation of its degradation
product in the extract**

*Peintures et vernis — Détermination du taux de lixiviation des
biocides contenus dans les peintures antisalissures —*

*Partie 6: Calcul du taux de lixiviation du tralopyril par quantitation
de son produit de dégradation dans l'extrait*





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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.

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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.

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ISO 15181-6 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 9, *General test methods for paints and varnishes*.

ISO 15181 consists of the following parts, under the general title *Paints and varnishes — Determination of release rate of biocides from antifouling paints*:

- *Part 1: General method for extraction of biocides*
- *Part 2: Determination of copper-ion concentration in the extract and calculation of the release rate*
- *Part 3: Calculation of the zinc ethylene-bis(dithiocarbamate) (zineb) release rate by determination of the concentration of ethylenethiourea in the extract*
- *Part 4: Determination of pyridine–triphenylborane (PTPB) concentration in the extract and calculation of the release rate*
- *Part 5: Calculation of the tolylfluanid and dichlofluanid release rate by determination of the concentration of dimethyltolylsulfamide (DMST) and dimethylphenylsulfamide (DMSA) in the extract*
- *Part 6: Determination of tralopyril release rate by quantitation of its degradation product in the extract*

Introduction

By using standard conditions of temperature, salinity and pH at low biocide concentrations in the surrounding artificial seawater, a repeatable value of the release rate under the specified laboratory conditions can be determined using the method given in this part of ISO 15181, which can be used for quality assurance and material selection purposes. The actual release rate of biocides from antifouling paints on ships' hulls into the environment depends, however, on many factors, such as ship operating schedules, length of service, berthing conditions, paint condition, as well as temperature, salinity, pH, pollutants, and biological community.

The results of this test do not reflect environmental biocide release rates for antifouling products and are not suitable for direct use in the process of generating environmental risk assessments, producing environmental loading estimates or for establishing release rate limits for regulatory purposes. In comparison with copper and organotin release rate measurements obtained either by direct or indirect measurements of the copper release rate from ships' hulls and from measurements made on panels exposed in harbours, all available data indicate that the results of this generic test method significantly overestimate the release rate of biocide under in-service conditions. Published results demonstrate that the results of this test method are generally higher than direct *in-situ* measurements of copper and organotin release rate from the hulls of harboured ships by a factor of about 10 or more for several commercial antifouling coatings.^{[1][2]} A similar relationship is expected to be found for other biocides. Realistic estimates of the biocide release from a ship's hull under in-service conditions can only be obtained from this test method if this difference is taken into account.

Where the results of this test method are used in the process of generating environmental risk assessments, producing environmental loading estimates or for regulatory purposes, it is most strongly recommended that the relationship between laboratory release rates and actual environment inputs be taken into account to allow a more accurate estimate of the biocide release rate from antifouling coatings under real-life conditions to be obtained. This can be accomplished through the application of appropriate correction factors.^[2]

Paints and varnishes — Determination of release rate of biocides from antifouling paints —

Part 6:

Determination of tralopyril release rate by quantitation of its degradation product in the extract

1 Scope

This part of ISO 15181 specifies a method for determining the amount of tralopyril that has been released from an antifouling paint into artificial seawater in accordance with the procedure given in ISO 15181-1.

Tralopyril is unstable in water and degrades hydrolytically to form 3-bromo-5-(4-chlorophenyl)-4-cyano-1H-pyrrole-2-carboxylic acid (BCCPCA). This part of ISO 15181 specifies a method for accelerating the conversion of the released tralopyril into this degradation product by heat treatment and quantifying the concentration of the BCCPCA degradation product in the artificial seawater extract, and gives the final calculation for the release rate of tralopyril under the specified laboratory conditions.

This part of ISO 15181 is designed to allow the concurrent determination of tralopyril and other biocides that can be released by a given antifouling paint (for example, zineb) through the analysis of separate sub-samples of an artificial seawater extract generated in accordance with ISO 15181-1.

When used in conjunction with ISO 15181-1, the practical limits for quantifying release rates by this method are from $0,36 \mu\text{g cm}^{-2} \text{d}^{-1}$ to $270 \mu\text{g cm}^{-2} \text{d}^{-1}$. The quantitation of release rates lower than this range requires the use of an analytical method with a limit of quantitation for tralopyril in artificial seawater of less than $2 \mu\text{g/l}$.

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

ISO 15181-1:2007, *Paints and varnishes — Determination of release rate of biocides from antifouling paints — Part 1: General method for extraction of biocides*

ASTM D6442-06, *Standard test method for determination of copper release rate from antifouling coatings in substitute ocean water*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN