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Ships and marine technology — Risk assessment on anti-fouling systems on ships —

Part 3: Human health risk assessment method of biocidally active substances used in anti-fouling paints on ships during the application and removal processes

Navires et technologie maritime — Évaluation des risques pour les systèmes antisalissure sur les navires —

Partie 3: Méthode d'évaluation du risque pour la santé humaine des substances bioacidement actives dans les peintures antisalissure sur les navires durant les processus d'application et d'élimination

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 8, *Ships and marine technology*, Subcommittee SC 2, *Marine environment protection*.

ISO 13073 consists of the following parts, under the general title *Ships and marine technology — Risk assessment on anti-fouling systems on ships*:

— *Part 1: Marine environmental risk assessment method of biocidally active substances used for anti-fouling systems on ships*

— *Part 2: Marine environmental risk assessment method for anti-fouling systems on ships using biocidally active substances*

— *Part 3: Human health risk assessment method of biocidally active substances used in anti-fouling paints on ships during the application and removal processes*

Introduction

The attachment of fouling organisms, such as barnacles and algae, on the submerged parts of a ship's hull increases the propulsive resistance of the hull against water, leading to increased fuel consumption. In addition, this may also result in accidental introduction of non-indigenous species to a foreign marine environment, which may possibly cause significant and harmful impact on the local environment. In order to prevent such circumstances, an anti-fouling system that employs biocidally active substances (e.g. anti-fouling paint) to prevent attachment of fouling organisms can be applied onto the hull of the ship. The harmful effects of organotin compounds used in the maritime industry as biocides against marine organisms have been of global concern on human health. To prevent the continued use of these compounds, the International Convention on the Control of Harmful Anti-fouling Systems on Ships (the AFS Convention) was adopted at the International Maritime Organization (IMO) diplomatic conference held in London in October 2001 and entered into force in September 2008.

The Convention envisages handling various harmful anti-fouling systems within its framework and lays out a process by which anti-fouling systems can be risk assessed. Annexes 2 and 3 of the Convention include the list of information needed to determine whether an anti-fouling system is harmful to the environment and should be restricted from use on ships; however, a marine environmental risk assessment method for making this decision is not provided. There is a global need for an international assessment method for scientific environmental risk assessment for biocidally active ingredients being substituted for organotin biocides in anti-fouling systems.

ISO 13073-1 and ISO 13073-2 specify the risk assessment methods for biocidally active substances and anti-fouling systems containing the biocidally active substances, respectively. In addition to these risk assessments to protect the delicate marine ecosystems, there is also a need for protecting human health. Anti-fouling paints, which are the most commonly used anti-fouling systems to ships, potentially result in risk to the workers applying or removing them.

This part of ISO 13073 describes a method which allows a pragmatic approach to introducing human health risk assessment particularly for the workers engaged in anti-fouling paint application and removal operations. This method provides comprehensive guidelines for a risk assessment that helps protect workers in countries without a self-regulation or approval system on anti-fouling paints or those with a less well-developed system.

Ships and marine technology — Risk assessment on anti-fouling systems on ships —

Part 3:
Human health risk assessment method of biocidally active substances used in anti-fouling paints on ships during the application and removal processes

1 Scope

This part of ISO 13073 specifies a method of human health risk assessment that enables the evaluation of anti-fouling paint application and removal in order to determine if the product can be used safely where users are at risk of being exposed to biocidally active substances contained within anti-fouling paints. This can be used for a risk assessment to determine the impact(s), if any, on professional or non-professional operators.

This part of ISO 13073 does not specify a specific test method for evaluation of hazard and toxicity or recommend usage restrictions of certain substances.

NOTE 1 This part of ISO 13073 is a “minimum” method, i.e. additional regulations or assessments based on national needs can be warranted.

NOTE 2 While the approach prescribed is a tiered system, studies required in higher tiers can be undertaken in lieu of equivalent lower tier studies.

2 Terms and definitions

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

NOTE Some of the definitions for environmental risk assessment provided in ISO 13073-1 and ISO 13073-2 may be different from those of this part of ISO 13073.

2.1
adverse effect
change in morphology, physiology, growth, development or lifespan of an organism which results in impairment of its functional capacity or impairment of its capacity to compensate for additional stress or increased susceptibility to the harmful effects of other environmental influences

Note 1 to entry: This definition is given in reference WHO/IPCS, 1994 [63].

2.2
anti-fouling paint
type of anti-fouling system supplied as a form of paint typically consisting of a matrix polymer, pigment(s) and solvent(s)

2.3
anti-fouling system
coating, paint, surface treatment, surface, or device that is used on a ship to control or prevent attachment of unwanted organisms

Note 1 to entry: Systems of control utilizing only physical means are not included within this International Standard.