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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 34033.3-2023

**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**

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1. Structure and Drafting Rules of Standardization Documents"

Drafting.

This document is Part 3 of GB/T 34033 "Risk Assessment of Anti-Fouling Systems for Ships and Offshore Technology Ships". GB/T 34033

The following sections have been published.

---Part 1. Marine environmental risk assessment method for antifouling active substances used in ship antifouling systems;

---Part 2. Marine environmental risk assessment method for ship antifouling systems using antifouling active substances;

---Part 3. Methods for human health risk assessment of antifouling active substances during the application and removal of marine antifouling primers.

This document is equivalent to ISO 13073-3:2016 "Risk assessment of ship anti-fouling systems for ships and offshore technology - Part 3. Marine use"

Methods for assessing the human health risks of antifouling active substances during the application and removal of antifouling primers.

This document adds a chapter "Normative References".

Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying patents.

Introduction

The attachment of polluting organisms, such as barnacles and algae, to the underwater part of the ship increases the propulsion resistance of the ship's hull, resulting in increased

fuel consumption. Furthermore, this is also

It may lead to the accidental introduction of non-native species into foreign oceans, causing significant harmful effects on the local environment. To prevent this, one uses

Anti-fouling systems of biocidal active substances (e.g. anti-fouling paint), applied to the hull to prevent the adhesion of fouling organisms. Used in shipbuilding industry

The harmful effects of organotin compounds used as biocides on marine life have always been a global concern. To prevent further use of this

This compound was adopted at the International Maritime Organization (IMO) Diplomatic Conference held in London in October.2001 as the "Control of Harmful Anti-Fouling Systems on Ships".

International Convention (AFS Convention), which came into effect in September.2008.

The AFS Convention envisages dealing with various harmful anti-fouling systems within its framework and proposes a method that can prevent anti-fouling systems.

method of risk assessment. Annexes 2 and 3 of the AFS Convention include determining whether an anti-fouling system is harmful to the environment and whether it is restricted

A list of information to be used on board the ship; however, the marine environmental risk assessment methodology used to make this decision is not provided. The world needs a life

Scientific environmental risk assessment method for biocidal active substances to replace organotin biocides in antifouling systems.

GB/T 34033 "Risk Assessment of Ship Anti-fouling Systems for Ships and Offshore Technology" is a guide for risk assessment of ship anti-fouling systems in my country.

basic and universal standards. GB/T 34033 aims to establish the guidelines for risk assessment of ship anti-fouling systems and is planned to be composed of 3 parts composition.

---Part 1.Marine environmental risk assessment method for antifouling active substances used in ship antifouling systems. Biocidal activity is described

Risk assessment methods for substances to protect fragile marine ecosystems and human health.

---Part 2.Marine environmental risk assessment method for ship antifouling systems using antifouling active substances. describes organisms containing

Anti-fouling systems that kill active substances to protect fragile marine ecosystems and human health.

---Part 3.Methods for human health risk assessment of antifouling active substances during

the application and removal of marine antifouling primers. describe

A method for conducting human health risk assessments, specifically for workers involved in antifouling primer application and removal operations.

This approach provides comprehensive guidance for risk assessment and is helpful in situations where antifouling primer self-regulation or approval is not available or the system is not

Countries that have reached the point of protecting workers.

Ships and Offshore Technology Risk Assessment of Ship Anti-Fouling Systems

Part 3. Marine Antifouling Primer Application and Removal Procedures

Human health risk assessment method for antifouling active substances

1 Scope

This document describes a method for assessing human health risks during the use and removal of antifouling primers to determine when users are exposed to antifouling primers.

Whether the product is safe to use when the paint contains antifouling active substances.

This method can be used to influence professional or non-professional operators risk assessment.

This document does not involve test methods for the specific assessment of hazards and toxicity or recommend restrictions on the use of certain substances.

NOTE 1. This document is a necessary approach, i.e. additional specifications or assessments may be approved based on national needs.

Note 2. This method is a grading system that allows higher-level studies to be performed in lieu of equivalent lower-level studies.

2 Normative reference documents

This document has no normative references.

3 Terms and definitions

The following terms and definitions apply to this document.

Note. The definitions of some terms for environmental risk assessment in ISO 13073-1 and ISO 13073-2 may be different from the definitions of terms in this document.

3.1

adverse effect adverse effect

Changes in an organism's morphology, physiology, growth, development, or lifespan that result in impairment of its functional capabilities or its ability to compensate for additional stress

Damage, or increased susceptibility to other harmful environments.

Note. This definition can be found in WHO/IPCS,.1994.

3.2

Anti-fouling paint anti-fouling paint

A type of antifouling system supplied as a coating, generally consisting of a matrix polymer, pigments and solvents.

3.3

Anti-fouling system anti-fouling system

Coatings, surface treatments or equipment used on ships to control or prevent the adhesion of adverse organisms.

Note. Excludes control systems that only use physical means.

3.4

Substances that have general or special effects on harmful polluting organisms, such as lethality, growth inhibition or repellency, are used in anti-fouling systems to prevent seawater

Marine organisms attach.

3.5

by-stander

Persons who are not direct users of the product or application/removal equipment, but who may come into contact with the product during use.