ISO 23152:2021 (E)

Ships and marine technology — Ballast water management systems (BWMS) — Computational physical modelling and calculations on scaling of UV reactors

Contents

Foreword

Introduction

1 Scope

2 Normative references

3 Terms and definitions

4 General requirements

4.1 General principle
4.2 Modelling best practices

5 Modelling and calculations

5.1 General
5.2 Geometric model
5.3 Turbulence model
5.4 Radiation model
5.5 Calculation of the UV dose
5.5.1 General
5.5.2 Lagrangian particle tracking
5.5.3 Eulerian reacting tracer
5.6 Scaling procedure
5.6.1 Main steps

6 Scaling metrics

6.1 General principles

Annex A (informative) RED calculation

A.1 Background
A.2 Reduction equivalent dose
A.2.1 General
A.2.2 Appropriate dose-response curve
A.2.3 Cumulative survival ratio
A.2.4 Calculate RED

Annex B (normative) Verification of model using empirical data

B.1 General
B.2 Validation of model functionality
B.3 Empirical data from testing
B.4 Verification against empirical data
B.5 Justification for acceptance of scaled performance predictions
B.6 Additional validation criteria

Page count: 18