INTERNATIONAL STANDARD

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# Ships and marine technology — Marine NOx reduction agent AUS 40 —

## Part 1: Quality requirements

*Navires et technologie marine — Agents réducteurs NOx marins AUS 40 —*

*Partie 1: Exigences de qualité*

Reference number
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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).

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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 WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

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

ISO 18611 consists of the following parts, under the general title *Ships and marine technology — Marine NOx reduction agent AUS 40*:

— *Part 1: Quality requirements*

— *Part 2: Test methods*

— *Part 3: Handling, transportation and storage*

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# Introduction

In order to protect the environment and to enhance air quality, exhaust emissions regulations around the world are continuously strengthened. For ships with large combustion engines, particulate matter (PM), nitrogen oxide (NOx) emissions, and sulfur dioxide emissions are the main concern, and efforts have been focused on the development of technology that can reduce them effectively with minimum fuel economy penalty. Selective catalytic reduction (SCR) converters using a urea solution as the reducing agent is considered to be a key technology for reducing NOx emissions. The quality of the urea solution used for that technology needs to be specified to ensure reliable and stable operation of the SCR converter systems. The ISO 18611 series provides the specifications of urea solution for quality characteristics, handling, transportation, and storage, as well as the test methods needed by manufacturers of SCR converters, by engine manufacturers, by producers, distributors, and by fleet operators/ship owners.

Efficient expanding of the use of urea SCR technology requires a consolidated framework that can be followed by producers, end users, OEMs, and catalyst suppliers.

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# Ships and marine technology — Marine NOx reduction agent AUS 40 —

# Part 1: Quality requirements

## 1 Scope

This part of ISO 18611 specifies the quality characteristics of the marine NOx reduction agent, aqueous urea solution at 40 % concentration (AUS 40), which is needed to operate so-called SCR (selective catalytic reduction) converters. In marine applications, for example, for engine exhaust gas treatment, SCR converters are particularly suitable for selectively reducing the nitrogen oxide (NOx) emissions of internal combustion engines and boilers.

This International Standard is covering quality requirements and guidelines for AUS 40 for marine applications, irrespective of manufacturing method or technique.

In the remaining parts of ISO 18611, the term "NOx reduction agent" will be abbreviated to "AUS 40".

## 2 Normative references

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

ISO 3675, *Crude petroleum and liquid petroleum products — Laboratory determination of density — Hydrometer method*

ISO 12185, *Crude petroleum and petroleum products — Determination of density — Oscillating U-tube method*

ISO 18611-2, *Ships and marine technology — Marine NOx reduction agent AUS 40 — Part 2: Test methods*

## 3 Terms and definitions

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

**3.1**
**NOx reduction agent AUS 40**
aqueous urea solution, manufactured from technically pure urea – with no addition (see NOTE) of any other substances – and pure water, having a urea content of 40 % and with the quality characteristics defined in Clause 5

Note 1 to entry: With the possible exception of a tracer in accordance with the requirement in Table 1.

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