INTERNATIONAL STANDARD

ISO 16165

Third edition
2020-04

Ships and marine technology — Marine environment protection — Vocabulary relating to oil spill response

Navires et technologie maritime — Protection de l'environnement marin — Vocabulaire relatif à la réponse aux déversements de pétrole

Reference number
ISO 16165:2020(E)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

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 of the voluntary nature of standards, 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 www.iso.org/iso/foreword.html.

This document was prepared by ISO/TC 8, *Ships and marine technology,* Subcommittee SC 2, *Marine environment protection*.

This third edition cancels and replaces the second edition (ISO 16165:2013), of which it constitutes a minor revision. The changes compared to the previous edition are as follows:

— the ASTM references have been updated;

— minor typographical corrections;

— removal of “mud” from term and definition 3.10.2.5 to reflect ISO 14688-1:2017;

— modifications in line with the latest edition of the ISO/IEC Directives, Part 2 (2018 ed):

  — the title is changed from "terminology" to "vocabulary",

  — new Clause 2, Normative references, is inserted, and

  — former Clause 2, and all the entries, are consistently renumbered.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Communication is important in the implementation of an effective oil spill response and this communication will be most effective if there is a common understanding of the terms used. Many of the terms and definitions listed here have been widely used for many years, while others are the result of recent experience. The gradual evolution of our understanding of oil spill behaviour and response measures means that oil spill terminology will continue to develop.

Ships and marine technology — Marine environment protection — Vocabulary relating to oil spill response

1 Scope

This document contains terms and definitions relating to oil spills and their control. This document provides standardized terminology relating to oil spill response, defined as the broad range of activities related to spill cleanup, including surveillance and assessment, containment, recovery, dispersant use, *in situ* burning, shoreline cleanup and disposal.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

In developing this document, an attempt was made to use existing definitions wherever possible. For example, comprehensive terminology is available on containment booms, performance of recovery skimmers and on bioremediation, as provided by the publications of the American Society for Testing and Materials (ASTM), Committee F20, on Hazardous Substances and Oil Spill Response. Other areas had less coverage by standards organizations and gaps were filled through a review of a variety of sources. In this document, whenever a published source serves as the primary basis for a definition, this source is indicated by an abbreviated code. The complete citations for these codes are provided in the Bibliography.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1 Oil/oil slick properties

3.1.1
crude oil
naturally occurring form of petroleum, mainly occurring in a porous underground formation such as sandstone

[SOURCE: ISO 1998-1:1998, 1.05.005]

3.1.2
emulsification
process in which microscopic droplets of water are mixed in the oil, or vice versa

3.1.3
emulsion
mixture of oil and water in which droplets are interspersed in varying concentrations throughout the oil, or vice versa, formed when these fluids are mixed by mechanical or hydraulic action

Note 1 to entry: Emulsions are more precisely referred to as water-in-oil emulsions. Water-in-oil emulsions are sometimes referred to as a "mousse."

3.1.4
environmental fate
form and location of a material resulting from transport and transformation

[SOURCE: ASTM E943-08(2014), 2.1]

3.1.5
heavy shoreline oiling
pooled deposits or a layer of surface oil

3.1.6
moderate/light shoreline oiling
sheen (3.1.10) or film of surface oil

3.1.7
petroleum oil
material consisting of, or derived from, a mixture of liquid or semi-solid organic compounds, principally hydrocarbons

[SOURCE: ISO 1998-1:1998, 1.05.000]

3.1.8
pour point
lowest temperature at which a sample of petroleum product will continue to flow when it is cooled under specified standard conditions

[SOURCE: ISO 1998-2:1998, 2.10.080]

3.1.9
relative viscosity
measured viscosity of an *emulsion* (3.1.3) (in any convenient unit) at a given shear rate divided by the measured viscosity of the oil at the same shear rate

Note 1 to entry: It is important to report the shear rate used in the viscosity measurements of the emulsion and the water-free oil.

3.1.10
sheen
very thin *oil slick* (3.7.3.1) with a silvery or rainbow-coloured appearance and a thickness of less than 0,001 mm

3.1.11
specific gravity
ratio of the mass of a given volume of liquid at 15 °C to the mass of an equal volume of fresh water at the same temperature

[SOURCE: ASTM D4410-16, 3.1]

3.1.12
viscosity
measure of the resistance to flow or deformation of a liquid

[SOURCE: ISO 1998-2:1998, 2.10.030]

3.1.13
windrows
narrow bands of oil, generally aligned with the *wind direction* (3.3.7), typical of an *oil slick* (3.7.3.1) after several hours of exposure (or days for very large spills)

3.2 Oil classification

3.2.1
group I oil
non-persistent oil
petroleum-based oil that consists of hydrocarbon fractions, at least 50% of which distil at a temperature of 340 °C and at least 95% of which distil at a temperature of 370 °C

3.2.2
group II oil
persistent oil (3.2.6) with a *specific gravity* (3.1.11) of less than 0,85

3.2.3
group III oil
persistent oil (3.2.6) with a *specific gravity* (3.1.11) equal to or greater than 0,85 and less than 0,95

3.2.4
group IV oil
persistent oil (3.2.6) with a *specific gravity* (3.1.11) equal to or greater than 0,95 and less than 1,00

3.2.5
group V oil
persistent oil (3.2.6) with a *specific gravity* (3.1.11) greater than 1,00

3.2.6
persistent oil
petroleum-based oil that does not meet the distillation criteria for a *group I oil* (3.2.1)

3.3 Environmental conditions

3.3.1
air temperature
average or point temperature of the air measured at or near the ground or water surface (°C)

[SOURCE: ASTM F625-94(2017), 2.1.2]

3.3.2
current
average water speed and direction (i.e. velocity) relative to a fixed reference point (m/s)

[SOURCE: ASTM F625-94(2017), 2.1.3]

3.3.3
debris
solid or semisolid substance that could interfere with the operation of a spill control system

[SOURCE: ASTM F625-94(2017), 2.1.4]

3.3.4
significant wave height
average height, measured crest to trough, of one-third highest waves, considering only short-period waves

Note 1 to entry: Short period waves are for a period less than ten seconds (s).

[SOURCE: ASTM F625-94(2017), 2.1.7]

3.3.5
significant wave period
average period of the one-third highest waves, measured in seconds as the elapsed time between crests of succeeding waves past a fixed point(s)

[SOURCE: ASTM F625-94(2017), 2.1.8]

3.3.6
water temperature
average or point temperature (°C) of a water body as measured within the top 300 mm

[SOURCE: ASTM F625-94(2017), 2.1.6]

3.3.7
wind direction
direction from which the wind is blowing

3.4 Assessment techniques

3.4.1
ladder search
aerial *surveillance* (3.4.4) to find and delineate *oil slicks* (3.7.3.1), carried out in a direction perpendicular to the wind in order to increase the probability of locating slicks and *windrows* (3.1.13)

3.4.2
oil spill modelling
mathematical prediction of the *environmental fate* (3.1.4) and/or behaviour of an oil spill

3.4.3
remote sensing
use of sensors to find or delineate *oil slicks* (3.7.3.1), potentially utilising mounted sources, such as on ships, aircraft and satellites

3.4.4
surveillance
response activities with the purpose of detecting a spill, determining the extent and behaviour of a spill, optimising countermeasures and/or predicting spill movements and effects

3.5 Sampling

3.5.1
chain-of-custody documentation
chronological evidence defining the history of an item, such as a sample, and identifying an individual responsible for custody of the item at each point in time

3.5.2
custody
physical possession or control

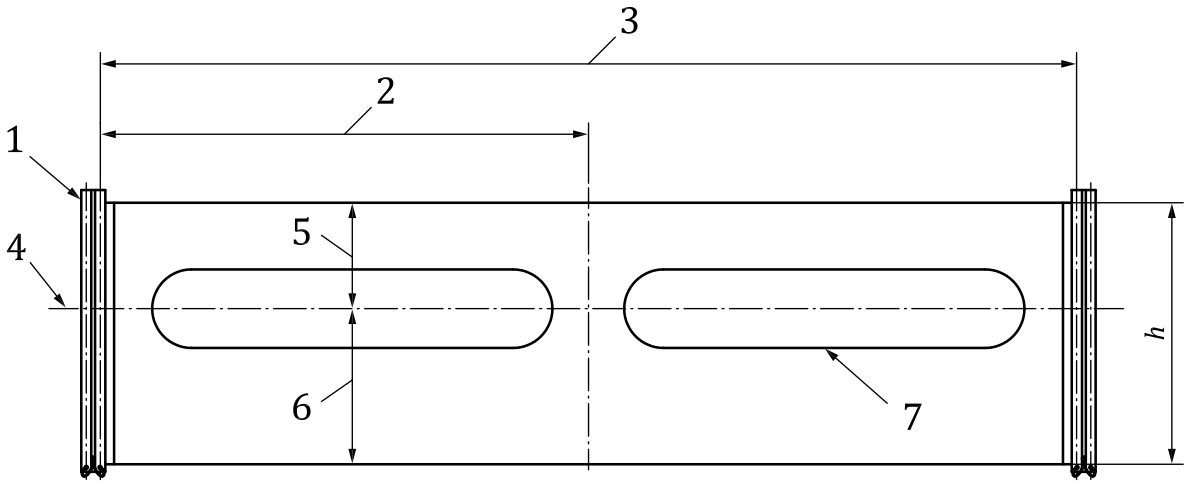
Note 1 to entry: A sample is under custody if it is in possession or under control so as to prevent tampering or alteration of its characteristics.

[SOURCE: ASTM D4840-99(2018)e1, 3.2.1]

3.6 Containment

3.6.1 Floating boom equipment terminology

Figure 1 shows equipment and terminology associated with a floating *boom* (3.6.1.3).



Key

1	boom end connector	5	freeboard
2	boom segment	6	draught
3	boom section	7	buoyancy chamber
4	water line	*h*	overall height

Figure 1 — Containment boom equipment

3.6.1.1
anchor point
structural point on the *end connector* (3.6.1.8) or along the length of a *boom* (3.6.1.3) section designed for the attachment of anchor or mooring lines

3.6.1.2
barrier
means of controlling the movement of oil or other substances on the water or in the water column

3.6.1.3
boom
floating *barrier* (3.6.1.2) used to control the movement of substances that float

3.6.1.4
boom section
length of *boom* (3.6.1.3) between two *end connectors* (3.6.1.8)

3.6.1.5
boom segment
repetitive and similar portion of the *boom section* (3.6.1.4)

3.6.1.6
bridle
device attached to a *boom* (3.6.1.3) to distribute the load exerted by towing or anchoring the boom

3.6.1.7
curtain boom
boom (3.6.1.3) consisting of a flexible skirt supported by vertical centreline floatation

3.6.1.8
end connector
device attached to the *boom* (3.6.1.3) used for joining *boom sections* (3.6.1.4) to one another or to accessory devices