BS ISO 16165:2013

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

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National foreword

This British Standard is the UK implementation of ISO 16165:2013. It supersedes BS ISO 16165:2001 which is withdrawn.

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A list of organizations represented on this committee can be obtained on request to its secretary.

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INTERNATIONAL STANDARD

ISO 16165

Second edition
2013-05-15

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

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

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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. www.iso.org/directives

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

This second edition cancels and replaces the first edition (ISO 16165:2001) which has been technically revised.

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Introduction

Communication is important in the implementation of an effective oil spill response and this communication will be most effective if there is 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.

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INTERNATIONAL STANDARD ISO 16165:2013(E)

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

1 Scope

This International Standard contains terms and definitions relating to oil spills and their control. This International Standard 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 Terms and definitions

NOTE In developing this International Standard, 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 International Standard, whenever another 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 Biblography.

2.1 Oil/oil slick properties

2.1.1
crude oil
naturally occurring form of petroleum, mainly occurring in a porous underground formation such as sandstone

[ISO 1998-99:2000]

2.1.2
emulsification
process in which microscopic droplets of water are mixed in the oil, or vice versa

2.1.3
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 or oil-in-water emulsions. Water-in-oil emulsions are sometimes referred to as a “mousse”.

2.1.4
environmental fate
form and location of a material resulting from transport and transformation

[ASTM E 943-08]

2.1.5
heavy shoreline oiling
pooled deposits or a layer of surface oil

2.1.6
moderate/light shoreline oiling
sheen or film of surface oil

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2.1.7
petroleum oil
material consisting of, or derived from, a mixture of liquid or semi-solid organic compounds, principally hydrocarbons

[ISO 1998-99:2000]

2.1.8
pour point
lowest temperature at which a sample of petroleum product will continue to flow when it is cooled under specified standard conditions

[ISO 3016:1994, definition 2.1]

2.1.9
relative viscosity
measured viscosity of an emulsion (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.

[ASTM F 873-84:2003]

2.1.10
sheen
very thin oil slick with a silvery or rainbow-coloured appearance and a thickness of less than 0,001 mm

2.1.11
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

[ASTM D 4410-03]

2.1.12
viscosity
measure of the resistance to flow or deformation of a liquid

[ISO 3104:1994]

2.1.13
windrows
narrow bands of oil, generally aligned with the wind direction, typical of an oil slick after several hours of exposure (or days for very large spills)

2.2 Oil classification

2.2.1
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

2.2.2
group II oil
persistent oil with a specific gravity of less than 0,85

2.2.3
group III oil
persistent oil with a specific gravity equal to or greater than 0,85 and less than 0,95

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2.2.4
group IV oil
persistent oil with a specific gravity equal to or greater than 0,95 and less than 1,00

2.2.5
group V oil
persistent oil with a specific gravity equal to or greater than 1,00

2.2.6
persistent oil
petroleum-based oil that does not meet the distillation criteria for a group I oil

2.3 Environmental conditions

2.3.1
air temperature
average or point temperature of the air measured at or near the ground or water surface (°C)

[ASTM F 625-94:2006]

2.3.2
current
average water speed and direction (i.e. velocity) relative to a fixed reference point (m/s)

[ASTM F 625-94:2006]

2.3.3
debris
solid or semisolid substance that could interfere with the operation of a spill control system

[ASTM F 625-94:2006]

2.3.4
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 for a period less than ten seconds (m).

[ASTM F 625-94:2006]

2.3.5
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)

[ASTM F 625-94:2006]

2.3.6
water temperature
average or point temperature (°C) of a water body as measured within the top 300 mm

[ASTM F 625-94:2006]

2.3.7
wind direction
direction from which the wind is blowing

[ASTM F 625-94:2006]

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2.4 Assessment techniques

2.4.1
ladder search
aerial surveillance to find and delineate oil slicks, carried out in a direction perpendicular to the wind in order to increase the probability of locating slicks and windrows

2.4.2
oil spill modelling
mathematical prediction of the environmental fate and/or behaviour of an oil spill

2.4.3
remote sensing
use of sensors to find or delineate oil slicks, potentially utilising mounted sources, such as on ships, aircraft and satellites

2.4.4
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

2.5 Sampling

2.5.1
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

[ASTM D 4840-99:2004]

2.5.2
custody
physical possession or control

Note 1 to entry: A sample is under custody if it is in an individual's possession or under the immediate control of an individual to prevent alteration of characteristics.

[ASTM D 4840-99:2004]

2.6 Containment

2.6.1 Floating boom equipment terminology

Figure 1 shows equipment and terminology associated with a floating boom.

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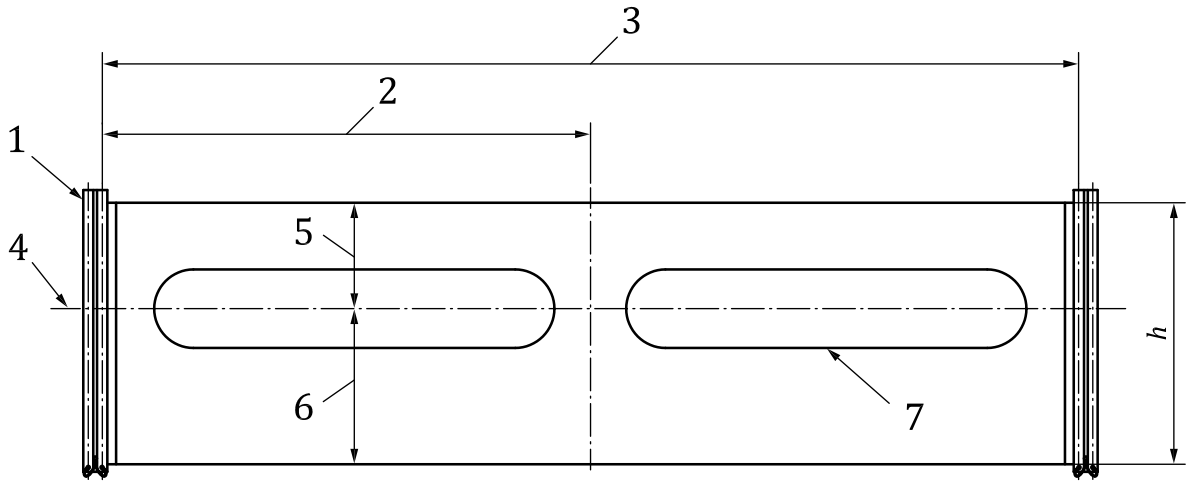

Key

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

2.6.1.1
anchor point
structural point on the end connector or along the length of a boom section designed for the attachment of anchor or mooring lines

2.6.1.2
barrier
means of controlling the movement of oil or other substances on the water or in the water column

2.6.1.3
boom
floating barrier used to control the movement of substances that float

2.6.1.4
boom section
length of boom between two end connectors

2.6.1.5
boom segment
repetitive and similar portion of the boom section

2.6.1.6
bridle
device attached to a boom to distribute the load exerted by towing or anchoring the boom

2.6.1.7
curtain boom
boom consisting of a flexible skirt supported by vertical centreline floatation

2.6.1.8
end connector
device attached to the boom used for joining boom sections to one another or to accessory devices

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2.6.1.9
fence boom
boom consisting of a self-supporting or stiffened membrane supported by floating devices

2.6.1.10
fire resistant boom
boom intended for containment of burning oil slicks

2.6.1.11
inflatable boom
boom that uses inflatable chambers, self- or manually-inflatable, as the floatation devices

2.6.1.12
shore sealing boom
boom that, when grounded, seals against the shoreline

2.6.1.13
sorbent boom
boom containing material or arranged in a form that has absorptive or adsorptive capabilities

Note 1 to entry: See 2.7.1.3 for definitions of sorbent, absorbent and adsorbent.

2.6.1.14
special purpose boom
any boom which differs in design and/or purpose from curtain boom (2.6.1.7), fence boom (2.6.1.9), fire resistant boom (2.6.1.10), inflatable boom (2.6.1.11), shore sealing boom (2.6.1.12) or sorbet boom (2.6.1.13)

2.6.2 Other containment equipment terminology

2.6.2.1
bubble barrier
in-water barrier created by the use of compressed air delivered through a perforated air hose and/or pipe laid sub-surface to produce a controlled stream of air bubbles that rise and expand to form a subsurface air curtain

Note 1 to entry: This produces a disturbed surface which combined with the air curtain contains and/or deflects the oil both on the surface and/or in the water column.

2.6.3 Engineering terminology

2.6.3.1
buoyancy chamber
enclosed compartment of air or other buoyant material providing floatation for the boom

2.6.3.2
gross buoyancy
weight of fresh water displaced by an entire boom section when totally submerged

2.6.3.3
gross buoyancy to weight ratio
gross buoyancy divided by boom weight

2.6.3.4
operational draught
minimum vertical depth of the boom below the water-line in the working condition

2.6.3.5
operational freeboard
minimum vertical height of the boom above the water-line in the working condition

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