
**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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 16165 was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 2, *Marine environment protection*.

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Introduction

Communication is important in the implementation of an effective spill response and this communication will be the 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 results of recent experience. The gradual evolution of our understanding of oil spill behaviour and response and response measures means that oil spill terminology will continue to develop.

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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. The objective of this International Standard is to provide 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

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 into the oil or are dispersed throughout the water

2.1.3 emulsion

mixture of oil and water in which droplets of water are dispersed throughout the oil or vice versa, formed when fluids are mixed by mechanical action

NOTE Emulsions are more precisely referred to as water-in-oil or oil-in-water emulsions. Water-in-oil emulsions are occasionally referred to as "mousse" or "chocolate mousse".

2.1.4 environmental fate

form and location of a material resulting from transport and transformation

[ASTM E 943-95]

2.1.5 heavy shoreline oiling

pooled deposits or a layer of surface oil

[AURIS 1994]

2.1.6 moderate/light shoreline oiling

sheen or film of surface oil

[AURIS1994]

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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]

2.1.8

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 It is important to report the shear rate used in the viscosity measurements of the emulsion and the water free oil.

NOTE 2 Adapted from ASTM F 873-84 (88).

2.1.9

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]

2.1.10

sheen

very thin oil slicks with a silvery or rainbow-coloured appearance and with 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 4410-95]

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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 per cent of which distill at a temperature of 340 °C and at least 95 per cent of which distill 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

2.2.4**group IV oil**

persistent oil with a specific gravity greater than 1,00

2.2.5**group V oil**

persistent oil with a specific gravity 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]

2.3.2**current**

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

[ASTM F 625-94]

2.3.3**debris**

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

[ASTM F 625-94]

2.3.4**significant wave height**

average height, measured crest to trough, of the one-third highest waves, considering only short-period waves (i.e. period less than 10 seconds) (m)

[ASTM F 625-94]

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]

2.3.6**water temperature**

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

[ASTM F 625-94]

2.3.7**wind direction**

direction from which the wind is blowing

[ASTM F 625-94]

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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 delineate oil slicks, mounted on a variety of platforms such as 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, optimizing 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 4840-95]

2.5.2

custody

physical possession or control

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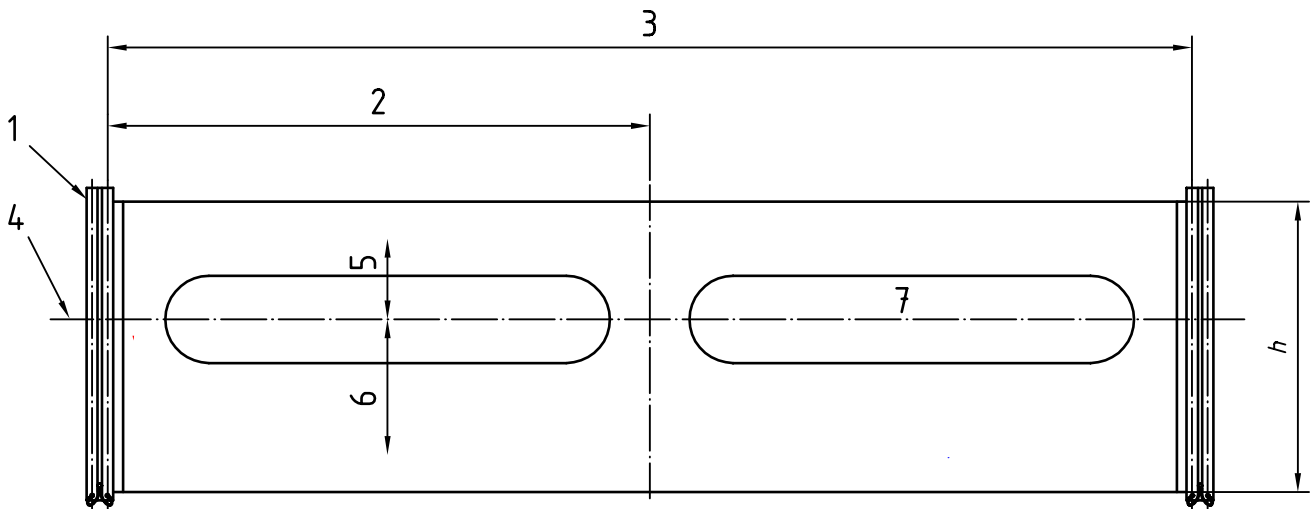
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NOTE 1 A sample is under custody if it is in an individual's possession or under the immediate control of an individual to prevent alteration of characteristics.

NOTE 2 Adapted from ASTM D 4840-95.

2.6 Containment (based on ASTM F 818-93)

2.6.1 Floating boom equipment terminology



Key

- 1 Boom end connector
- 2 Boom segment
- 3 Boom section
- 4 Water line
- 5 Freeboard
- 6 Draught
- 7 Flotation chamber
- h* Overall height

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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

method of controlling the movement of oil or other substances on the water surface or in the water column

2.6.1.3

boom

floating mechanical 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

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2.6.1.7

curtain type boom

boom consisting of a flexible skirt supported by vertical centreline flotation

2.6.1.8

end connector

device attached to the boom used for joining boom sections to one another or to other accessory devices

2.6.1.9

"fence type" 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-inflatable or manually, as the flotation device

2.6.1.12

shore seal boom

boom that, when grounded, seals against the shoreline

2.6.1.13

sorbent boom

material contained or arranged in the form of a boom that has absorptive or adsorptive capabilities

2.6.1.14

special purpose boom

boom that departs from the general characteristics of "fence type" and "curtain type" booms, either in design or intended use

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2.6.2 Engineering terminology

2.6.2.1

buoyancy chamber

enclosed compartment of air or other buoyant material providing flotation for the boom

2.6.2.2

gross buoyancy

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

2.6.2.3

gross buoyancy to weight ratio

gross buoyancy divided by boom weight

2.6.2.4

operational draft

minimum vertical depth of the boom below the water-line

2.6.2.5

operational freeboard

minimum vertical height of the boom above the water-line

2.6.2.6

operational height

sum of operational draft and operational freeboard