MEMAC

Fact Sheet

Application of Dispersants in the ROPME Sea Area

Introduction

Dispersants are a group of chemicals designed to be sprayed onto oil slicks to accelerate the process of natural dispersion. Significant environmental and economic benefits can be achieved, particularly when other at-sea response techniques are limited by weather conditions or the availability of resources. In certain situations, dispersants may provide the only means of removing significant quantities of surface oil quickly, thereby minimizing or preventing damage to important sensitive resources. Their use is intended to minimize the damage caused by floating oil, for example to seabirds and sea mammal population or before the oil may impact a sensitive shoreline. By taking the oil into water column in the form of small droplets less than 70 mm in diameter, the aim is to use the dilution power of the sea. However, in common with all spill response options, the use of dispersants has limitations and their use should be carefully planned and controlled.

Limitations

Dispersants have little effect on very viscous, floating oils, as they tend to run off the oil into the water before the solvent can penetrate. As a general rule, dispersants are capable of dispersing most liquid oils and emulsions with viscosities of less than 2000 centistokes, equivalent to a medium fuel oil at 10-20ºC. They are unsuitable for dealing with viscous emulsions (mousse) or oils which have a pour point near to or above that of the ambient temperature. Even those oils which can be dispersed initially become resistant after a period of time as the viscosity increases as a result of evaporation and emulsification. For particular oil, the time available before dispersant stops being effective depends upon such factors as sea state and temperature, but it is unlikely to be longer than a day or two. Dispersants can, however, be more effective with viscous oils on shorelines because the contact time may be prolonged, allowing better penetration of the dispersant into the oil.

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Basic Considerations

- Oil spill dispersants are best **used to prevent shoreline pollution**, not as a response to shoreline pollution!
- The **application of dispersants on spilled oil aims to avoid impact on shoreline** sensitive areas!

Particular Concern

Possible interaction may occur between oil and halogens (chlorine, bromine) **when dispersed oil passes through desalination plants**. Halo-methane, which is very toxic to marine life, will be formed by this process, although its concentration in the effluent water will be low.

ROPME Approved Dispersants

With effect from 1st January 2018, the ROPME list of Approved Oil Spill Dispersants is as follows:

- Corexit® EC9500A*
- Corexit EC9500B*
- Dasic Slickgone NS
- Disperep 12*
- Eflochem OSD ECO HD
- Finasol OSR 52 / Ecosperse 52
- OD 4000 (PE 998)
- Radiagreen OSD*
- Super - Dispersant 25
- Seacare Ecosperse LT23

*For sea, but not for beach and rocky shore

The existing stocks of NU CRU may still be used during the shelf life until exhaustion. Dispersant use in the ROPME Sea Area is governed by ROPME requirements, which involve that dispersants are approved by at least two of internationally recognized authorities, namely CEDRE – France, EPA – USA, and DEFRA – UK. Approval procedures include (1) efficiency test, (2) toxicity control and (3) test on biodegradability.

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Application

- According to ROPME, oil spill dispersants **should not be used in water depths of less than 10 metres or within 1 nautical mile** (1.852 metres) **of such area** without approval. The 10-m-lines (isobaths) are given in all regular sea charts.

- The area, where dispersants may be used and where their use is prohibited, shall be **agreed with the competent Ministry at the contingency planning stage**.

Vessels, Oil Spilled, Effectiveness

Incidents, oils likely to be spilled and appropriateness of dispersant application according to EMSA's 'Manual on the Applicability of Oil Spill Dispersant', Version 2, Sept. 2008:

Incident involving	Spilled oil	Dispersant effective
Fishing vessel	Marine Diesel / Gas Oil (MDO/MGO)	No
Small cargo ship	Medium Fuel Oil (IFO)	Yes
Medium cargo ship	Medium Fuel Oil (IFO)	Yes
Product tanker	IFO / HFO / RFO	Yes
Product tanker	Gasoline cargo	No
Product tanker	Jet fuel cargo	No
Product tanker	Diesel cargo / vegetable oil cargo	No
Product tanker	HFO / RFO for propulsion	Possibly
Large cargo ship	Heavy / Residual Fuel Oil (HFO / RFO)	Possibly
Oil tanker	Heavy / Residual Fuel Oil (HFO / RFO)	Possibly
Oil tanker	Condensate	Probably no
Oil tanker	Crude oil cargo	Yes-for some time

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Oil Appearance

The Bonn Agreement has recently adopted the **Bonn Agreement Oil Appearance Code** (BAOAC 2007) to replace the previous colour Code.

Code	Description	Layer thickness interval (µm)	Litres per km^2
1	Sheen (silver / grey)	0.04 – 0.30	40 - 300
2	Rainbow	0.30 – 5.0	300 – 5,000
3	Metallic	5.0 – 50	5,000 – 50,000
4	Discontinuous true oil colour	50 – 200	50,000 – 200,000
5	Continuous true oil colour	More than 200	More than 200,000

NO GENERAL USE SITUATIONS

Situations when and where oil spill dispersants should not generally be used:

- In shallow waters **less than 10 metres depth**, because the cloud of dispersed oil will come into contact with the seabed and expose benthic organisms (those that live in the mud and sediment) to high concentrations of dispersed oil.
- Directly **above marine filter-feeders such as shellfish** that eat plankton and may ingest the dispersed oil droplets.
- Directly **above corals, sea grass and fish spawning areas** as these may be highly sensitive to dispersed oil.
- **In the vicinity of fish cages, shellfish beds or other shallow water fisheries** due to the increased risk of 'tainting' (oily taste of fish and shellfish).
- **Close to industrial water intakes and desalination plants**, which are normally protected by fixed booms, since dispersed oil will pass under the booms and may contaminate heat exchangers, or may result in the forming of halo-methane (compare above).

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