

EMSA's Marine Pollution Response Services & Tools

- ❖ EMSA expertise
- ❖ Chemical / HNS releases

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SAFEMED III Seminar on EMSA's pollution response services (13-14 May 2014)

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 Cooperation and Information
 Pollution Response Services

Contents of Presentation

EMSA's Pollution Response Experts

Information services for chemical spills

- MAR-ICE Network
- MAR-CIS datasheets

Other decision support tools:
 Demonstration of Dispersant Usage
 Evaluation Tool (DUET)



MCA, UK

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Expert support provided by EMSA

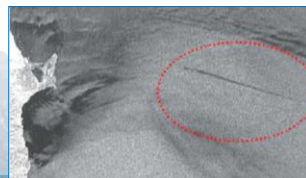
- **In-house knowledge & expertise** on marine pollution preparedness and response issues
- Expertise available **24/7**, via the **ERCC**¹
- **Upon request** of a MS or the Commission
- Office-based or on-site (case-by-case)
- During **real** incidents

¹ ERCC: Emergency Response Coordination Centre (European Commission)

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Fields of EMSA expertise/knowledge

- Contingency planning
- Co-ordination of pollution response operations
- Pollution response strategies & techniques (use of dispersants; oil recovery equipment)
- Oil spill modelling, fate & behaviour, environmental impacts of oil pollution
- Satellite image processing & interpretation for oil spills



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Examples of expert support provided (1)

a) Jiyeh Power Station oil spill, Lebanon, 2006

- Advice to COM on satellite imagery interpretation
- EMSA secondment to REMPEC
 - Assistance to REMPEC with activities related to the oil spill
 - Assistance to IMO/REMPEC representative on site in Lebanon
 - First focal point for all enquiries/requests coming into REMPEC

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Examples of expert support provided (2)

b) *Hebei Spirit* oil spill, South Korea, 2007

- Request by S. Korea to COM
- EMSA part of EU/UN joint expert team deployed to evaluate spill & assist authorities
 - Provide advice on managing the emergency
 - Advice on removing the remaining oil
 - Advice on long-term recovery of the eco-system



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Examples of expert support provided (3)

c) *New Flame* incident, Spain, 2007

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d) *Fedra* oil spill, Gibraltar, 2008

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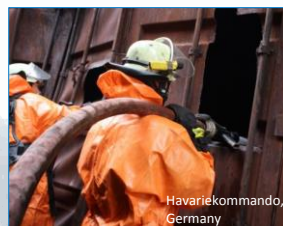
e) *Costa Concordia*, Italy, 2012

- Activation of EMSA's oil recovery vessels
- EMSA liaison officers supporting MSs & advising the contractors on the oil recovery operations



EMSA's Information services for Chemical/HNS releases

MAR-ICE Network
MAR-CIS datasheets

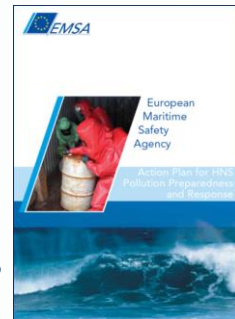


Background

HNS Action Plan (2007)

❖ Framework for EMSA's Activities

Supported by 'Inventory of EU MSs Policies & Operational Response Capacities for HNS Marine Pollution'



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Competent authorities
 Specialised response capabilities
 Preparatory arrangements
 Geo-referenced info on significant HNS incidents

HNS Maritime Transport (1)

- ❖ Global trade of HNS <-> HNS maritime transport cost effective
- ❖ Inherent associated risks
- ❖ Particulars
 - Large quantities of HNS on board
 - Carriage of incompatible substances
 - Long distance transport



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HNS Maritime Transport (2)

IMO Maritime codes

- ❖ Define & prescribe design and building standards for ships and equipment for the carriage of chemicals
- ❖ Define & prescribe emergency operations
- ❖ Define & prescribe cargo operations:
 - Loading / unloading of cargo
 - Storage requirements



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Complexity of HNS response operations

Many different substances with different behaviours, risks, hazards

Specialised expertise, knowledge, equipment required

HNS transported in bulk:

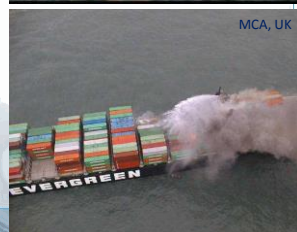
- Large quantities of chemicals on board
- Potential of direct releases into the environment
- Recovery difficult or impossible

HNS transported in packaged form:

- Small quantities on board
- The container/package might delay/prevent the release of the substance(s) into the environment
- Large number of containers/packages with several hundred substances on board



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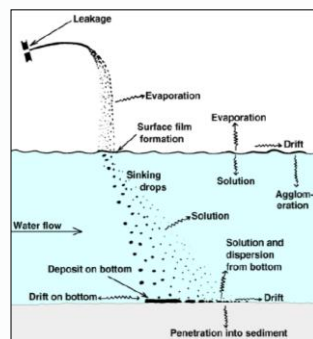
Limitations of HNS response operations (1)

Response operations for HNS **bulk** transport:

- Depends on physical behaviour & the window of opportunity
- Limited response options

Response operations for HNS **packaged**:

- Recovery of containers/drums



HELCOM Response Manual



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Limitations of HNS response operations (2)

- Reactivity with water and air
- Reactivity with other chemicals on board
- Cargo manifest mis-declarations
- For Ultra Large Container Vessel (ULCV)



www.containershipping.nl/casualties



New Zealand Defence Force



CCME, Germany

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Information needs during a HNS incident

First stage:

- Get concise information on substance(s)
- On their hazards, behaviour, physical & chemical properties
- Evaluate the risks for the crew on board & the responders

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Second stage:

- Ship integrity information

Third stage:

- Information for salvage operations

MAR-ICE Network: Service provided

- ✓ Network of marine pollution response & **chemical** experts
- ✓ **Product specific** expert information
- ✓ **Expert advice** for chemical incidents

Single MAR-ICE contact Point

- MSDS & other product-relevant documentation
- Remote information & advice
- Risk Assessment
- 3-D chemical model results
- Contact with knowledgeable chemical company



MAR-ICE CONTACT FORM

A. Incident information (to be completed by the MAR-ICE Network)

1. Contact ID number (0000) **MAR-ICE Network contact details**
 2. Name of the vessel (to be completed by the MAR-ICE Network)
 3. Date and time of the incident (to be completed by the MAR-ICE Network)
 4. Description of the incident (to be completed by the MAR-ICE Network)
 5. Name of the vessel (to be completed by the MAR-ICE Network)
 6. Name of the vessel (to be completed by the MAR-ICE Network)
 7. Name of the vessel (to be completed by the MAR-ICE Network)

B. Information about the incident

Name (0000) **Emergency or HNS** ☐
 Date (0000) **Local Time** (0000)
 Name (0000)
 Address (0000)
 National Authority / Organisation (0000)
 Country (0000)
 Telephone (0000) **Fax** (0000)
 E-mail (0000)

C. Information about the incident

Name of vessel and location (0000)
 IMO number (0000)
 Date of incident
 Cause of incident
 Collision ☐ Mechanical failure ☐ Structural failure ☐
 Grounding ☐ Fire or explosion ☐ Other (0000)
 Description of incident location (0000)
 Latitude/Longitude (0000) (0000)
 Weather conditions (0000)
 Sea State (0000)
 Wave height (m) (0000)
 How many people on board (0000) **Other situation** (0000)
 Are there any fatalities? ☐ (0000) **Applicable to HNS** (0000)
 Are there any injuries? ☐ (0000) **Applicable to HNS** (0000)
 Are there any deaths? ☐ (0000) **Applicable to HNS** (0000)

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MAR-ICE Network: Background



MAR-ICE Network - Marine Intervention in Chemical Emergencies

- ❖ Cooperation with chemical industry establishing the Network
- ❖ 3-parties MoU: **Cedre**¹, **Cefic**², and **EMSA**
- ❖ Operational since January 2009; Availability 24/7
- ❖ Remote assistance upon request for chemical spills or drills
- ❖ 28 MSs, coastal EFTA/EEA and EU Candidate Countries

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¹ Centre of Documentation, Research and Experimentation on Accidental Water Pollution

² European Chemical Industry Council

MAR-ICE Network Activations

- 18 Activations 2009 – 2014 (Apr):
 - **7 real incidents** (2x Ireland, Sweden, Norway, Spain, 2x Belgium)
 - **11 notification exercises/drills** (3x Ireland, 2x France, Turkey, Latvia, UK, Finland, 2x Spain)
- Two formal evaluations to date (2011, 2013)
- Positive feedback from users:
 - **Expert** information and advice provided;
 - **Promptness** of reply;
 - **Reliable initial source of information** to assist in incident response

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CCME



MAR-CIS: MARine Chemical Information Sheets

Need for relevant & concise information for emergency responders at-sea

Key questions arising during an HNS incident:

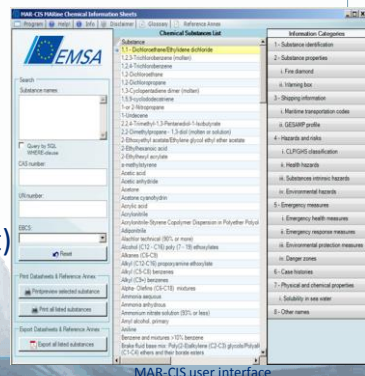
- What is the substance's behaviour (chem./phys. properties)?
Fume hazards, contact with air, water; reaction with other substances...
- What are the existing safeguards on board of the ship?
Ship building requirements, IMDG code, packaging requirements...
- How to control the situation?
Response measures in case of leakage to water, on deck or in confined spaces...
- What precautions are needed to approach the incident area?
PPE, Monitoring/detection equipment, danger zones, exposure safety limits
- How will the substance spread/dissolve in seawater?
Effect of salinity and temperature on the solubility of the substance

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MAR-CIS (1)

- Compile relevant and concise information for HNS responders;
- **Added value:**
 - Include maritime specific information
 - Include information on solubility in seawater through laboratory tests.
- **Deliverables:**
 - Database/pdf datasheets of ~200 substances
 - Access to datasheets via a display menu (search, print, e-mail datasheet)
 - Available now through MAR-ICE Network



MAR-CIS (2) Demonstration

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MAR-CIS (3)

Main features

- Should be readily available for response planners and first responders
- Provide relevant information for Maritime Pollution Response on board of ships
- Concise and focused
- Easy understandable by first responders that may not be chemical experts

	Page 1 - Identification MSB 03 - Nitroflu Chemical Interference Sheet Chlorofluors
Identification	
Name	Chlorofluors
Chemical name	Chlorofluorobenzene
Other names	Chlorofluorobenzene
Product name	Chlorofluors
System name	Nitroflu
System code	200-402-8
System code (page 3)	002-500-004-0
System code (page 3)	Chlorofluors
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HNS Technical Studies - Safe Platform Study

Development of **vessel design requirements** to enter and operate in dangerous atmospheres during the response to HNS incidents

- ▶ Methodology used: hazard identification and risk assessment
- ▶ Definition of **5 HNS incident scenarios**
- ▶ **Existing vessels** (refitted for 'safe platforms')

Outcome, matrix of:

- Incident Scenarios / Vessel Design requirements / Safety Zones.
- Vessel Types / Vessel Design Requirements / Feasibility



Other decision support tools: Dispersant Usage Evaluation Tool (DUET)

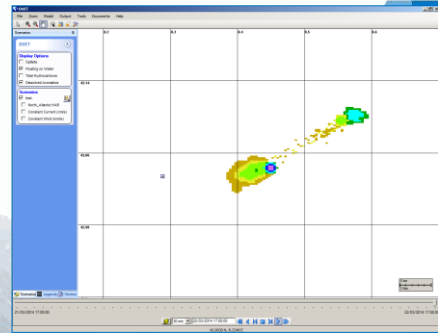
- ❖ **EMSA's role regarding dispersants:** To facilitate a common understanding of the use of dispersants and their implications
 - **Platform** to address issue (*dedicated workshops, technical groups*)
 - Useful & up-to-date **information** regarding dispersants (*manuals*)
 - **Tools** to support the national decision-making process
- ❖ **Inventory** of National policies on the use of dispersants in EU MSs



Dispersant Usage Evaluation Tool (DUET) (1)

3-D numeric model to simulate application of chemical dispersants on oil spills;

- Quantitative comparison of oil spill scenarios with /without dispersants
- Estimation of oil floating on water and dissolved aromatics
- Estimation of concentrations of naturally & chemically dispersed oil
- Data on various types of oils, dispersant effectiveness and oil weathering
- Technical documentation, manuals



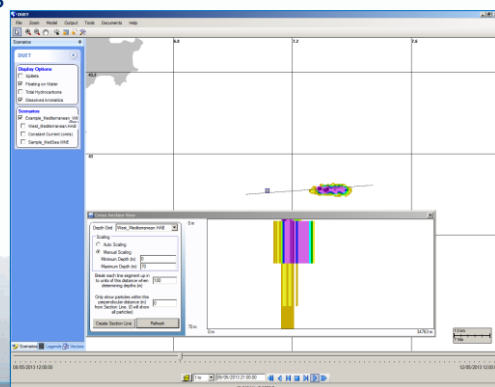
Dispersant Usage Evaluation Tool (DUET) (2)

DUET applications:

- Support national decision-making process
- Contingency planning
- Training & drills

MSs experts have been trained on the tool's functionalities

Tool is currently being updated/enhanced



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DUET (3) - Demonstration

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Thank you for your attention!

www.emsa.europa.eu

