

EMSA information tools for HNS pollution

MAR-ICE Network and MAR-CIS Datasheets

**CEDRE information day - 1 April 2014
"Accidental pollution by HNS"**

**Cooperation and Information
Pollution Response Services
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Contents

- EMSA mandate and tasks.
- Maritime transport of HNS.
- EMSA's information tools for HNS pollution response:
 - MAR-ICE Network;
 - MAR-CIS Datasheets.



EMSA mandate and tasks

Specialised & decentralised Agency of the EU.

The Agency is active in the areas of:

- Implementation of EU legislation;
- Vessel traffic and monitoring systems;
- Technical and scientific advice to the Commission in the field of maritime safety and pollution prevention by ships;
- Marine pollution preparedness, detection and response;

Set up in 2002, 200+ employees

Located in Lisbon, Portugal

Budget (2013): € 58.8m

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Marine Pollution Preparedness and Response Activities

Network of Stand-by Oil Spill Response Vessels

Experts: On-site/Office-based

CleanSeaNet and Illegal discharges

HNS Information Services

Response to marine pollution from offshore oil and gas installations
(since 2013)



HNS Maritime Transport

The maritime transport of HNS has inherent risks associated.

Maritime codes define and prescribe design and building standards for ships and equipment for the **carriage** of chemicals.

- Definition and prescription of cargo operations:
 - Loading / unloading of cargo;
 - Storage requirements.
- Emergency operations.



Complexity of HNS response operations

HNS encompasses many different substances with different behaviours.

HNS bulk transport:

- Large quantities of chemicals on board;
- In case of incident the substance(s) will be directly released into the environment.



HNS packaged:

- Small quantities on board;
- The container/package might delay/prevent the release of the substance(s) into the environment.



Limitation of HNS response operations

Response operations for HNS in bulk:

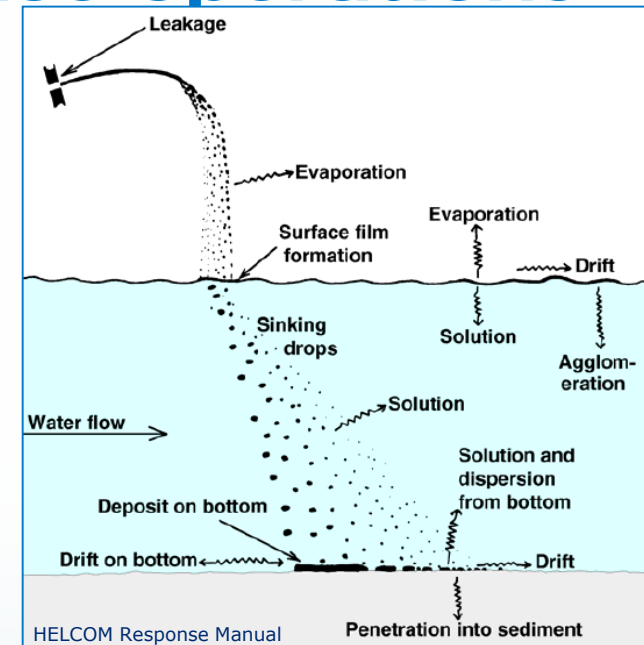
- Depending on the physical behaviour of the chemical;
- Limited response options.

Response operations for HNS packaged:

- Recovery of containers/drums.

Reactivity with water, air and other chemicals on board.

Cargo manifest mis-declarations.



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Information needs in a HNS incident:

First stage:

- Concise information on the substances involved is needed;
- Information on the hazards, behaviour, physical and chemical properties of the substance;
- Evaluate the risks for the crew on board and responders.

Second stage:

- Ship integrity information.

Third stage:

- Information for salvage operations.



BSU Federal Bureau of Maritime Casualty Investigation

EMSA's information tools for HNS Pollution Response

- **MAR-ICE Network Service**
- **MAR-CIS MARine Chemical Information Sheets**
 - Both products aim at provide substance specific information for pollution response to HNS incidents.
 - To cover information needs at the **first stage** of the incident.

MAR-ICE Network



MAR-ICE service: remote substance specific information and advice for ship sourced chemical incidents from a Network of marine pollution response and chemical experts.

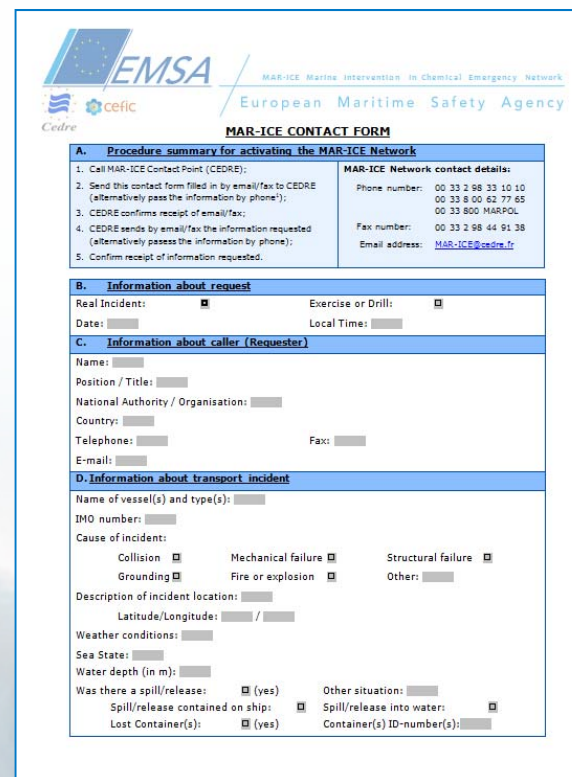
MAR-ICE contact Point (CEDRE);

How does it work?

Contact CEDRE, via phone, fax or email;

Availability 24/7;

Requesting parties: 28 EU MS, NOR/ICE, EU Candidate countries.



The screenshot shows the 'MAR-ICE CONTACT FORM' with the following sections:

- A. Procedure summary for activating the MAR-ICE Network**

1. Call MAR-ICE Contact Point (CEDRE); (alternatively pass the information by phone);	MAR-ICE Network contact details: Phone number: 00 33 2 98 33 10 10 00 33 8 00 62 77 65 00 33 800 MARPOL
2. Send this contact form filled in by email/fax to CEDRE (alternatively pass the information by phone);	Fax number: 00 33 2 98 44 91 38
3. CEDRE confirms receipt of email/fax;	Email address: MAR-ICE@cedre.fr
4. CEDRE sends by email/fax the information requested (alternatively pass the information by phone);	
5. Confirm receipt of information requested.	
- B. Information about request**

Real Incident: Exercise or Drill:
Date: Local Time:
- C. Information about caller (Requester)**

Name:
Position / Title:
National Authority / Organisation:
Country:
Telephone: Fax:
E-mail:
- D. Information about transport incident**

Name of vessel(s) and type(s):
IMO number:
Cause of incident:
Collision Mechanical failure Structural failure
Grounding Fire or explosion Other:
Description of incident location:
Latitude/Longitude: /
Weather conditions:
Sea State:
Water depth (in m):
Was there a spill/release: (yes) Other situation:
Spill/release contained on ship: Spill/release into water:
Lost Container(s): (yes) Container(s) ID-number(s):

MAR-ICE Network

MAR-ICE information:

Product specific / incident specific / marine-related information;

- ✓ MSDS & other product-relevant documentation;
(as of Feb 2014 also MAR-CIS datasheets)

Remote information & advice / modelling / risk assessment;

- ✓ 3-D chemical model results;
- ✓ Information and advice from knowledgeable chemical company (via ICE Database, CEFIC¹).

MAR-ICE service has been used in real incidents, exercises and drills.

MAR-CIS MARine Chemical Information Sheets

There is a need for relevant & concise information for emergency responders at-sea.

Key questions arising during an HNS incident:

- substance's behaviour;
- existing safeguards on board of the ship;
- precautions needed to approach the incident area;
- How to control the situation?

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MAR-CIS MARine Chemical Information Sheets

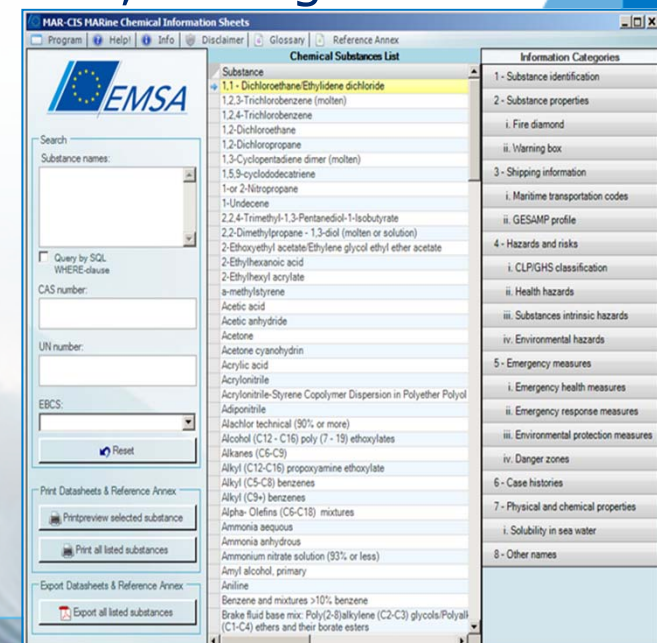
Provide relevant and concise information for marine HNS incident responders;

Added value:

- Include maritime specific information;
- include information on solubility in seawater, through laboratory tests.

Deliverables:

- Datasheets of ~200 substances;
- Access to data via display menu.



The screenshot displays the MAR-CIS user interface. On the left, there is a search panel with fields for 'Substance names', 'Query by SQL WHERE-clause', 'CAS number', 'UN number', and 'EBCS'. Below these are buttons for 'Print Datasheets & Reference Annex', 'Print preview selected substance', 'Print all listed substances', and 'Export Datasheets & Reference Annex', 'Export all listed substances'. The main area shows a list of chemical substances, with '1,1-Dichloroethane/Ethylidene dichloride' selected. On the right, a table lists 'Information Categories' such as '1 - Substance identification', '2 - Substance properties', '3 - Shipping information', '4 - Hazards and risks', '5 - Emergency measures', '6 - Case histories', '7 - Physical and chemical properties', and '8 - Other names'.

MAR-CIS user interface

MAR-CIS MARine Chemical Information Sheets

Graphic representation of the GESAMP hazard profile



GESAMP profile		1	2	3	4	5	6
Bioaccumulation & biodegradation	A1 Bioaccumulation	0				█	
	A2 Biodegradation	R: Readily biodegradable					
Aquatic toxicity	B1 Acute aquatic toxicity	█	█	█			█
	B2 Chronic aquatic toxicity	█	█		█		
Acute mammalian toxicity	C1 Mammalian acute oral toxicity	█	█		█		
	C2 Mammalian acute dermal toxicity	█	█		█		
	C3 Mammalian acute inhalation toxicity	█	█	█	█		
Irritation, corrosion and long term health effects	D1 Skin irritation and corrosion	1: Mildly irritating					
	D2 Eye irritation and corrosion	3: Severely irritating					
	D3 Long-term health effects	C: Carcinogen T: Target organ systemic toxicity S: Sensitising					
Interference with other uses of the sea	E1 Tainting	NT: Not tainting (tested)					
	E2 Physical effects on wildlife & benthic habitats	F: Floater D: Dissolves					
	E3 Interference with coastal amenities	█	█	█	█	█	█
Legend	█ maximum value ! maximum value reached () indicative or provisional classification						

used for classifying HNS that may enter the marine environment through operational discharge, accidental spillage or loss of overboard containers from ships.

MAR-CIS MARine Chemical Information Sheets

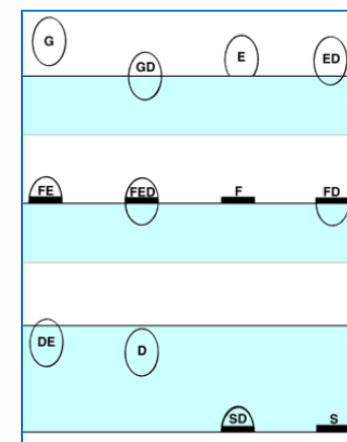
Includes explanatory information on Maritime transportation codes providing information on existing safeguards on board.

- IBC code
 - Liquid substances transported in bulk
- IMDG code
 - Substances transported in packaged form

Maritime transport codes					
IMDG			IBC		
UN number	1547		Marine pollution category	Y	Category Y-Substances under MARPOL Annex II
Hazard class	6.1	Toxic substances			
Subsidiary risks	-		Hazards	S/P	Safety and pollution hazards
Packing group	II	Moderate hazard	Ship type	2	Chemical tanker for products with appreciably severe environmental and safety hazards (significant preventive measures)
Emergency schedule EmS	F-A	General fire schedule	Tank type	2G	Integral gravity tank
	S-A	Toxic substances			
Placard / label			Tank vents	Cont.	Controlled venting
			Gauging	C	Closed gauging
			Tank environmental control	No	No special requirements
			Vapour detection	T	Toxic vapours
			Fire protection	A	Alcohol-resistant foam or multi-purpose foam
Stowage and segregation	Cat.A	Cargo or passenger ships with < 25 passengers or 1 passenger/3 m length - stowage on or under deck; other passenger ships with more passengers - stowage on or under deck	Emergency equipment	No	No special requirements
	Clear of living quarters. "Separated from" acids.				
Marine pollutant	No				

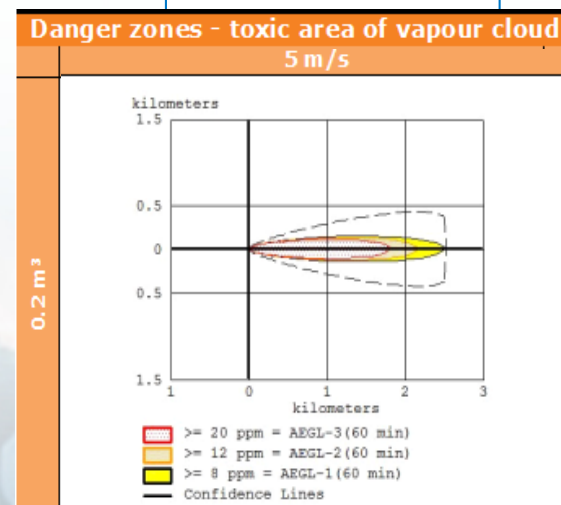
MAR-CIS MARine Chemical Information Sheets

- Emergency measures on-board of ships:
 - In case of leakage in open area;
 - In confined spaces;
 - To water.
- Scenarios built-up;
- How substance will behave in water;
 - e.g. dissolve, evaporate, sink...
- PPE (Personal protective equipment);
- Monitoring/detection.



HELCOM Response Manual


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MAR-CIS MARine Chemical Information Sheets

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
MAR-CIS MARine Chemical Information Sheets
Aniline

Identification		Reference numbers
Name	Aniline	UN number 1547
IUPAC name	Aniline	CAS number 62-53-3
Proper shipping name	ANILINE	ETRECS 200-539-3
Product name	ANILINE	Index number 612-008-00-7
Other names (more on page 11)	Acéte de aniline Aminobenzén Aminobenzèné Aminobenzol Aminobenceno	

References: 10, 42, 44

Substance Properties	
Colourless to brown liquid with enjoyable amine-like smell. Poisonous (toxic) substance. Floater and dissolver reactive to air. Explosive vapour/air mixtures possible at elevated temperatures. In case of fire/thermal decomposition: formation of toxic vapours.	
Class	Toxic substances
Main uses	Dye synthesis, pharmaceuticals, rubber, photochemical, solvent
Appearance	Liquid, colourless to brown
Odour	Enjoyable small, amine-like
Behaviour (EBCS)	FD - floater / dissolver

References: 1, 2, 10, 47

Fire Codes		
Legend	no risk severe risk	
Health	Blue (Left) 0 to 4	
Flammability	Red (Top) 0 to 4	
Reactivity	Yellow (Right) 0 to 4	
Special Hazards	White (Bottom) OX means "oxidizer" W means "use no water"	

References: 10

Warning: Reactive to air. Toxic.

References:

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Other EMSA HNS information resources

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').

Inventory of EU Member States Policies and Operational Response Capacities for HNS Marine Pollution (2013)

Available at www.emsa.europa.eu



Thank you for your attention!

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