

INTERVENTION ON DISSOLVERS

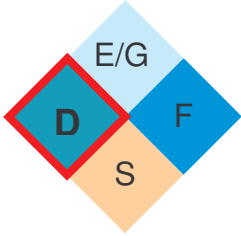
CARD NUMBER: F 3

F 3	Toxic / Carcinogenic cloud in the sea water column
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Applicable for groups GD, DE, FED, FD, DE, D and SD (in the SEBC code, all groups with D).



F 3



DISSOLVERS

Density	< Water
Vapour Pressure	< 3 kPa
Solubility	> 5%

MAJOR RISKS:



Pollutant



Toxic

EMERGENCY

To PROTECT

- To shut down the leaks
- To stop the leakage

To ALERT

- Immediate alert of the site operators
- The responders teams

To RESPOND

- To identify substance and define spillage location
- To estimate volume spilled & contaminated zone
- To delimit danger area & control the access

EMERGENCY RESPONSES

- Only the responders team on site,
- To locate and to monitor the spread of the cloud in the seawater column and, if necessary, to shut down the sea water pumping,
- Wear the appropriate equipment (Personal Protective Equipment, gloves...).



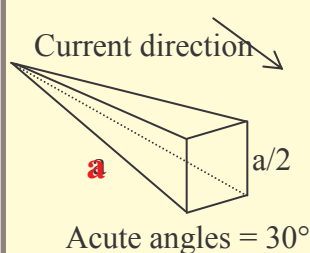
EMERGENCY RESPONSES

Shoreline Harbour Open sea

Forecasting the spread of the cloud in the water column

Softwares: (MOTHY, CHEMMAP...)

The spreading of a pollution in the water column (group D) can be calculated according to the Figure and the Table below. This method cannot be applied for stagnant (or almost stagnant water) or for very turbulent waters and also for chemicals which have a density very different from the water density.



Spill (tons)	Concentration (mg/L)	Concentration (µg/L)
	a (km)	a (km)
1	0.5	5
10	1	10
100	2	20
1000	4	40

X

X

X

Monitoring by sampling or by *in situ* measurements

Water samples must be stored in glass bottles and must be kept in fridge.

Several equipments are fully adapted for *in situ* measurements (pH meter, UV-spectrofluorimeter, GC-MS...).

X

X

X

Neutralising agents

In cases of acid or base chemicals spills. Two neutralising agents can be used to neutralise pH variations: sodium carbonate for acids (NaHCO_3) and sodium di-hydrogen-phosphate for base spills (NaH_2PO_4).

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X

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Purification techniques

Contaminated sea water can be filtered by using:

- An adsorption process (activated carbon, clays...),
- Ionic exchangers resins,
- Flocculation agents which can precipitate.

In all cases, the agents should be recuperated.

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X

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