



## **Unabhängige Umweltexpertengruppe „Folgen von Schadstoffunfällen“ (UEG) beim Havariekommando**

Independent Group of Environmental Experts „Consequences of Pollution Accidents“ at the Central Command for Maritime Emergencies (CCME)

### **Risks posed by bulk liquid cargoes in maritime emergencies**

**(UEG opinion as of 16 April 2014)**

At its 2014 annual meeting the UEG discussed the risks of transporting bulk liquid cargoes (excluding mineral oil). The aim was to assess the situation and draw up recommendations for the work of the Central Command for Maritime Emergencies (CCME).

This discussion was the result of a query from the CCME in 2012 which was defined further in the course of 2013. The CCME asked the UEG to

1. provide an overall picture for the transport of such cargoes,
2. evaluate the risks which these bulk liquid cargoes pose to the marine environment and coast in the event of maritime accidents and
3. outline possible gaps in information with a view to improving maritime emergency response.

#### **The UEG conclusions are as follows:**

The volume of liquid bulk cargoes being transported is rising steadily in line with the general trend in maritime transport. The quantity has doubled in the past 10 years, while the size of tankships has only slightly increased.

The risks posed by the transported cargoes vary widely. Bulk liquid cargoes each have their own hazard profile. However, products with similar properties can be grouped and described together.

Liquids which float on water (floaters) make up the largest group. Floaters basically have the same impacts on the marine environment and coast as mineral oils, forming slicks or films on the water. One primary effect is the clogging of biological surfaces such as salt meadows and bird plumage. Some products may solidify at certain water temperatures, leading to clumps being washed up on shore. Other products leave a viscous, gum-like deposit along the coast. As a secondary effect products may demonstrate toxicity once dissolved in sea water.

Chemical products from the first stages of mineral oil processing make up another considerable share of bulk liquid transports. These chemicals dissolve in water to some degree, but also evaporate. Many of these products destroy marine life or generate toxic or explosive vapours which are a particular health risk for emergency responders at the site of a maritime emergency.

In order to describe both, the risks to the environment and to the emergency response teams, knowledge is needed regarding the physico-chemical properties specific to the product, the potential for harming human health and the environment and the medium- to long-term fate of the product in the environment (including the food chain). This includes the following data, derived from scientific studies of the individual products:

- biological degradation in water (biodegradation)
- biological accumulation in aquatic organisms (bioaccumulation)
- acute and chronic aquatic toxicity in fish, shrimp and algae (eco-toxicity)

- acute toxic effects on humans (especially from exposure to aerosol or fumes)
- irritant or corrosive effects on biological material, skin, eyes and mucous membranes
- longer-term health risks for humans and mammals (in particular carcinogenic potential and specific organ toxicity such as neurotoxicity)
- behaviour in the marine environment, in water (floating on the surface, evaporating, sinking, etc.).

Evaluations of these properties are available as a GESAMP hazard profile for around half of these products, especially for the main chemicals transported. If such independent scientific assessment is available conclusions could be drawn by the CCME.

However, additional data on the following properties are important for emergency response:

- physical and chemical degradation
- flammability
- explosiveness
- chemical reactivity

Considered in conjunction with the product quantities involved in the accident, the above data allow the following to be drawn up:

- risk assessment for the environment
- protection measures needed for the emergency response personnel
- recommendations on necessary safety measures or evacuations at the coasts.

However, when considering the overall picture the UEG found significant deficiencies. Independent scientific evaluations like the GESAMP hazard profiles only exist for around half of the approximately 1,700 bulk liquid cargoes approved for transport. This lack became apparent after one of the most recent accidents in European waters (YM Uranus). For many hours, emergency response teams had no data on the hazardous properties of the stricken tanker's cargo (pygas). Neither ship managers nor consignors were able to provide the necessary information. A review by the UEG of other products confirmed these potential deficiencies in the context of maritime emergencies.

### **Recommendation**

To eliminate these serious failings, the UEG suggests that Germany present an initiative to the International Maritime Organization (IMO). The UEG recommends that if possible the initiative be pursued with the French and EU partners that responded to the YM Uranus accident (especially CEDRE and EMSA).

Other actions include discussing Germany's measures under the Marine Strategy Framework Directive (MSFD) for achieving good environmental status (target: pollutant-free seas) such as ways of improving pollution incident response (sub-target: expansion of pollution incident response).

In future it should be ensured that in the event of a maritime accident the hazard profiles and properties of all products carried are immediately available. In order for the Central Command for Maritime Emergencies to make sound evaluations and decisions on danger defence and emergency response, this information must be available for assessment by independent scientific experts.

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