Explanatory notice
Guidelines on competence requirements for the operation of craft using methanol as fuel

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1. Context

The CESNI Working group on professional qualifications drew up guidelines for competences for the operation of craft using methanol as a fuel. The guidelines are intended to address first the training institutes and schools that train students in new technologies. They can also address craft owners, who are responsible for ensuring that the crew is trained in new technologies. They can also a useful source of information for insurance companies, which insure the crew against work-related accidents and are therefore likely to set requirements for crew members.
The CESNI Secretariat worked out an explanatory notice for the guidelines on competence requirements for the operation of craft using methanol as fuel**.** This notice is for documentary purposes only and intends to provide details and background information about the elaboration of the guidelines.

2. Methodology

CESNI/QP has chosen to elaborate guidelines at this stage for the following reasons:
- it may be premature, due to the absence of substantial feedback and experience with new technologies, to determine competence standards with a long-term and stable vision;
- a risk-based approach enabled experts to determine a list of minimum requirements for competences to ensure a safe handling of the technology for a safe navigation of the vessel and for crew members;
- in addition, also considering that experts and stakeholders alike advocate a simple system from a regulatory point of view, experts tend to believe that it is not desirable to require 1 expert per new technology. This would make crew compositions very complex, all the more so in a context of shortage of personnel. However, to meet all safety requirements, further reflections are necessary before deciding upon such a generalist approach, given the distinct differences in the characteristics of the alternative fuels;
- it may be preferable, at this early stage, to leave flexibility to the market to choose the appropriate approach and in particular to determine which person on board and/or on-shore is most appropriate to fulfil a specialist function, including instructing others involved;
- this tailor-made approach also makes it possible to anticipate the multi-development of new technologies, that will probably be based on a combination of technologies on board the same vessel;
- guidelines provide for flexibility: they can be updated over time to take into account the feedback from the practice.

To work out the guidelines, experts identified the following main risks linked to the operation of craft using methanol as a fuel:
- **Toxicity:** methanol may cause injuries to crew members. Measures must be taken to avoid leaks in closed areas and to evacuate vapours as soon as possible. In case of a methanol spill, there is also the risk of toxic vapours. While methanol vapours below harmful level cannot be smelled, the effects can be felt which serves as a warning.
- **Corrosive:** Exposure to skin is a hazard. Strong corrosion resistance of tank storage and pipework (RVS) is needed to avoid spills. Crews need to understand and be able to work with

this system (cleaning, treatment of tank storage, inerting or gas blanketing to prevent over filling and tank overflow, etc.).

- **Environmental damages**: there is a risk of leakage during the bunkering or in case of collision. Unlike gas-oil, methanol dilutes with water, which makes it much less harmful for the environment. A large spill would only have impacts near the release point.
- **Higher flammable potential:** The flash point is at 11° C whereas gas-oil is much higher, as a result there are risks of fire in the engine or fuel cell space.

Other elements have been considered during the elaboration of the guidelines:

- **Methanol used in fuel cells**: the chosen approach is to add to the competence table a knowledge requirement on the characteristics of the energy converter (fuel cell or combustion engine) in which methanol is used.
- **Testing and training of the foreseen abilities**: the use of simulators could be the safe way to train and take examinations for methanol.

3. Content of the guidelines

The guidelines provide a list of minimum competence requirements for specialised persons (on board and/or on shore) who will have to

1) be familiar with the specific risks associated with the new technology they will be handling;
2) familiarise other persons involved (on land or on board), in an instructive function;
3) detect situations likely to result in an accident;
4) detect when an incident has occurred and assess the risks for the vessel and the crew;
5) take immediate protective measures in the event of an incident
6) use the personal protective equipment.

Regarding the holder of the competence, the generic term “specialised person” has been used. This designation does not prejudge whether the holder will be a crew member or not. It also avoids confusion with existing terms such as "expert" or "competent person". It also does not prejudge if and how the legislator will decide how this will be integrated into the legal framework.

4. Impact on inland navigation

The development of guidelines for competence requirements for the operation of craft using methanol as fuel allows to go towards a harmonisation of requirements. They contribute to the safety of crew members and navigation as they permit to counter the risks associated with the emergence of new technologies used for propulsion thanks to a well-trained crew.

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