



Maritime and Coastguard Agency

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## Carriage of coconut oil and other vegetable oils as cargo in tanks

Notice to Ship Owners, Operators and Managers, Masters and Officers of Merchant Ships and Offshore Installation Managers/Duty Holders and Shippers to the Offshore Industry

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### *Summary*

- Information has been received about unforeseen hazardous conditions that may arise when coconut oil and other vegetable oils are carried in the cargo or deep tanks of ships.
- This Marine Guidance Note draws attention to the hazards and makes recommendations to ensure safe working practices when handling such cargoes.

1. A report has been received about a serious accident that occurred on board a ship discharging a cargo of Indonesian crude coconut oil in a North European Port.
2. Six men hired from ashore entered one of the tanks nearing completion of discharge to sweep the residue towards the pump suction.
3. Within a few minutes, the workmen appeared to be in difficulties. Four were able to leave the tank but the other two collapsed over the heating coils. Both men suffered serious burns from the heating coils. One of them subsequently died.
4. The tank atmosphere was tested immediately after the accident for oxygen deficiency and flammability and found to be safe from those hazards.
5. However, very large concentrations of carbon monoxide (CO) were measured – more than 1000 – parts per million. As yet, there is no clear explanation for the presence of CO in the tank, though oxygen deficiency in tanks carrying such cargoes is well known.
6. A likely explanation is that the temperature of the heating coils had reached levels high enough to generate CO from the reducing quantity of cargo in the tank during the discharging process.
7. The Maritime and Coastguard Agency (MCA) therefore recommends that before such spaces are entered, the full range of precautions for entry into enclosed spaces described in the Code of Safe Working Practices for Merchant Seamen (section 17) or the International Maritime Organisation Assembly Resolution A.864(20) entitled Recommendations for Entering Enclosed Spaces Aboard Ship are observed.
8. The MCA also recommends that the atmosphere of cargo spaces with such oils are continuously monitored during the discharge process for the presence of CO if it is essential for personnel to be within that space. The temperature of the cargo should also be monitored closely. This is particularly important during the closing stages of the cargo discharge operation.

9. Carbon Monoxide is toxic by inhalation and can cause serious damage to health by prolonged exposure. Hence the 8 hour exposure limit for personnel to CO concentrations is 30 parts per million, though for short term exposure not exceeding 15 minutes, concentrations of up to 200 parts per million can be allowed.
10. Monitoring equipment should be capable of achieving the above degree of accuracy.

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