

MARINE DEPARTMENT NOTICE NO.142 OF 2000

(Safety)

Engine Room Explosion

An explosion occurred in the engine room of a pleasure vessel, it set the vessel on fire which spread to other pleasure vessels moored in the neighbourhood. A crew member of the vessel on which explosion occurred was killed in the incident and all pleasure vessels involved were completely destroyed. An investigation into the incident by the Marine Department had identified the most probable cause of the explosion to be ignition of petrol vapour in the poorly ventilated engine room of the vessel. There was evidence to indicate that petrol was used for cleaning of machinery parts inside the engine room. The ignition was probably resulted from a short circuit in the 110 volts electrical system on the vessel.

2. Important **lessons** should be learnt from this incident :-
 - (i) Petrol has a very low flash point of -45.5°C . It evaporates very quickly and readily forms an explosive mixture with air in concentrations between 1.3% to 7.1% by volume. As a rough guide, a tea-cup of petrol is sufficient to form an explosive mixture in a moderate sized enclosed space such as engine room of a pleasure vessel. Petrol should therefore never be used as a cleaning agent. Any container containing petrol or other volatile liquid on board a vessel should always be kept tightly sealed and should be stored in a ventilated space, preferably on deck.
 - (ii) Before commencing any work in an enclosed space such as engine room, adequate ventilation, preferably by mechanical means, must be ensured. If in doubt, concentration of any flammable gas that may be present should be regularly tested to ensure that it does not exceed 1% of the lower flammable limit.

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(iii) All electrical equipment on board should be maintained in good state of repair and the insulation resistance of the electrical circuit should be tested at annual intervals to ensure that it remains within prescribed limits as recommended by the manufacturer or not less than 1 MΩ if there is no specified standard.

3. All vessels, whether in operation or at mooring in typhoon shelters and anchorages, are reminded to take precautionary measures to prevent the outbreak, and the spread, of a fire.

4. Owners, operators and masters of all local craft, particularly pleasure vessels, are requested to bring the content of this Notice to the attention of all crew members on board their vessels.

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Director of Marine

Marine Department

Government of the HKSAR

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