

Report from the Division for Investigation of Maritime Accidents

Two crewmembers injured by burns 11 July 2006

Factual information

A minor fire/deflagration occurred in a small space on the Danish flagged Ro-Ro cargo ship TOR PETUNIA of 32,289 GT when in dry-dock in Denmark.

Two crewmembers, who were working in the area, suffered burns on their faces, hands and knees.

Narrative

Repair works had been carried out on electrical equipment in a small space of approx. 1.8 x 2.2 x 2.7 metre near the aft stern thruster. Some contact cleaner had been used, sprayed out from an aerosol can (approx. half of the content of a 500 ml can).

The contact cleaner is extremely flammable, and the aerosol can was labelled with relevant symbol and text for that and with precautions etc. in 7 languages (see note).

The space was ventilated naturally via the entrance approx. 0.7 x 1.5 m in top and an opening of 0.8 x 1.5 m in the bulkhead, 0.7 m above the bottom.

Besides the repair work on the electrical equipment some welding was to be carried out in the same space. One hour later two crew members entered to prepare for the welding. A little earlier, they had smelled some vapours from the contact cleaner. But they did not smell anything when preparing for the welding.

When one of the crewmembers was testing the welding equipment, an electric arc was made, and a deflagration occurred.

The crewmembers were hit by flames. One crewmember suffered 1st and 2nd degree burns on his hands (6 – 7%), and the other crewmember suffered 1st and 2nd degree burns on his face and knees (6 – 7 %).

The injured crewmembers were taken to the engine department's changing room, where they were given first aid, while there was called for ambulances to take them to hospital.

Analyse and conclusion

Extremely flammable vapours from the contact cleaner had concentrated in the space because of insufficient ventilation.

The space was not ventilated mechanically to evacuate the vapours.

A welding arc ignited the vapours.

Initiatives/recommendations

Because the ship was dry-docked at a Danish shipyard, the Danish Working Environment Authority attended to this accident.

The Danish Working Environment Authority enjoined on the master that the crew-members had to be instructed in handling gasses to avoid accidents and that ventilation must be carried out when flammable liquids have been used.

The accident was considered by the ship's safety committee at an extraordinary meeting. The safety committee enjoined the need of ventilating when agents that give off flammable vapours have been used.

Note (extract from label text)

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Repeated exposure may cause skin dryness or cracking. Vapours may cause drowsiness and dizziness. Keep out of the reach of children. Keep away from sources of ignition - No smoking. Do not breathe vapour/spray. Take precautionary measures against static discharges. Use only in well ventilated areas. Avoid release to the environment. Refer to special instructions/safety data sheet.

Caution: Pressurized container: Protect from sunlight and do not expose to temperatures exceeding 50°C. Do not puncture or burn, even after use. Do not spray on a naked flame or any incandescent material.

Especially for electronic components • no deteriorating effect on synthetic materials, plastic and elastomers • mild degreasing effect • leaves no residue.

Observe: Switch off power before use. Do not switch on power before the cleaner is completely evaporated.

UN-nr. 1950

1 November 2006

The Division for Investigation of Maritime Accidents