Finneagle

1980, October 1

North Sea, 30 n.m. west of Orkney Islands

Trimethyl phosphite (Class 3) in tank container; flammable liquid with high flash point (= low flammability, Class 3.3); reacts violently with acids under production of heat; burns under formation of dangerous **phosphorous pentoxide** in the smoke gases

Summary: On a voyage from New Orleans to Valhamn in Sweden, the Swedish ro-ro ship **Finneagle** encountered very hard weather that caused shifting of her cargo. A tank container with **trimethyl phosphite** started to move. It was secured by the crew but came loose again. It was damaged and started to leak. A fire broke out, soon followed by an explosion. The fire increased in ferocity. The **sprinkler system** was started with **light water** added and went on for one hour. A distress call was sent out. Finagle's life boats and liferafts were impossible to launch in the heavy seas. The fire, heat, and irritating and poisonous **smoke gases** developed to such a degree that the ship had to be abandoned. Two arriving helicopters were unable to start rescue work because of the weather. A third big helicopter, that arrived later, was able to send down a line and successively save all 22 persons on board, among them one wife and two small children. Still burning, the ship was later towed to Lerwick in the Shetland Islands. On October 4 the main seats of the fire had been extinguished.

Cause of Accident: The trimethyl phosphite container on tween deck was unsatisfactorily secured by chains and not placed on deck fittings. Leakage of a **rubber solution** made the deck slippery which together with the insufficient securing made the arrangement unstable. The trimethyl phosphite container struck repeatedly a refrigerated trailer. Thereby, the tank container was punctured and started to leak. The spill reacted with **leaking acid** from damaged batteries in the refrigerated trailer. The trimethyl phosphite was heated by the reaction and developed flammable vapours that ignited, probably by **sparks** from the damaged batteries.

Comments on Response: The function of the sprinkler system was unsatisfactory. It sprayed about 300 tons of **water** until it stopped after one hour due to a **pressure fail-ure**. Foam or powder is recommended for trimethyl phosphite fire - water is not suitable. The crew worked rationally and efficiently under very difficult conditions. They checked the cargo and improved the lashings. Wearing breathing apparatus they fought the fire in the smoked-filled engine room. The master steered the ship by hand during the whole operation and was able to hold it against wind and sea, thus greatly contributing to the successful abandoning of the ship. The British Search and Rescue Service performed the helicopter rescue very efficiently in darkness and adverse weather.

Source of Information: "Fire on Cargo Deck in Swedish Ro-Ro Vessel Finneagle off the Orkneys, October 1, 1980", Marine Accident Report, February 23, 1982, Swedish Maritime Investigation Commission

(Abstracted April 1991 by Björn Looström, Swedish Coast Guard H.Q.)