

# **The explosion onboard the Hong Kong Registered chemical tanker *Liang Sheng* resulting one death and one injured in South China Sea off Shanwei, China on 12 July 2014**

## **1. The Incident**

1.1 On 12 July 2014, an accident happened on board the Hong Kong registered chemical tanker *Liang Sheng* when it was en route to Taiwan in the South China Sea after unloading a combustible cargo of Linear Alkyl Benzene (LAB) at Dongguan, China.

1.2 After completion of tank cleaning, an able-bodied seaman (AB) and a deck cadet (DC) were assigned to conduct gas-free operations for cargo tanks. Following the connection of a ventilation pipe to a cargo pipe of a cargo tank, they went to the forecastle store room to switch on the force draft fan in order to purge the residue LAB from the cargo tanks. Shortly after switching on the fan, an explosion occurred and a fire subsequently broke out inside the store room. The AB was killed while the DC was seriously injured.

1.3 The store room and the equipment installed inside including electric control panels and cables, lights and escape hatch cover etc. were badly damaged.

1.4 The investigation revealed the following probable contributory factors to the accident:

- a) The crewmembers did not follow the established procedures to use an explosion-proof fan for purging process. Instead, a non-explosion-proof fan was used that triggered the explosion;
- b) Unauthorized installation of ventilation pipelines were connected to cargo lines leading the combustible LAB vapour spreading into and settling in the forecastle store room;
- c) The ventilation in the forecastle store room was not effective as all its exhaust air suction were installed at the ceiling. The LAB vapour, which is heavier than air, might have accumulated at the lower part of the store room; and
- d) Although the two crewmembers sensed the smell of LAB upon their entry into the forecastle store room, they did not take any safety measure (such as test of the gas content) before switching on the fan.

## **2. Lessons Learnt**

The lessons learnt from this incident are:

- 2.1 All officers and crew on board vessels should strictly follow the established procedures in shipboard Safety Management Manual and should not temper or modify the piping systems on board without approval by the concerned classification society. The Material Safety Data Sheet of cargo on board should be readily available to handy reference.
  
- 2.2 It is important that the ship management company should ensure any installation or modification of the ventilation pipelines or ventilation fans on board the vessel had approval from the classification society.