

VESSEL'S LAST CARGO RESIDUES OF PHENOL MADE CONTACT WITH SHORE TECHNICIAN

Cargo involved:	Phenol
Incident Type:	Chemical burns
Consequences:	Injured Shore Technician
Activity:	Connecting Vapor Return Line (VRL) from Shore to Ship VRL Manifold
Location:	Liquid Chemical Jetty, Kuantan.

Incident Summary

Two shore technicians noticed liquid drops from vessel's Vapor Return Line (VRL) manifold and requested vessel crew to carry out the necessary cleaning prior connecting shore VRL. Cleaning was then carried out by air blow a couple of times. Later, upon shift change, two other shore technicians were on board to connect VRL from shore to ship VRL manifold. The connection on board requiring a short length of spool piece to facilitate the VRL connection from the shore line due to the angle it leads towards shore presentation flange.

In the course of adjusting and connecting the short spool piece to ship VRL manifold using pneumatic tools, a few drops of condensed liquid from the ship's VRL manifold, made contact to one of the shore technician's left knee while bolting the connection in squatting position.

Incident Consequence

Just a few drops had caused all around Technician's left knee area with chemical burn (blue-black).

Immediate decontamination and first aid applied on board and subsequently brought him to a local hospital and was under burn unit for further treatment and observation. Technician was in hospital for 4 additional days before been discharged.

Origin of Phenol

Vessel had discharged cargo phenol at a prior port, VRL was used and had planned to use the same VRL for other product loading at this port.

Phenol freezes at +41 deg C. Upon completion of discharging phenol at a prior port, lines were not cleaned immediately and sufficiently. Only air blow was adopted in this case when pointed out initially by the shore technicians at this port.

As per industry expert advice, beside air blow, cleaning includes steaming and/or warm water wash, gas freeing to remove any remnants, in addition perform hammer test in ensuring lines are clear of any solidifying cargo.

Inefficient VRL cleaning, resulting vapors trapped could have formed into "snowflakes" or the like when surrounding temperature is below melting point. (Ambient temperature at this port is at about +30 deg C)

Air blow performed if with water vapor which upon contact with phenol could alter the melting point, and phenol will be in liquid form at this ambient temperature.

The vibration created during the use of pneumatic tools and inefficient cleaning of the VRL explains the presence of phenol drops from the vessel's VRL manifold which made contact with the shore technician during the process of VRL manifold connection.

Key Learnings

01. Vessel operators are advised to review their existing procedure in regards to cleaning of tanks, cargo lines including vapor return lines when phenol or any other hazardous high melting point chemicals are proposed for carriage.
02. Adherence to company procedures or guidelines for tank/line cleaning not complied to in full by vessel staffs. Frequent vessel auditing is required and suggested in ensuring compliance.
03. Both shore and ship staffs are to be with appropriate PPE for the cargo carried. All shore personals in addition need awareness on last cargo carried on board including the hazards and full protection is achieved with the correct selection of PPE.