

When washing tanks, the tank atmosphere should be closely monitored, particularly when volatile products are involved. When washing tanks with a high pressure water jet, static electricity may develop resulting in sparks which may be a source of ignition if an explosive atmosphere is present.

As most of the older inland tankers do not have cleaning equipment such as washing machines and wash water heaters fitted, and some vessels may not have sufficient storage space outside the cargo tanks for containing wash water, inland tankers often call at shore based terminals for the cleaning process. The shore based terminals are expected to be experienced in tank cleaning, however, as the barge's master is ultimately responsible for the cleanliness of the vessel, information should be obtained prior to calling at a cleaning station as to how the vessel is to be cleaned to ensure it is in line with the prevailing requirements. After cleaning the results should be verified.

Tank cleanliness inspections are often limited to a quick visual check in the tank from the deck and in the open ends (manifolds) of the lines. However, depending on the layout and design of the ship's lines, there may be sections in which cargo can become trapped such as "U" shaped (expansion) sections in lines, drain points, pumps and valves. In addition, overhead and bulkhead structures in a tank cannot be seen and verification of whether wells and areas concealed by structures are satisfactorily cleaned cannot be determined from such a distance. Therefore, a prudent inspector should always enter a tank, provided that the enclosed space entry is allowed by the terminal and the relevant permit to work has been effectively completed. After the cleaning of the cargo system, drain plugs must always be opened to confirm that collected cargo residues and wash water are flushed to a satisfactory standard.

To clean the ship's lines, water is often pumped through the system with the expectation that the water will wash the entire interior surface. However, the *level* of the flushing agent in a line must be considered and be such that the system is completely filled, ensuring that the upper part of the inside surface of the lines are cleaned. In vertical line sections the cleaning agent may fall down which results in the cleaning being ineffective. In this situation, if the system allows, the cleaning agent should be pushed up the upwards running sections.

In the final stage of the tank cleaning process and after washing the lines with water, it is common place for the pipelines to be blown with air. After this process it is often assumed that the lines are empty, however, if a line is not completely filled it will enable the blowing air to pass over the remaining liquid in the line.

THE WALL WASH TEST

In some cases the cleaning instructions recommend cleaning with hot water or steam. This is often because elements of the previously carried cargo penetrate, or are trapped in the steel of the tanks, lines or the applied coating. To get these elements out of the steel or coating, washing should be done with hot steam or with appropriate solvents. Special attention should be paid to the resistance of tank coatings and f.i. seals of pumps, valves etc. and attention to temperature limits of above mentioned materials.

To ensure all of the previous cargo has been removed a *wall wash test* must be undertaken. A *wall wash test* is often only done in the ship's tanks, however, it is imperative that the interior surfaces of lines are also free of the previous cargo residues. Operators should note that a *wall wash test* is only carried out on part of the surface area and therefore will only indicate whether the tested surface area has been cleaned to a satisfactory standard. The result of a *wall wash test* must not be considered a full proof of an entire tank or line.

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