

Circular From SKULD**Date: 25 October 2019**

Sampling of Liquid Cargoes

Chemical cargoes, petroleum products, vegetable oils and other fats are often carried as bulk cargoes on board chemical and product tankers. Quality problems with these cargoes have been an issue since the dawn of this trade, and even with modern techniques these quality issues are likely to continue.

Liquid cargoes on tanker vessels may be exposed to influences such as temperature change, contact with air, light, pollutant, or other products. Other sources of contamination include failure in the production process and exposure to external substances from shore tanks and shore lines, as well as remnants of previous cargoes or wash water onboard the vessel. Cargo inspectors will be present on board the vessels to take samples from the cargoes at both the load- and discharge ports for quality check. However, the examinations are often conducted from the cargo company's perspective and interests. Crew members of the vessel are, therefore, advised to collect their own samples to protect the vessel interests. Timely and proper sampling of liquid cargoes is essential of the vessel management team to observe.

Safety precautions before sampling

Crew members should familiarise themselves with the specific nature and associated hazards of the liquid cargoes for carriage, by carefully studying the information available on the Material Safety Data Sheet (the MSDS). The MSDS shall be handed over from the shippers to the captain before loading the cargoes. Crew members are also advised to wear minimum Personal Protective Equipment (PPE) such as goggles, chemical resistant gloves, boiler suits and shoes when drawing samples. Filter masks, breathing apparatus and chemical resistant suits may be required, depending on the cargo to be sampled. The crew should consult the company's Safety Management System (the SMS) for further instructions prior to sampling.

Sampling equipment

Features of appropriate sampling equipment:

- Correct bottles
- Stainless steel dip weights
- Stainless steel weighted cage (with cork)
- Clean cotton ropes / stainless steel chains
- Bottom samplers
- Closed samplers

Sample bottles are available in different sizes, colours and materials. Chemicals are usually sampled

using 250 ml, 500 ml or 1 litre transparent glass bottles. Chemicals that are sensitive to light should be drawn in amber or green bottles. To avoid having glass shards in the sampled product, liquids cargoes for consumer purpose should not be sampled in glass bottles. The MSDS would be helpful for crew members to understand some of the specific features and sampling guidelines.

Key locations for sampling on board the vessel

A complete sampling programme should include samples from the following locations:

- Shore tank(s) at the load port
- End of the shore line at the load port
- End of the loading arm at the load port
- Manifold sample
- Sample from the ship's line at the pump stack
- First foot sample
- Completion of loading

Samples should be taken in compliance with industry practices such as ISO and ASTM practices. Representatives of the shippers and/or the load port terminal, who are often appointed by the shippers, should be present during the sampling process.

The manifold is generally the first accessible point for the ship's crew to take their own samples. As custody of a cargo is passed to the vessel at the manifold, the manifold sample represents the condition of the cargo as received by the vessel. Crew members should, therefore, consider the manifold sample as the most essential sample in their sampling programme.

Relaxation period

Relaxation period before lowering the sample bottles/cans into the vessels is necessary as static loads can be accumulated in some cargoes during the loading process. This can avoid electrical charge separation which may generate sparks and lead to explosions in the cargo tanks. A standard relaxation period after loading of static accumulators is at least 30 minutes. Crew members can identify whether the products are static accumulator from the MSDS.

Correct labelling of samples

Correct labelling helps crew members to properly identify the sample at a later stage. Sample bottles should also be sealed. The following information should be included on the labels:

- Name of the vessel
- Name of the shippers
- Port of loading
- Cargo name
- Tank number
- Exact date and time at which the sample was taken
- Identity of the sample (Manifold, pipe line, first foot etc.)

- Seal number
- Identity of person drawing the sample
- Signature from C/O and preferably the cargo inspector

Sample log and sample storage

All samples should be recorded in the sample log and the details should be the same as those on the sample labels. Both the samples taken from the crew members on the vessel and the ones provided by the cargo inspectors and/or shore representatives should be listed in the sample log.

Samples that are obtained on the vessel should be stored in a dedicated samples locker and away from the accommodation area. The sample locker should be dark, well ventilated and away from any sources of heat. The storage space in the locker should be made of materials that are fully resistant to the stored chemicals and should be cell divided in order to avoid shifting throughout the journey.

A cargo compatibility chart should be available in the sample locker for crew members' reference. Incompatible chemicals need to be stowed separately. Edible oils and chemicals must be stored in different areas. Information on handling chemicals, first aid and firefighting as well as the MSDS for each chemical should be readily available in the storage area.

Summary

Proper and timely liquid cargo sampling is one of the most important tasks for the crew members on vessels to prevent cargo contamination and exposure to relevant claims. Further, retained samples are important evidence in other matters such as coating damage claims, pollution claims and verification of specific gravity in case of quantity disputes. Skuld, therefore, strongly encourages its tanker members to conduct proper induction of their crew in the exercise of this vital task.

Source of Information: The Skuld P&I Club