

# DISPATCH

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# NanoVapor Tank Degassing – Saves Time, Money and is Safe for the Crew

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In the shipping industry, time is money. A shipping company loses money when a vessel is not in service. In these difficult times, losing money is the last thing that any company wants to be doing, especially when the cause of the loss is often avoidable.

Despite strict regulatory guidelines for entering enclosed spaces to handle tank cleaning, cold work or hot work, seafarers are often under pressure to make things happen more quickly, and this can lead to an erosion of safety protocols. Tragically, overlooking these safety measures to save time has resulted in a surge in injuries and fatalities of crew members entering unsafe enclosed spaces.

Wouldn't it be nice to be able to apply a "magic blanket" that significantly reduces the risks associated with entering enclosed spaces? The NanoVapor technology dramatically improves workplace health and safety while significantly reducing time and the environmental pollution related to "degassing" bunker tanks and cargo tanks on ships and barges.

Using the NanoVapor ST-1000M unit (ST-1000M) and the TankSafe™ technology, the risk of explosion is quickly mitigated, and health hazards to crew and the environment are reduced to the lowest possible level.



Additionally, residual fuel and sludge can stay in the tank, saving disposal cost.

## How does NanoVapor work?

Ventilation of the tank involves the removal of hydrocarbon vapours or VOCs from heavy fuel oil, marine diesel oil, or cargo residue. These fumes are dangerous, not only due to their toxicity, but also because they are highly flammable and explosive.

Hydrocarbons continuously evaporate into the atmosphere. To maintain a safe workplace concentration, either the tank has to be cleaned completely, or high flow-forced ventilation is required for as long as residual liquid is inside the tank or enclosed space.

The NanoVapor technology creates an extremely thin molecular layer on the surface of the hydrocarbon liquid, which effectively stops further evaporation: to achieve this

effect, the ST-1000M unit is connected to the tank. A fine nano-spray of the patented TankSafe liquid is created by means of compressed air and injected into the tank. The liquid's active molecules settle on the surface of any liquid to form a suppressant layer.

With NanoVapor technology, safe workplace levels can be reached much faster and maintained for extended periods of time. The TankSafe liquid is non-hazardous, biodegradable, and does not leave any residue on surfaces. The amount of liquid required to stop evaporation is extremely small, and there are no negative effects on the tank content: it can be directly refilled without cleaning.

## NanoVapor Hot Work Application

The bulk carrier Tai Prize required an urgent weld repair in the cargo hold. The weld area was directly adjacent to fuel oil tank containing 250,000 litres of HFO. Repair work required the fuel tank to be gas-free in order to complete the hot cutting and welding work in a safe manner.

Normally, the tank would need to be completely emptied and cleaned, followed by lengthy degassing into the atmosphere. Due to the extremely short time frame available for the repair, NanoVapor was selected as the

quickest method to safely obtain a safe gas-free atmosphere in the fuel tank.

### *NanoVapor Process*

The ST-1000M unit was configured to deliver the TankSafe into the fuel tank. Gas analysers were checked, and the oval tank plate was removed. Electrical grounding was established before the NanoVapor hardware was connected to the air supply line, the installed TankSafe container, and the tank plate adaptor. A test run was conducted to ensure that there were no leaks on the high-pressure side and that the tank adapter was airtight. The total set up time of the NanoVapor system did not exceed 20 minutes.

VOC measurements at the beginning of the process, as the tank access plate was removed, were at 245 ppm and at the end of the work it was 14 ppm. Readings of VOC concentration were taken at the tank top at frequent intervals and were recorded with continual monitoring in places adjacent to the hot work area, primarily at the tank top connection.

Utilising the NanoVapor technology, emptying the tank was avoided, and a safe atmosphere in the fuel tank was achieved in minutes. During the five-hour repair project, the atmosphere inside the tank remained well below hazardous levels. In comparison, off-hire cost and loss of time for a traditional tank degassing would have been immense. With NanoVapor's time-saving technology, the Tai Prize was able to quickly slip her moorings and load her cargo within the required time while providing a safe environment for the crew.

For further information, please check <https://ecochlor.com/ecochlor-nanovapor-nano-suppressant/> or send an e-mail to [nanovapor@ecochlor.com](mailto:nanovapor@ecochlor.com).

