

SAFER. GREENER. AND 90% LESS TIME TO A GAS FREE FUEL TANK.

Hot work requiring HFO fuel tank to be gas free was completed in under 5 hours, and avoided the 72 hours needed to drain the residual fuel and purge with air.



We've developed a breakthrough nanotechnology that outstrips conventional gas freeing methods in both performance and safety.

INTRODUCING TANKSAFE & THE ST-1000 DELIVERY UNIT



NANO VAPOR™

IT'S SAFER. Our suppressant is non-toxic, non-reactive, and safe to store. The delivery unit is simple to use, portable, uses onboard compressed air, and is rated ATEX Zone 2 with no electrical or moving parts.

IT'S FASTER. We dramatically reduce the time needed to gas free a fuel or cargo tank, and a single application can continue to suppress fuel vapors for days.

IT'S GREENER. TankSafe is engineered from renewable materials, readily biodegradable, and leaves no residue or waste product behind for cleanup or disposal.



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USING PROVEN NANOTECHNOLOGY FOR SAFETY AND EFFICIENCY

Safely managing explosive, toxic, and environmentally damaging vapors from oil and petrochemical derivatives is an ever present challenge for the transportation industry. Even with increased emphasis on better training and safety procedures, conventional gas freeing methods continue to result in loss of life and property, especially when time and safety work against each other under pressure.

With a sustainable future in mind, we've developed a breakthrough nanotechnology that directly addresses these deficiencies. Our simple, easy-to-use system significantly reduces your employee risk, downtime, and environmental impact by achieving results more safely and quickly than current practices, and without any hazardous waste products.

GAS FREEING CONFINED SPACES

When purging or gas freeing a fuel or cargo tank, NanoVapor's system can virtually stop vapor formation at its source where oil, fuel, and other petrochemicals are present. The molecular mechanism is so powerful that only a few ounces of the nano-engineered suppressant are needed to fully suppress vapor to safe levels, creating several key advantages over conventional methods:

1. Our system produces a gas free environment more quickly than any other method available, reducing your time above the lower explosive limit.
2. Because no reactive chemicals or inert gases are used, breathable air is never displaced in the confined space, allowing normal oxygen levels to be maintained and reducing the risk of asphyxiation for workers, one of the leading causes of loss of life in confined spaces.
3. Impossible with current methods, fuel does not need to be drained in order to create a gas free environment suitable for hot work.¹ Your vessel can save hours or even days of downtime by bypassing the need to drain fuel (or product) for maintenance.
4. After use, no measurable residue or byproduct is left behind, both minimizing or eliminate the need for costly and time-consuming recovery operations and allowing you to meet increasingly strict environmental regulations.

¹In 2017, the Tai Prize used NanoVapor to conduct hot work directly adjacent to the Fuel Oil tank. The work required the fuel tank to be gas free to enable the hot cutting and welding work to be conducted in a safe manner. NanoVapor was selected to be the safest and fastest method for this gas freeing event. The tank was successfully gas freed using Nanovapor and the hot work was carried out without the need to remove the fuel from it.

We've been adopted as an International Best Practice Standard for degassing retail underground storage tanks by one of the world's largest oil companies, and successfully adapted for use across marine, aviation, and energy industries. Our system is currently optimized for C5 and above, such as gasoline and other refined fuels.

A live side-by-side degassing demonstration was performed on the wing fuel tanks on a Boeing 737 aircraft. Prior to tank degassing, the jet fuel was drained using normal procedures. The wing tank on one side was then degassed using NanoVapor, while the tank on the other side was simultaneously degassed using conventional air ventilation.

Figure 1 compares the time it took NanoVapor to reduce the fuel vapors to the safe entry level of 100 ppm (**13 minutes**) as compared to normal air ventilation (**more than 7 hours**).

For operational safety, it's also important to show that NanoVapor's vapor suppression continues long after the NanoVapor system has been removed. **Figure 2** shows how the vapor concentration stayed well below the safe entry level after removal, while the vapor concentration in the tank with air ventilation immediately increased above hazardous levels.

BUSINESS OF THE FUTURE

If your company wants to reduce risks, save time, and contribute to a sustainable future, then NanoVapor is the technology partner for you. Together, we can create dramatic improvements in your workplace health, safety, and economy.

