



**REDUCING THE DANGER
OF H₂S RELATED
DEATHS AND INJURIES
ON BOARD THE ROYAL
AUSTRALIAN NAVY
FLEET**

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PROJECT BRIEF

AIM: To reduce the onboard dangers caused by H₂S

METHOD: 1) To break down H₂S into harmless elemental gasses by misting *TRIPLE 7 ODOUR CONTROL* into areas where H₂S has been detected.

2) To prevent H₂S from forming by adding *TRIPLE 7 ODOUR CONTROL* to sewer systems, bilges, waste oil containers etc.

TRIPLE 7 ODOUR CONTROL: NSN 6840-66-154-6200

A non-toxic, bio-based cleaner and deodoriser that.....
protects your health, your equipment and our environment.

About the chemistry

TRIPLE 7 Odour Control is a readily biodegradable, non-toxic and non-corrosive bio-based product, especially designed for odour control. The product is free of ferric salts, magnesium chloride or typical chemical derivatives, enabling odour-related problems to be solved without hazardous additives.

TRIPLE 7 Odour Control is virtually odourless and is free of strong masking fragrances. The product destroys odours either at their source or airborne and can be atomized into the air or added to effluent or holding tanks to prevent septicity and retard Hydrogen Sulphide formation.

TRIPLE 7 Odour Control does not react with other chemistries (e.g. Chlorines) to create toxic gases and is suitable for use in confined spaces. Always ensure correct confined space requirements are adhered to.

How the product works

The science of odours is very complicated. Odours are caused (or we are sensitive to them) because of ash particles, fatty globules, solvents, proteins, caustics, pheromones and fragrances. Odours may be a combination of all these factors. Odours are affected by oxidizers, sunlight and chemical reactions in the air, in our blood and in our sensory receptors etc.

TRIPLE 7 Odour Control encapsulates the H₂S bond and liberates the hydrogen and sulphide. By-products of the reaction include carbon dioxide, free water vapour, peroxides, liberated sulphides of sodium, hydrogen and amine and minute trace metals including magnesium, iron, potassium, salt and silica, all of which are harmless elemental compounds.

ANZAC SPO

PROJECT HISTORY

Anzac SPO was introduced to a variety of *TRIPLE 7* cleaning chemistries due to the superior cleaning capability, with less OH&S and environmental issues.

When researching *TRIPLE 7 Odour Control*, it was found that the product would convert airborne H₂S into harmless elemental compounds.

The project was then extended to find out more about this side benefit and how it could be utilised to prevent onboard death or injury from H₂S.

The project included the sourcing of automatic fogging systems which could operate as soon as a H₂S alarm was activated. Foggers can be plumbed to a central supply of *TRIPLE 7 Odour Control*, with nozzles at every H₂S sensing point.

The foggers can indefinitely mist the air with *TRIPLE 7 Odour Control*.

Anzac SPO were urgent to prove these benefits and to reduce the dangers of onboard H₂S.

However, due to staff changes and other priorities, the project was allowed to lapse.

Tests were done by DSTO, but the aim of the project was not clearly outlined and the results were not particularly beneficial.

CURRENT STATUS

The value of this project cannot be overstated. The risks of H.S are constant, and death or permanent injury can result.

The project was started by Anzac SPO personnel who believe there is much value in having these systems on board and it should be implemented as soon as possible.

ROYAL AUSTRALIAN NAVY RELATED REPORT

The following findings by a tank cleaning contractor highlight the effectiveness in H₂S reduction during a recent sewage tank clean.

Sewage Tanks

"Please find attached the entry permits for the Foxtrot V1 and V2 sewage tanks. As you can see the tanks were tested on the 2nd of May and were not fit for entry due to excessive H₂S and CO readings. The tanks had been tested three days prior to this with a similar result. It was decided that we should put 5 litres of *TRIPLE 7 Odour Control* into each tank and leave it for 48 hours before we tested them again. This instruction was followed and as you can see from the test results on the following Monday the tanks were fit for entry."

Findings and product MSDS are attached on a separate email.

UNIQUE BENEFITS OF TRIPLE 7 ODOUR CONTROL

- ✓ Non-toxic, non-hazardous, non-corrosive
- ✓ Destroys odours – does not mask them
- ✓ Cleans and deodorises
- ✓ Lowers system BOD's
- ✓ Retards sewage septicity and H₂S off-gassing
- ✓ Reduces slime and sludge in sewer systems
- ✓ Maintains flow-rates
- ✓ No natural or chemical masking fragrance
- ✓ Easier maintenance and cleaning of sewer systems and waste tanks
- ✓ Cleaner and healthier environments on-board

TRIPLE 7 Odour Control does not contain petroleum products, aromatics, caustics, chlorines or ammonium compounds.

TRIPLE 7 ODOUR CONTROL AS A CLEANER / DEODORISER

The mechanism behind TRIPLE 7 Odour Control

TRIPLE 7 Odour Control is a readily biodegradable liquid concentrate containing a homogenous blend of colloids, organic sequestrants and hyper-wetting agents that become 'super active' when processed together.

The cleaning action is similar in effect to an atomic explosion where random interaction of the particles loosen the soil

This *TRIPLE 7* product is a water-soluble technology, which is attracted to oils, fats and greases. While the cleaner breaks up and lifts away protein or fatty stains, it does not have the capacity to interact with the cleaning surface. This means powerful cleaning can occur with less damage (if any) to the surface being cleaned.

Traditional Chemical Cleaners

Traditional chemical cleaners often contain chemicals such as chlorine and caustic soda. These chemicals have a strong positive or negative charge, are cationic and ionic and react strongly with soils, forming strong chemical bonds with them. However, their strong chemical charge also reacts with the surface being cleaned. These highly concentrated chemicals bond to the target surface and oxidation can form as a white, reddish or green/blue crust.

Colloidal Cleaners

Colloidal cleaners are not chemically charged, but promote breaks in surface tension, resulting in a cleaner surface. *TRIPLE 7 Odour Control* is a colloid chemistry that forms a short lived unstable emulsion which quickly breaks down, releasing the insoluble organic fats, oils, proteins etc. These then separate from the water.

EFFLUENT TREATMENT, HOLDING TANKS & PIPEWORK SYSTEMS

TRIPLE 7 Odour Control contains a highly concentrated surfactant solution that separates solids or soiling material within effluent and other odour plagued environments. Problems with smell arise when bacteria start to die and the product breaks down the solids to provide a food source for the bacteria, consequently improving and enhancing biodegradability in a shorter time frame.

TRIPLE 7 Odour Control is used to control odours in waste water pipework systems. The product works to stop the formation of highly dangerous and corrosive Hydrogen Sulphide Gas and Sulphuric Acid.

Rather than being a masking agent or band-aid solution, *TRIPLE 7 Odour Control* attacks the source of the problem, softening the hydrocarbons and reducing the ability of fats and grease solids to congeal and adhere to the walls of waste water pipes. This reduction in fat occlusion allows an improvement in sewer conditions and effluent flow.

TRIPLE 7 Odour Control can be applied at any stage in the cleaning or waste stream cycle and if added at the furthest point upstream (toilet), then drains and sewer plumbing will be cleaned from entry point to the storage tanks.

TRIPLE 7 Odour Control can also be added to waste oil tanks at approximately ½ to 1 ½ litres per day to prevent the formation of H₂S and other poisonous gasses. Also the release agent effect will prevent waste oil forming a thick sludge and enable easier tank cleaning.

TRIPLE 7 ODOUR CONTROL is an environmentally responsible product that will completely biodegrade in the open environment in approximately 20-30 days. Discharge to oceans, accidental spills etc will cause less threat to the environment than traditional cleaners.

In suitable storage conditions, *TRIPLE 7 ODOUR CONTROL* has a shelf life of at least 10 years.

SUMMARY

TRIPLE 7 ODOUR CONTROL contains no dangerous chemicals, petroleums, alcohols, terpenes, artificial colours or fragrances, yet it is an effective cleaner and deodoriser that prevents and removes H₂S.



Environmental
Fluid Systems

P.O. Box 1280
39 Coghlan's Road
Warrnambool Victoria 3280
ABN: 77 288 189 649 ACN:121 403 567

T: +61(0)3 5564 6455
F: +61(0)3 5564 6466