

# ECOSOLUT<sup>®</sup> 24

Market-Leading Hydrocarbon Oil Tank Cleaning

## Case Study

### Advantages of ECOSOLUT 24 Cleaners Compared To Established Market Products

Enhanced Cleaning Efficiency with ECOSOLUT 24

- ▶ Significant Time Reduction in Cleaning Processes
- ▶ Considerable Decrease in Cleaning-Related Wastewater Generation
- ▶ Notable Reduction in Energy Expenditure for Cleaning Operations

### Introduction

In the tanker industry, the removal of residual hydrocarbons from cargoes like Ultra-Low Sulfur Diesel (ULSD), gas oil, and kerosene presents a substantial challenge. These hydrocarbons tend to adhere to the zinc silicate coatings, a standard protective layer inside tanks, necessitating comprehensive cleaning to avert contamination of sensitive subsequent cargoes, notably methanol. Given methanol's high solvent capacity, even trace levels of hydrocarbon contamination can induce significant turbidity.

### Ecosolut vs. Established Market Products

Historically, a prominent tank cleaning agent, characterized by its "Protein Surfactant Synergists", has been a market leader due to its ability to reduce methanol-based cleaning time by half. This product, akin to ECOSOLUT 24, is recognized for its neutral pH range (7–8) and environmental compatibility.

### Independent Laboratory Assessment

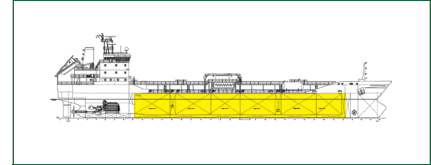
A comparative test was carried out in 2012 by an independent cleaning service specialising in marine applications.

The outline test procedure was:

1. Duplicate zinc silicate coated test panels were fully immersed in D2 diesel (also called Marine diesel) for 72 hours
2. The panels were removed from the D2, flushed with cold freshwater for approximately 1 minute (in order to remove the residual D2 from the surface of the test panels) and then naturally ventilated to dryness
3. The panels were then washed by re-circulation using both tank cleaning chemicals at a concentration of 0.5% in fresh water for 2 hours at 70°C
4. The panels were then flushed with warm freshwater to remove any residual detergent and then naturally ventilated to dryness
5. Both panels were then wall washed with methanol.
6. Hydrocarbon contamination of the methanol was then tested for APHA colour in accordance with ASTM D1209 and water miscibility (hydrocarbons) in accordance with ASTM D1722.

The results, presented in a tabulated format below, highlight the superior cleaning efficacy of ECOSOLUT 24.

#### USAGE AREAS



Tank Cleaning and Maintenance

#### PACKAGING



#### APPROVALS



# ECOSOLUT<sup>®</sup> 24

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Cleaning Solution	Residual Hydrocarbon Reading	Colour (APHA)
Hot Water (negative control)	520	35
Comparative Product	85	15
ECOSOLUT 24	75	7

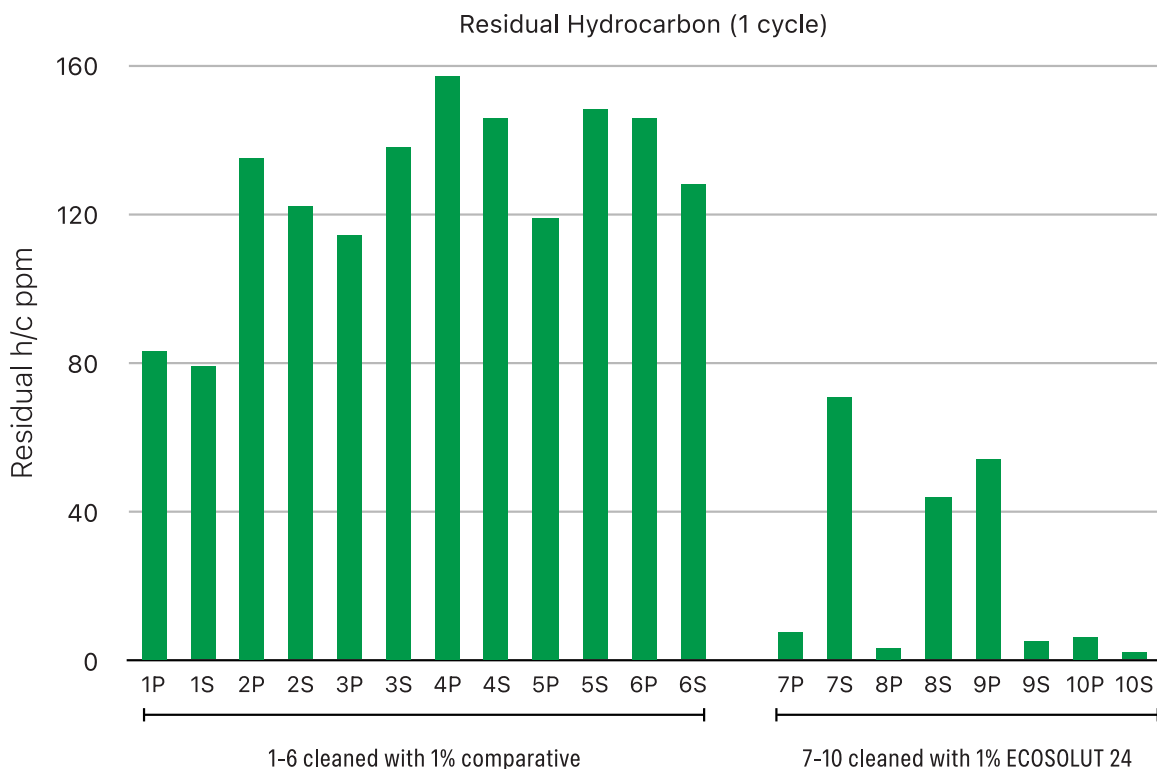
## Marine Tank Cleaning Trial

The test was carried out in October 2012 by an independent cleaning service on a 45,000 DWT tanker with 20 separate tanks: the test layout was that initially 12 tanks were cleaned by the established product and 8 of ECOSOLUT 24. The layout also imitated the "typical" procedure (i.e. multiple washings).

1. 1 hour seawater followed by 4 hours heated seawater washing;
2. 4 hours recirculation cleaning with either the established or Uniservice's product (1% dilution);
3. 4 hours 70°C seawater machine wash;
4. Ventilation and methanol wall wash;
5. Test results.
6. Repeat procedures 2) – 4) with Uniservice's product;
7. Test results.

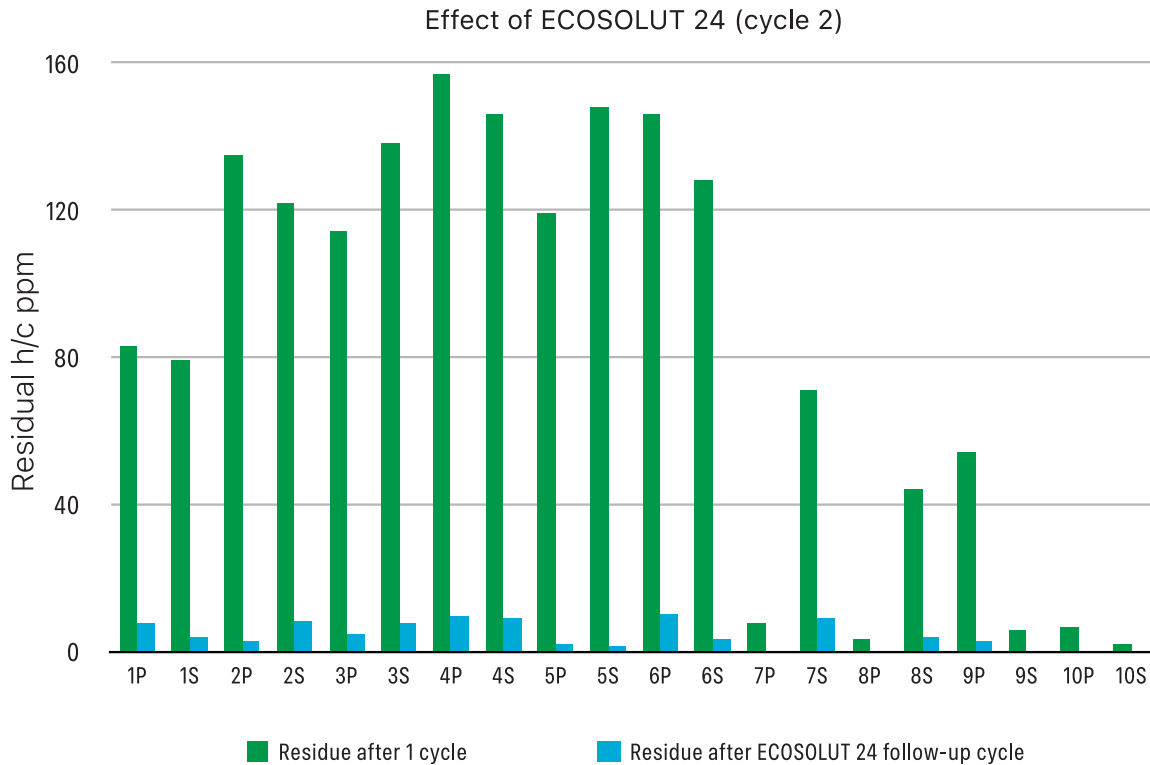
A residual hydrocarbon reading of <10ppm was required. The graph below shows the results illustrating the much greater reduction in the residual hydrocarbon levels for the tanks cleaned with ECOSOLUT 24 (tanks 7-10) relative to those using the comparative product (tanks 1-6).

The majority of tanks cleaned with ECOSOLUT 24 met the <10 ppm requirement after only a single cycle with obvious savings of cleaning time, energy and washing volumes.



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For all the tanks that had not met the requirement after 1 cycle, a second cycle of ECOSOLUT 24 was employed. The graph above shows the dramatic reduction achieved, proving the superiority of ECOSOLUT 24 over the comparative. All tanks met the <10 ppm requirement after 2 cycles.

In this case it was estimated that ECOSOLUT achieved:

- ▶ a reduction of waste water of >50%
- ▶ a reduction of time of at least 30%.

Given the costs involved in such differences, the overall costs of Uniservice's solutions were concluded to be vastly superior to those of the competing product.

## Approvals

ECOSOLUT 24 has been independently tested and approved by leading coatings companies under the most stringent cleaning conditions.

ECOSOLUT 24 is an IMO registered Cargo Tank cleaning additive in MEPC.2

Product images are for reference purposes only.

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## Contact

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