

ECOSOLUT[®] 24:

Multi-purpose, solvent-free, neutral cleaner concentrate

Superior cleaning across range of persistent hydrocarbon-based cargoes e.g.

- ▶ Vegetable oils (e.g. Palm kernel oil (PKO))
- ▶ Hydrocracker bottoms (HCB)
- ▶ Linear alpha olefins (LAO)
- ▶ Fatty Acid Methyl Ester (from soya-bean oil) (FAME)
- ▶ Pitch Tall Oil (PTO)

Effective with all common substrates:

- ▶ Zinc silicate coated mild steel
- ▶ Stainless steel 304 (SS)
- ▶ Epoxy phenolic (EP)

Recommended use concentration only 0.5 – 1%

Recommended water temperature only 60°C

Reduces both the number and quantity of cleaning chemicals required on-board

Introduction

An earlier technical data sheet (TDS) specifically focused on the performance of *ECOSOLUT* 24 as a vegetable oil tank cleaner.

Recent testing has now proved its superiority, compared to an established market competitor, across a wide range of persistent hydrocarbon-based cargoes.

Furthermore, because *ECOSOLUT* 24 is pH neutral it has no coating compatibility problems and has been shown to give excellent cleaning performance for all common substrates.

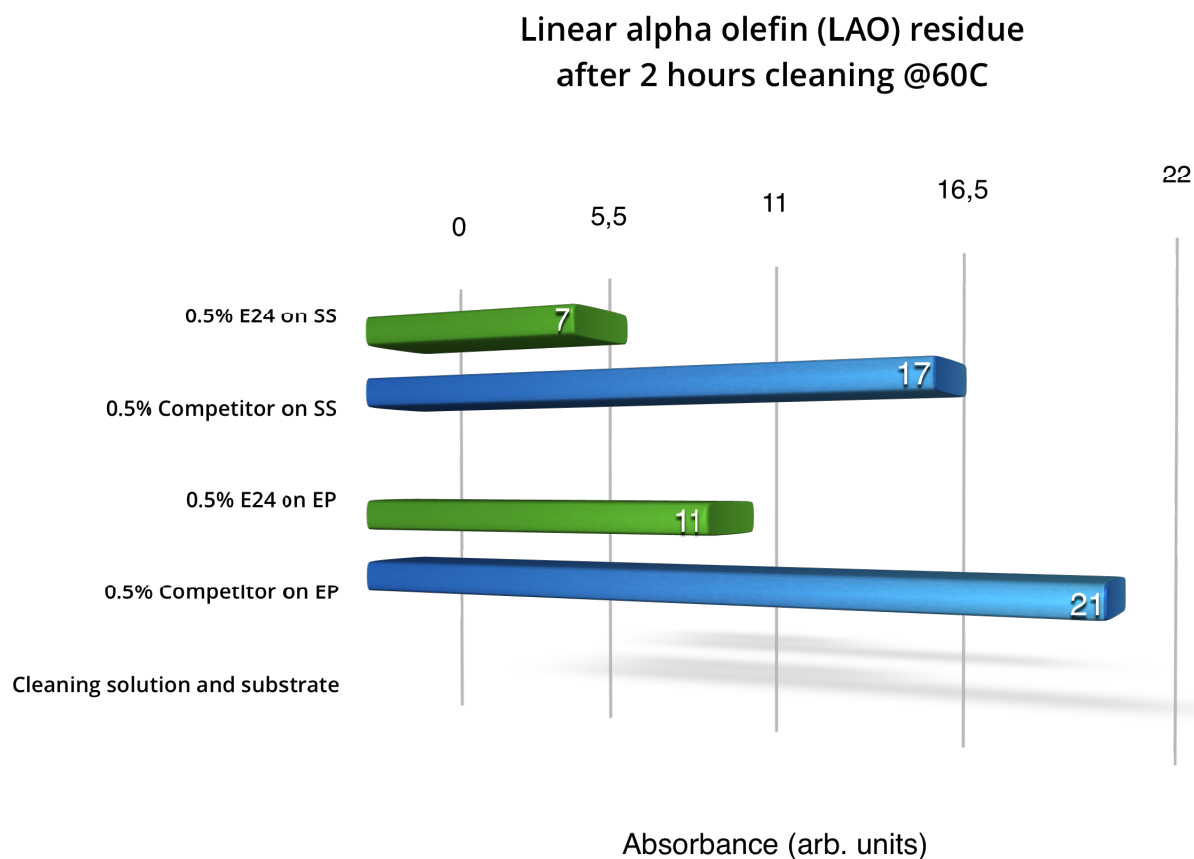
Performance comparison of neutral cleaner concentrates: *ECOSOLUT* 24 vs. established market competitor

Testing was done In an independent test laboratory.

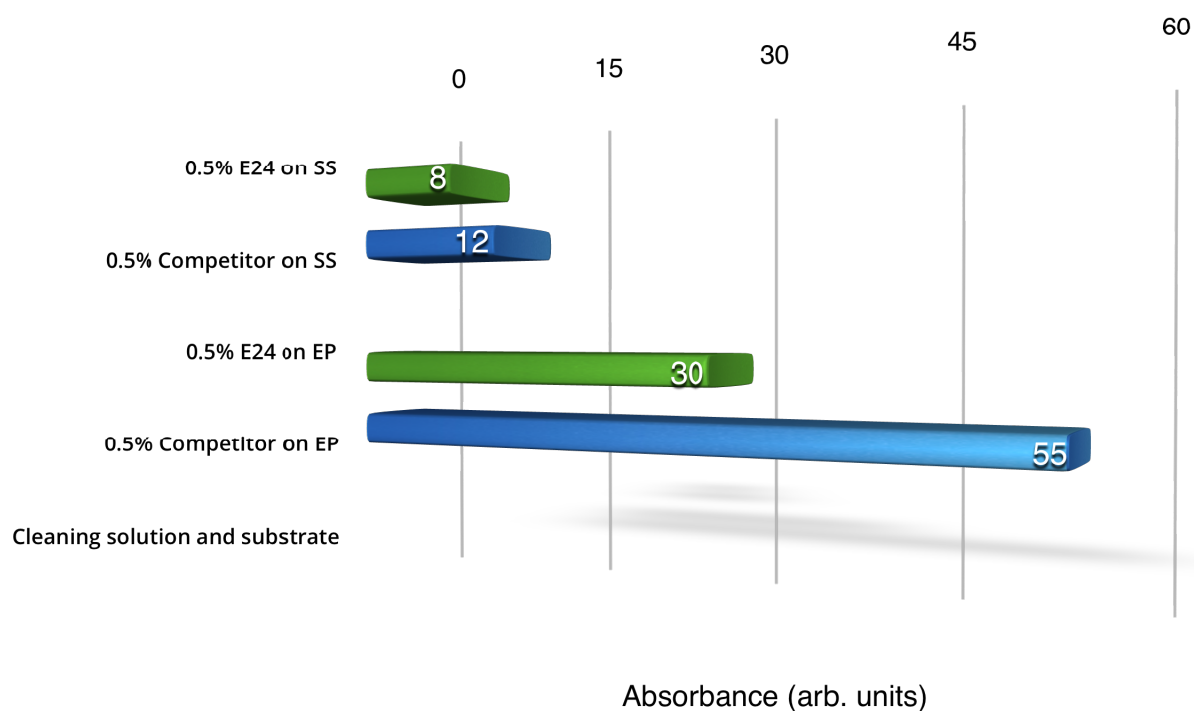
In brief, the test protocol involved:

- ▶ Immersing test panels in the cargo chemical for 48 hours
- ▶ Allowing them to drain as they cooled to ambient, leaving an even film of solidified oil on the surface
- ▶ Washing for 2 hours in recirculating 0.5% freshwater cleaning solution at 60C
- ▶ Rinsing the washed plates with ambient freshwater then allowed to dry
- ▶ Rinsing the dried plates with organic solvent to extract residual cargo remaining on the plates
- ▶ Analysing the organic solvent extract to quantify the extracted cargo content.

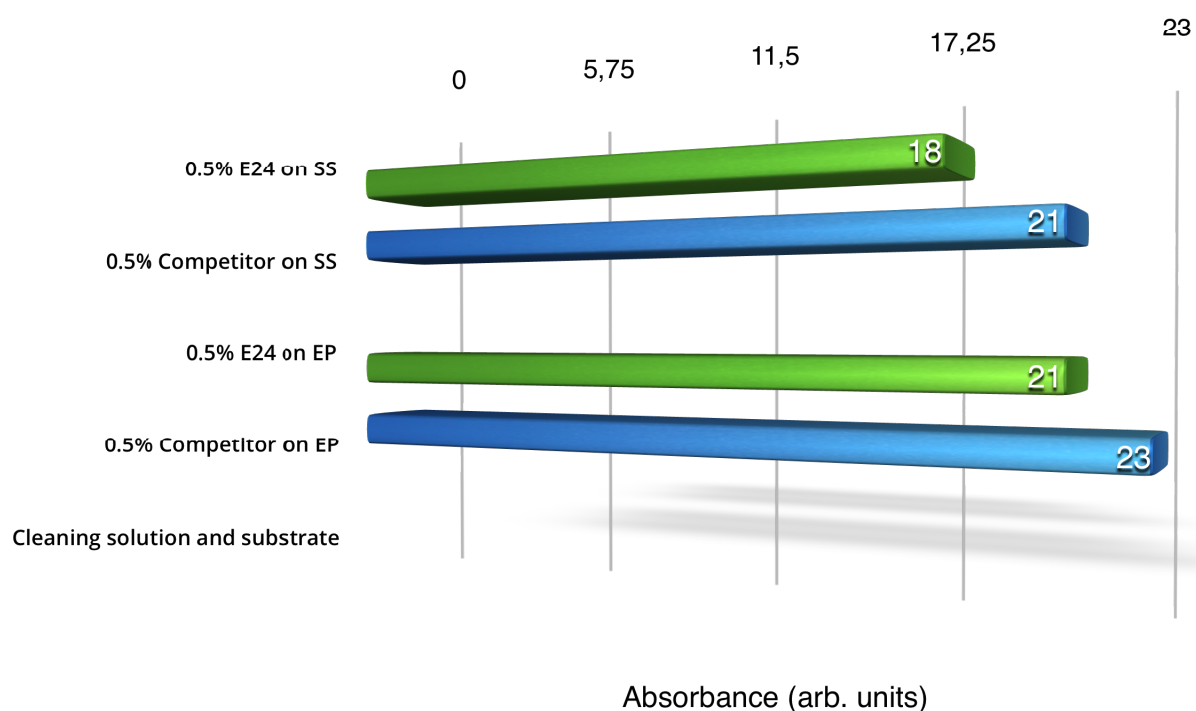
The data below, together with that in the earlier vegetable oil cleaning TDS, shows that *ECOSOLUT* 24 gives cleaning performance superior to an established market competitor across a range of cargos.

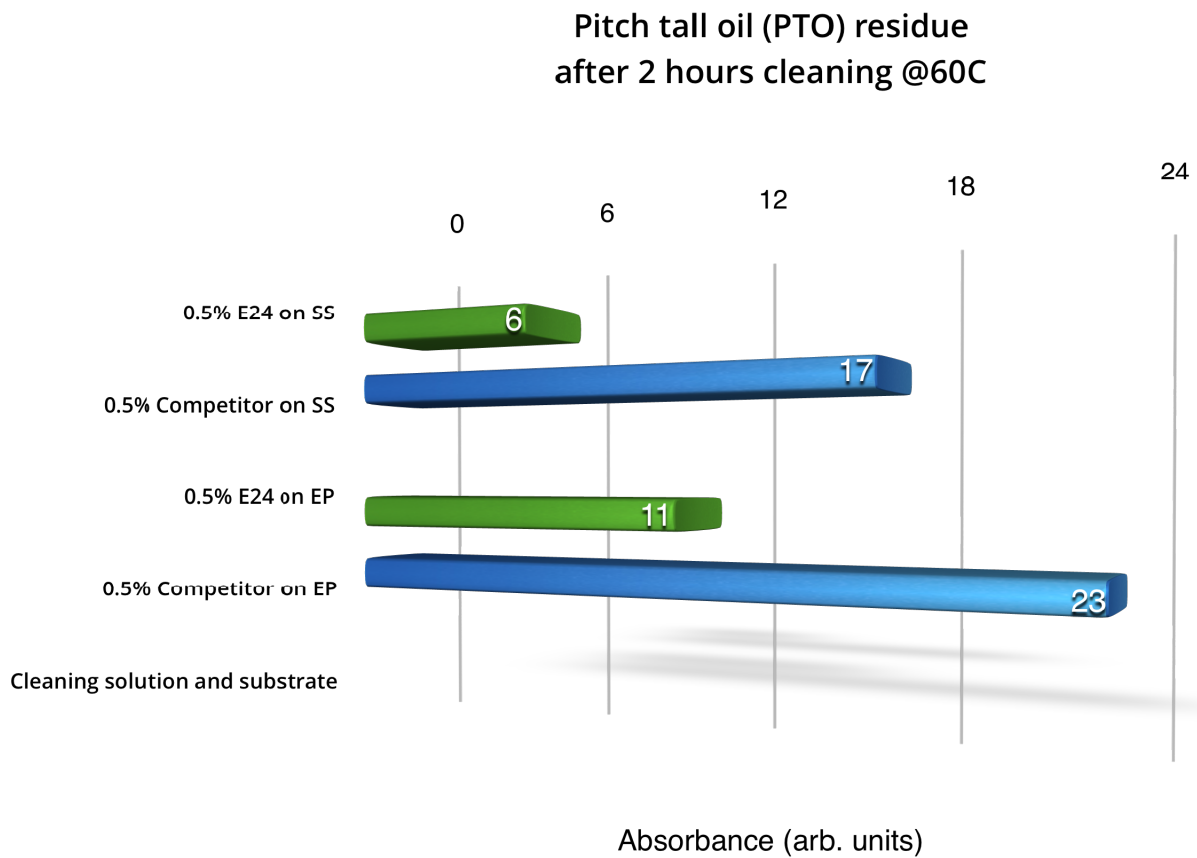


Fatty acid methyl ester residue after 2 hours cleaning @60C



Hydrocracker bottoms (HCB) residue after 2 hours cleaning @60C





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

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