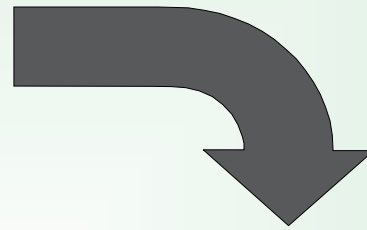


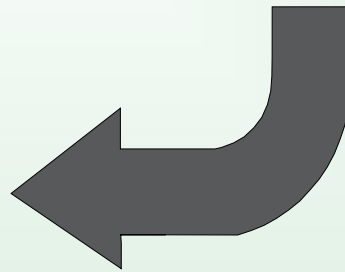
ESSORP-Refit



100% Sludge Oil



***ESSORP -
Technology***



60% Oil

40% Water



**Reduction
amount of Sludge Oil
from Separators on board of Ships**

=

Reduction of discharge cost

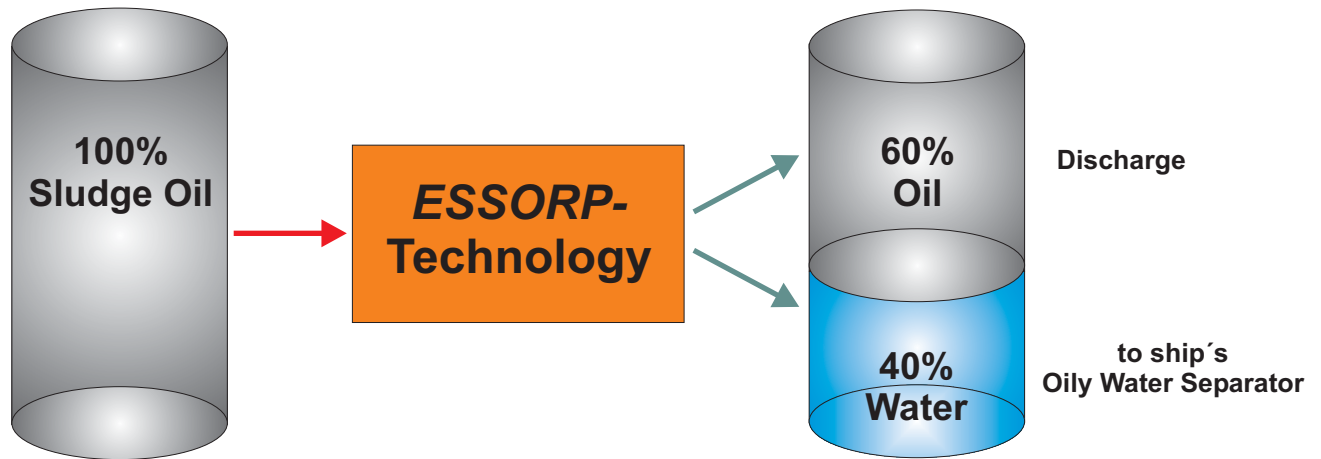
Environmental E_S Systems

40 % Reduction for discharge cost of Sludge Oil

Environmental Systems has developed a new technology, to separate the Sludge Oil directly on board of ships safe and reliable into water and oil

Untreated Sludge Oil
100% discharge cost

Treated Sludge Oil by
ESSORP-Technology
60% discharge cost



Also extremely stabilised Water / Oil - Emulsions, e.g. cleaning water from the Separators, will be treated reliable and safe with this approved technology.

By means of the *ESSORP*-Technologie treated Sludge Oil coming from the Separators of a Container Vessel



after 1 minute



after 3 minutes



after 5 minutes

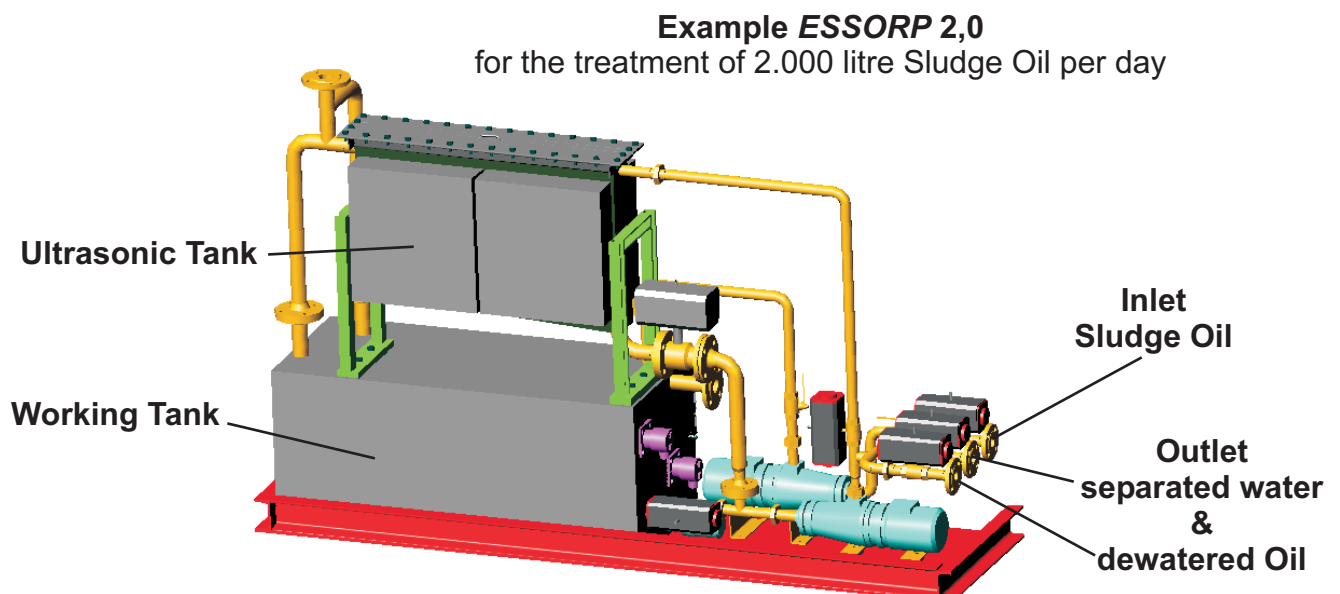


after 10 minutes

Environmental E_S Systems

40 % Reduction for discharge cost of Sludge Oil

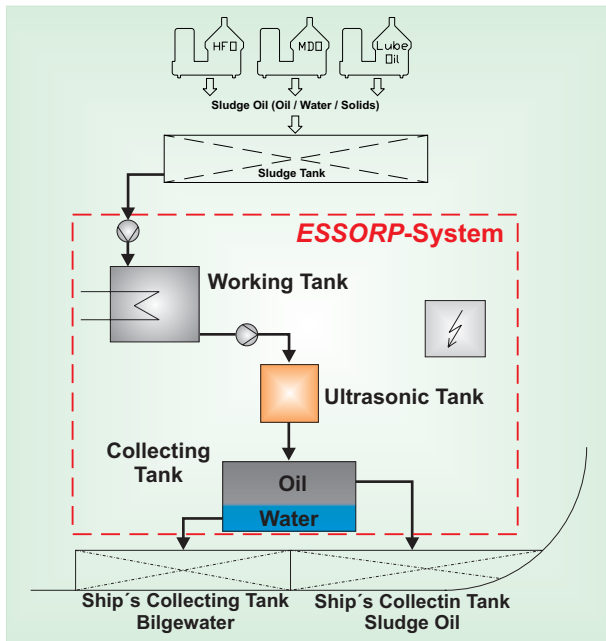
- ⇒ For daily amount of Sludge Oil from 0,5 cbm up to 8,0 cbm
- ⇒ Applicable for refit and newbuildings on board of ships
- ⇒ Flexible design due to modular components / System can be adapted to the local space on board of ships
- ⇒ Optional with downstream decanter, so that the oil can be used as fuel oil, if the Sludge Oil is coming only from the HFO-Separators
- ⇒ No use of chemicals / demulsifiers
- ⇒ Only to be connected to el. power supply
- ⇒ Cost-Effective because of:
 - Radical reduction of the daily amount of Sludge Oil to be discharged
 - Low cost for operation, service & maintenance
 - Short amortisation
 - No rotating parts
 - Radical reduced required space for Sludge Oil Tanks, respectively radical higher storage capacity of the Sludge Oil Tanks
 - Lengthen discharge intervals of Sludge Oil
- ⇒ easy, reliable & safe operation



Environmental ES Systems

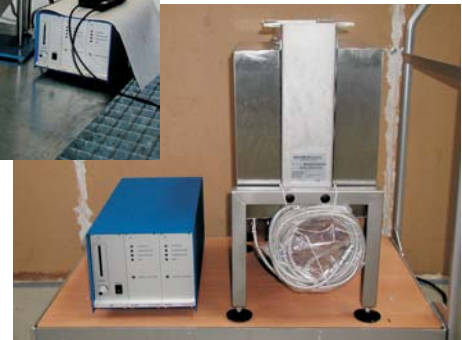
Principle Flow Diagram

Integration of **ESSORP-Systems** into the ship's system between Separators Sludge Tank and Sludge Oil Tank from the ship

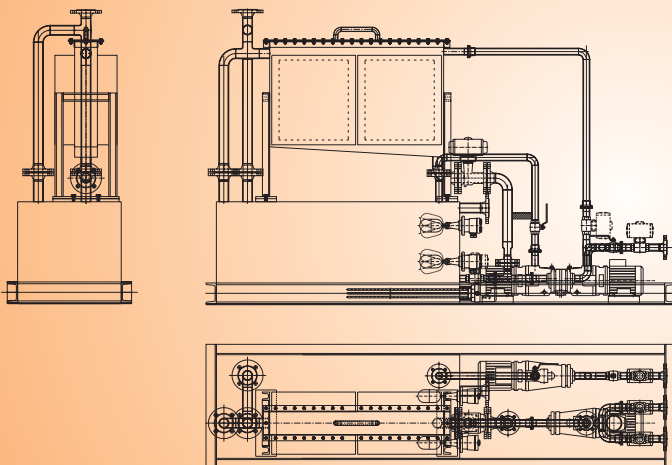


Ultrasonic-Tank

Manual 14 - Litre - Ultrasonic - Tank for demonstration use on board of ships.
This Ultrasonic-Tank is in the position to treat approx. 650 litre Sludge Oil within 24 hours.



Example **ESSORP-Refit 2,0** for 2,0 cbm Sludge Oil per day



Dimensions:

Length: approx. 2.265 mm
 width: approx. 600 mm
 height: approx. 1.425 mm

Connections

Inlet/Outlet: DN 25
 Vent Tank: DN 40
 Overflow: DN 40

← Inlet Sludge Oil from Separators

→ Outlet dewatered Sludge Oil
 Outlet separated water

If you have additional questions about our **ESSORP-System**, we are pleased to consult you detailed & individually.



Environmental Systems
 Contact Person: Sven Altenberg
 Uhlandstrasse 22
 27576 Bremerhaven
 Germany
 Tel.: +49 - (0)471 - 50 10 451
 Fax: +49 - (0)471 - 50 10 453
 www.environmental-systems.de
 e-Mail: info@environmental-systems.de