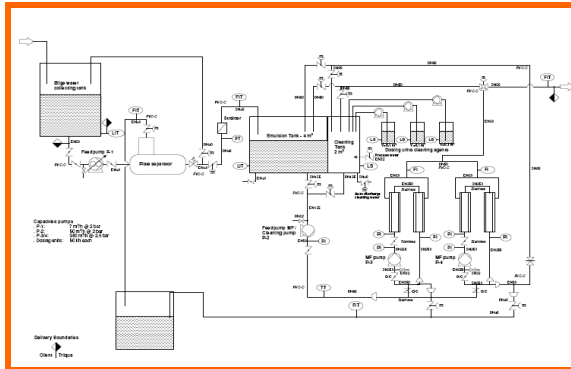


Marine Waste Water Solution

Triqua offers several waste water treatment solutions which are especially suitable for application in different industries. Due to the combination of a Membrane system with another type of separation a high grade of liquid separation can be achieved. Recently Triqua developed an oily/water treatment system perfectly suitable for the separation of oily/wastewater from barges, vessels and tank-cleaning operations. The basics of this system can be used on land, offshore platforms as well as on board vessels.

Aliphates and aromatics can be separated from the (process)water or bilge water.

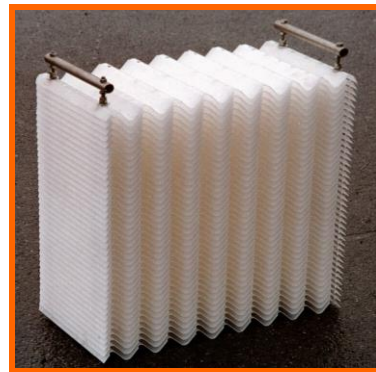


process sketch

Coalescing part:

High efficient separation of (insoluble) hydrocarbons from aqueous phases will be executed by a packed bed of Coalescing plates. The special shaped coalescing plates are placed one upon the other with a standard distance. The configuration of the plates will force hydrodynamic coalescence. The merging of very small oil droplets into larger ones will create extremely enhanced coalescence. Gravity or a positive displacement pump will be used to feed the system.

The coalescing part will remove 99% of free oil particles. If this is sufficient enough for the process the flow can be diverted back to the collecting tank. If however the quality of the process water must be of a higher standard; the fluid can be directed to the membrane part of the process.



coalescing plate packet

Membrane circuit(s):

The membrane system will basically contain a feed pump, one or more circuits -each with circulation pump and several membrane modules. Separation of the dissolved and stable emulsified oils or hydrocarbons will take place within the modules. Each module will contain a ceramic set of membranes. A "Crossflow" and turbulent flow will prevent clogging of the membrane porous. The standard porous size will be 0.2 micron, if BETEX, or other components like Cadmium, copper zinc etc. are to be removed a smaller porous size can be inserted.

For further information:

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Marine Waste Water Solution

The result of afore described process will be a discharge flow containing <5 mg/l. This is also in accordance to the IMO regulation. Test results are available at request.



ceramic membranes

Additional RO-system:

A further removal of Chemical components and/or heavy metals can easily be achieved. Extension of the process can easily be obtained by the use of a Reversed Osmoses system. Discharge of the treated water on surface water (or sewerage) will result in a harmless, environmental friendly operation.



RO-system

The following characteristics are met:

- high reliable operation
- totally enclosed process
- no process chemicals required
- very compact design
- high treatment efficiency
- treated water is free of oil, suspended solids and emulsified oil
- (Gas) production platforms
- sea and land installations (tank-cleaning, liquid waste collection etc.)

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