FREYLIT INDUSTRIAL OIL WATER SEPARATORS

SINCE 1983 FREYLIT HAS BEEN PRODUCING AND INSTALLING A WIDE RANGE OF OIL WATER SEPARATORS

SPECIAL FEATURES and SPECIAL CHARACTERISTICS of FREYLIT OIL WATER SEPARATORS

COMPARED to OTHER METHODS and COMPETITORS :

CERTIFICATION ,OIL OUTLET CONCENTRATION and REMOVAL SIZES of OIL DROPLETS

COMPETITORS
The American Petroleum Institute Bulletin 421 = API 421
will be used by **most of our competitors** as specification for their Oil Water Separators
API 421 was originally formulated in the 1970's as a guide for waste water treatment at refineries and assumes removal of "free oil" only, with a droplet size of **150-microns** and above.
API 421 calls for a coalescing media of parallel inclined plates at 45 to 60 degrees and spaced 0,75 to 1,5 inches apart to separate oil droplets of assumed **60-micron size.**
No residual oil content of the water discharged is specified in API 421.
API 421 does not specify a water quality exiting the OWS, but does suggest **50 ppm (50 mg/l)** of oil in the water being discharged

FREYLIT
FREYLIT Oil Water Separators are specified and tested according Austrian Norm ÖNORM B5101 (1990) and European Norm EN 858
The Austrian Norm ÖNORM B5101 (1990) was the strictest Norm worldwide and specified a water quality exiting the OWS of **5 ppm (5mg/l)** oil in the water being discharged
FREYLIT uses a special computer program to calculate the oil droplets which will be removed out of the water .
The FREYLIT Separators can remove 100% of all oil droplets which are larger than **25 microns** depending on the design and dimensioning, and 25% of oil droplets with a size of **12 microns** .

COALESCING TECHNOLOGY

COMPETITORS
Most of FREYLIT`S competitors use parallel inclined plates as coalescing media
If the space between the inclined plates is to large oil outlet concentration under 50 ppm (50 mg/l) never can be reached because the small oil droplets rise slowly and do not have the chance to touch a plate.

The below mentioned statement applies only to Oil Separators in an open system in which oxygen and light can act on the oil-water mixture.
In closed systems (airtight applications) no bacteria and algae can occur.
The following happens if the space between the inclined plates is to small :
Some manufacturers of 45 degree and 60 degree inclined plates state :
If sediment and mud entering the tank with the water the sediment simply slides down each 45 degree or 60degree plate to the bottom of the tank, however this is not correct .
In oily water environments, bacteria and algae always grows on the surface of the plates and over time, the algae and bacteria growth makes the space between each plate smaller and smaller so

sediment and mud cannot slide to the bottom of the tank but instead sticks to the algae and bacteria on the plates.
This causes back pressure and the oil droplets are therefore forced to flow faster across the 45 degree straight plates.
Since the smaller space is creating back pressure, the oily water flows quicker through the plates and the plates do not have sufficient time to separate efficiently and the oil outlet concentrations therefore increase considerably.

FREYLIT
With FREYLIT horizontal **wave plate pack separators** on the other hand,the oily water always goes through the corrugated plates colliding with each wave section of the corrugated plates and so the separation efficiencies are always maintained even with increased back pressure due to algae and bacteria growth.
Due to the fact that corrugated plates are stacked on top of each other and the resulting shape (tapered at the corrugation ridges and extended at the corrugation peaks and valleys)
the oil-containing water moves along the corrugated plates at varying speed.
This results in additional particle collisions (possibility to coalesce) of bigger (slower) and smaller (faster) oil droplets.
As droplets become bigger, on account of these particle collisions, they accelerate their upward movement, so that they are consequently trapped by the corrugated plates

MATERIAL of COALESCING PLATES

COMPETITORS
Most of FREYLIT`S competitors are using straight parallel inclined plates installed at 45 or 60 degree slope.
Material: Steel, Stainless Steel ore Polypropylene

FREYLIT
FREYLIT manufacture horizontal corrugated (wave) coalescent plates
Material: Oleophilic Polypropylene (PP) and Oleophilic Polyoxymethylenhomopolymer (POM)
POM will be used if the temperature of the oil water mixture is higher than 70° Celsius
LIFETIME of the plates MINIMUM 20 Years

UTILIZATION of the PLATE SURFACE

COMPETITORS
INCLINED PLATES : As half of the total surface of any inclined parallel plate media is always angled upward, rising oil droplets rarely impact the plates.
In other words, half of surface area of any inclined plate media never supports oil droplet coalescing.

FREYLIT
FREYLIT coalescent plates are arranged in horizontal position in order to fully utilize the complete surface area of each coalescent plate.

MORE ADVANTAGES OF FREYLIT OIL WATER SEPARATORS

1. **FREYLIT CAN BUILT THE CONTAINER OF THE OIL WATER SEPARATOR MUCH SMALLER THAN OUR COMPETITION (INCLINED PLATE or API separators)TO DELIVER THE SAME OIL OUTLET CONCENTRATION**

2. **FREYLIT CAN CHANGE THE DISTANCE BETWEEN THE PLATES BETWEEN 6 mm and 12 mm by simply turning the plates 180 ° horizontal ,**
   The FREYLIT plates have, as an integral part of the plate, two different distance holders poured on each plate that enable the turned plates to be slotted together .

3. FREYLIT has 30 years experience with applications ,dimensioning and delivery of OIL WATER SEPARATORS