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# SLOP OIL & WASTE FUEL RECYCLING

SLOP OIL · WASTE FUEL OIL · MARPOL

Separation systems that break stable oil, water and solids emulsions and send the recovered oil to re-refining or back to crude processing.

- Heating & demulsifier dosing
- Three-phase centrifugal separation
- Dehydration & flash evaporation
- Light-ends recovery
- Routing to re-refining or crude
- Skid-mounted packages


DIVISION
hitorq.in

GROUP
www.specxtech.com

EMAIL
connect@specxtech.com

PHONE
+91 7600 12 1222

OILY RESIDUES, EXPLAINED

# OIL WORTH RECOVERING, LOCKED IN AN EMULSION

Wherever oil is produced, stored, transported or refined, some of it ends up mixed with water and dirt. Tank bottoms, interceptor skimmings, line flushings and recovered spills all produce the same kind of material: an off-spec mixture that no buyer will accept as it is, yet still contains a large share of usable hydrocarbon.

Left untreated, these residues occupy tank space, carry disposal charges and pose an environmental risk. Treated properly, the oil can return to a refinery or re-refinery as feedstock, the water can go to effluent treatment and the solids can be handled as a much smaller waste stream.

### WHY SIMPLE SETTLING IS NOT ENOUGH

Fine droplets of water are held inside the oil by natural surface-active compounds and fine particles that coat each droplet. These films stop droplets from merging, so gravity alone works slowly and leaves a stubborn middle layer.

**3**
Phases to split: oil, water and solids

**2**
Process stages: phase separation, then fractionation

WHAT A TYPICAL SAMPLE LOOKS LIKE AFTER STANDING




Schematic only. Proportions vary widely from one source to another; a lab bottle test on each feed guides heating and chemical dosing.

TABLE 6.1 SEPARATION TECHNIQUES AND HOW THEY HELP

| TECHNIQUE | HOW IT WORKS | WHERE IT FITS |
|---|---|---|
| Heating | Warmer oil is thinner, so droplets move and merge more easily | Always applied ahead of separation |
| Emulsion breakers | Chemicals displace the stabilising film on droplets so they can coalesce | Dosed upstream; selected by bottle test |
| Gravity settling | Time in a tank lets free water and heavy solids drop out | Bulk pre-separation and buffering |
| Three-phase decanter centrifuge | Rotating bowl multiplies gravity and splits oil, water and solids in one pass | Main separation step in HiTorq units |
| Disc-stack polishing | High-speed separator removes the last fine water and particles | Optional, when a drier oil is needed |

FROM RESIDUE TO FEEDSTOCK

# SPLIT THE PHASES, THEN RECOVER THE CUTS

HiTorq treatment trains are configured around the feed: its water and solids content, how stable the emulsion is, and where the recovered oil will go next. The aim is a clean oil that can be blended into a refinery feed or sent on to a used-oil re-refining plant.

## STAGE 1 · PHASE SEPARATION

**1A — Reception & screening**
Coarse debris removed; feed homogenised in a heated tank.

**1B — Conditioning**
Feed warmed and dosed with emulsion breaker.

**1C — Decanter centrifuge**
Continuous split into oil, water and a solids cake.

## STAGE 2 · FRACTIONATION (OPTIONAL)

**2A — Dehydration**
Remaining moisture flashed off under heat.

**2B — Light-end recovery**
Lighter hydrocarbons evaporated and condensed as fuel cuts.

**2C — Heavy oil to further processing**
Heavier fraction sent to vacuum distillation and finishing.

## DESTINATION OF EACH STREAM

| WATER | SOLIDS | LIGHT CUTS | OIL |
|---|---|---|---|
| **Separated water** | **Dewatered cake** | **Fuel fractions** | **Recovered oil** |
| To the effluent plant | Reduced volume for disposal | Reused as fuel or blendstock | Refinery feed or re-refining |

**Stored residue costs money every month. Separated, it becomes saleable oil.**

### SHIP-GENERATED OILY WASTES (MARPOL)

Vessels produce sludge from fuel and lube oil purifiers and oily bilge water. Under MARPOL Annex I these must be discharged ashore to port reception facilities. Terminals, depots and tank-cleaning operators handle comparable waste fuel oils. All of these can be processed on the same kind of separation and recovery train, so material that would otherwise be a disposal burden is turned back into oil.

FORMAT
### Skid or fixed plant
Mobile skids for tank cleaning, or permanent units at terminals and refineries.

CONTROL
### Automated operation
Temperature, dosing and centrifuge settings managed from a PLC panel.

SIZE
### Built to the feed
Capacities engineered to client requirement and feed analysis.

LET'S TALK ABOUT YOUR PLANT

# FROM A FEED SAMPLE TO A RUNNING PLANT.

Share your feedstock, the products you want and the capacity you have in mind. Our process team will come back with a technical route, a block flow diagram and the next steps.

01 · Send

**Feed details**

Feedstock type, source, analysis if available, and the volume you expect per day.

02 · Define

**Target products**

The grades or cuts you need, the quality they must meet, and site constraints.

03 · Receive

**Technical proposal**

Process route, equipment scope and an execution plan for your review.


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Xtending Engineering Possibilities

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