

WASHING IN A CONCRETE MIXER DRUM

N 23

SCOPE

Substrate: stones
Pollution: medium to heavy
Pollutant: all types
Sea: tidal or non-tidal



EQUIPMENT NEEDED

Basic equipment:

- Concrete mixer drum, 5 or 7 m³
- Agents (solvents)
- Thermal washers (hot water + rinsing)
- Settling tanks
- Wire mesh tank (rinsing)

Extra equipment:

- Sediment supply (loader, hopper tank)
- Water supply (water tank + pump)
- Skimming equipment
- Logistical equipment: deployment of materials /sediment and waste management

DESCRIPTION/PRINCIPLE

The sediments are mixed for 5 minutes with a pure solvent (petroleum fraction), then washed in cold water (or lukewarm water using thermal washers) for 10 to 15 minutes inside the drum. At the end of the cycle, the drum is filled with water using a hose in order to skim floating oil off using an overflow which is channelled into a designated tank. The washing water is reused after settling. The stones are rinsed in hot water on a grid placed over a tank, then put back on the beach (surfwashing).

CONDITIONS OF USE

Pollution: all types, preferably fresh or little weathered oil; polluted up to approximately 100g/kg.

Substrate: heavily polluted stones.

Site: back beach, can imply quite a vast open area due to the amount of space the system requires.

IMPACT ON THE ENVIRONMENT

Physical: slight temporary risk of erosion (during washing operations) in the event of a storm: assess this risk.

Biological: possible risk connected to the residual presence of pollutant and washing agents (rapid recolonisation after operations if sediment is well rinsed and returned to its original location) or the destruction of vegetation on stones at the top of the shingle bar.

PERFORMANCE

Yield: stones: 4 to 6 t/h

Waste: water, oil, solvent, soiled fine sediment.

OBSERVATIONS

- Site coverage: mainly restricted to the concrete mixer drum and settling tanks.
- Relatively quick to set up.
- Operate a tight flow to limit the site coverage and more importantly the temporary sediment deficit.
- Requires good management (turnover, supply, storage, removal of sediments).
- Washing operations may need to be repeated for heavily polluted sediments.
- Extremely heavily polluted sediments should be washed roughly beforehand (wire mesh tank).
- Washed sediments should be returned to their original location as quickly as possible.
- Do not wash stones from very crumbly shale rocks.
- Provide anti-noise helmets.
- Only use products which have been tested by a recognised organisation (for efficiency, toxicity, biodegradability); carry out a test on site.