

## WASHING USING A CONCRETE MIXER

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### SCOPE

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



### EQUIPMENT NEEDED

#### Basic equipment:

- Concrete mixer
- Solvents (possibly)
- Thermal washers (hot water + rinsing)
- Wire mesh tanks (rinsing)

#### Extra equipment:

- Stone supply (manual)
- Water supply (pump)
- Skimming/effluent absorption means
- Effluent recovery system

### DESCRIPTION/PRINCIPLE

The sediments are washed in cold water (or possibly lukewarm using thermal washers) for 5 minutes inside the concrete mixer. When using a washing agent, pre-mix the sediment with the undiluted solvent (petroleum fraction) for 3 to 5 minutes. At the end of the cycle, fill the concrete mixer with water in order to skim floating oil off using an overflow which is channelled into a designated tank. Alternatively, the entire contents of the mixer can be poured into a wire mesh tank. The washing water is skimmed, filtered, then reused after settling. The stones are rinsed in hot water on the grid over the tank, then returned to the beach (surfwashing). Slightly soiled stones can simply be mixed with sand (abrasion). With certain viscous pollutants, simply mixing them with water can sometimes be enough to recover the auto-amalgamated oil in the form of clusters of pure pollutant.

### CONDITIONS OF USE

Pollution: all types, preferably fresh or little weathered oil.  
Substrate: polluted to a greater or lesser extent.  
Site: can be at the same beach, or else offsite, and always with an effluent recovery system.

### IMPACT ON THE ENVIRONMENT

Physical: none (do not wash stones from very crumbly shale rocks).  
Biological: possible risk connected to the residual presence of pollutant and washing agents or the destruction of vegetation on stones at the top of the shingle bar.

### PERFORMANCE

Yield: variable  
Waste: water, oil, oiled fine sediment (+ possibly solvent).

### OBSERVATIONS

- Very little space required; quick to set up.
- Operate a tight flow.
- Requires good management (turnover, supply, storage, evacuation of sediments).
- The washing operation may have to be repeated on heavily polluted sediments.
- Extremely heavily polluted sediments will need to be scraped beforehand.
- The washed sediments are subjected to surfwashing to finish the cleaning.
- Provide anti-noise helmets.
- Using a washing agent is not always necessary. Tests can however be carried out to assess the potential gain. Only use a product that has been tested by a recognised organisation (for efficiency, toxicity, biodegradability).