Walnut Shell Filter (WSF)

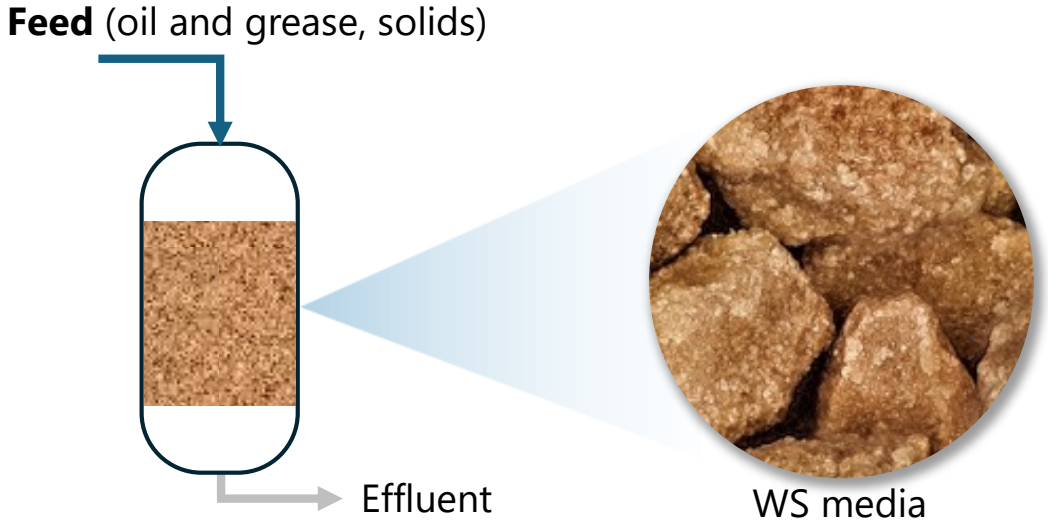
Process Description

WSF are media filtration systems that use crushed walnut shells to remove residual free oil and suspended solids from oily wastewater streams. WSFs can treat influent oil-in-water concentrations of up to 100 mg/L and reduce them to <10 mg/L.

The WSF media has a strong affinity for oil, promoting oil adsorption and coalescence. During backwashing, the media bed is fluidized to remove accumulated contaminants, which are then discharged as a waste stream. WSF offers 2-3 times greater oil adsorption capacity than sand media, lower backwash water requirements, and a compact, lightweight design that reduces system footprint. More recently, surface-modified walnut shell media have been developed to further enhance oil-water separation performance through improved oil adsorption.

WSFs are typically used in water reuse and deep well injection applications to meet water quality requirements.

Process Schematic



Publications

Modification of polyethylene for oil-water separation in industrial wastewater treatment (Link)

For further information, please contact us at email: GWSC@conocophillips.com