

### SCM-HAMMER MILL THERMAL TREATMENT



#### MAXIMIZING RECYCLING AND MINIMIZING ENVIRONMENTAL IMPACT

Over the last two decades there has been a growing awareness of environmental issues involving the oil and gas industry. Today, waste generation, handling, treatment, and recycling are high on the list of priorities.

The Hammer Mill Thermal Treatment takes care of your drill cuttings maximizing recycling and minimizing the environmental impact, generating clean cuttings and base oil fit for recycling in drilling fluids.

#### THE PROCESS

Drill cuttings or sludges of any composition are conveyed into a feed hopper prior to entering the Processor. The cuttings are heated to a maximum temperature to produce water vapors, oil vapors, and clean dry solids. The water and oil vapors are condensed in the Vapor Recovery Unit and phase separated.

The recovered water is further treated to minimize any hydrocarbon content prior to being discharged or sprayed back onto the dry cuttings to re-hydrate them. The recovered base oil is temporarily stored prior to recycling.

Processed solids contain less than 1% Total Petroleum Hydrocarbons and subject to local regulations are suitable for re-use, for example as an engineering material.

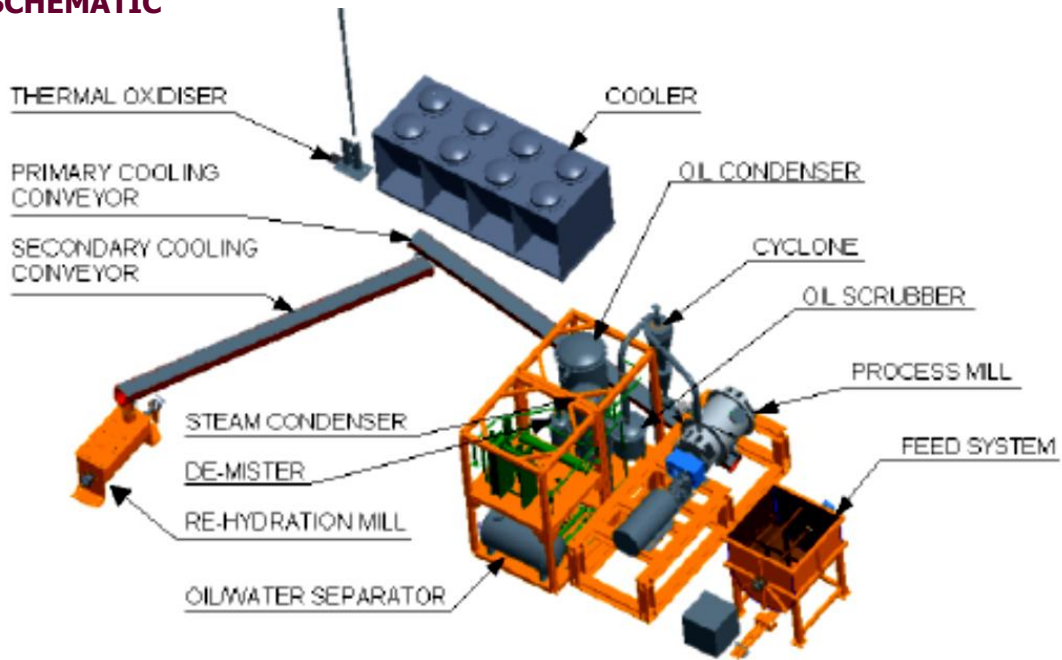
#### FLEXIBLE UNITS

Projects around the world are all unique from multi-service requirements to remote location applications. To ensure the most cost effective application, Midgard offers a range of Thermal Treatment systems to maximize utilization of the equipment.

Other system sizes are available on request. Optional second stage treatment processors are also available to treat higher boiling point materials such as crude oil sludges and asphaltine-contaminated materials.

# TREATMENT AND DISPOSAL

## PROCESS SCHEMATIC



## SAFETY

Safety is paramount to everything we do. The Thermal Treatment system has been through a hazard and operability study and therefore designed with safety in mind incorporating:

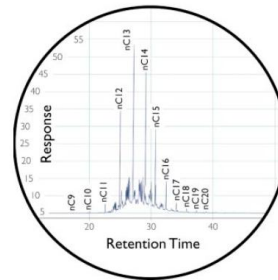
- Blanketing to avoid formation of flammable atmosphere
- Online oxygen analysis
- Computer control

## THERMAL EFFICIENCY

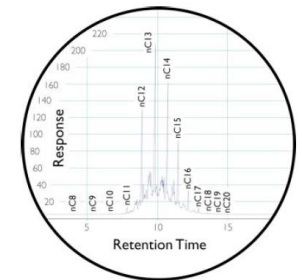
The system offers heat transfer coefficients many times those of alternative thermal technologies. Skin temperatures can be controlled ensuring the base oil remains chemically unaltered. This results in a fuel-efficient system that recycles the base oil whilst minimizing the environmental impact.

## BASE OIL RECYCLABILITY

The low controlled temperature utilized in the Hammer Mill Thermal Treatment process produces base oil in an un-cracked form making it suitable for recycling into new oil-based mud. Flash point analysis further confirms that the base oil is unaltered during processing.



Recovered Oil



Drill Cuttings