

Case Study

Recovery of drilling oil and drilling fluids from different drill cuttings



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Zero industrial waste ... !

Drilling oil recovery from drill cuttings

econ industries VacuDry® indirect heated vacuum distillation

Drill cuttings are an increasing waste stream worldwide. econ industries addressed the challenge by developing a process that cleans the waste and at the same time recovers valuable drilling oil. The VacuDry® plant started the successful processing of drill cuttings in autumn 2013.

Our client, a medium-sized recycling company, was new to the oil and gas industry when the project started. Nonetheless the client secured major drill cutting treatment contracts within a few months – thanks to the excellent treatment results delivered by the VacuDry® plant. Nowadays the plant processes around 3-5 t/h drill cuttings, recovering more than 99.8 % of the drilling oil in extraordinary high quality.

To ensure the highest quality of the recovered oil a gentle two step vacuum distillation process at temperatures below 250 °C and at partial vacuum down to < 50 mbar is utilized. Besides a nitrogen blanketing further limits the danger of cracking or oxidizing the valuable drilling oil. The vacuum reduces the boiling point of the oil by more than 100 °C. Hence the oil is not exposed to high temperatures that negatively affects its quality. The unique combination of vacuum, low process temperature and nitrogen blanketing are the key to success for the second to none quality of the recovered oil.

econ's unique vacuum process ensures getting the most out of your drill cuttings, while serving the environment with low emissions and a final TPH content in the solids of < 0.07 %.

Performance data

■ Vacuum dryer type:	2 x VacuDry® 12,000
■ Batch size:	10,000 litres
■ Throughput capacity:	3-5 t/h
■ Heating system:	Energy efficient thermal oil unit - heated by natural gas
■ Operating pressure:	< 50 - 800 mbar (abs)



Input material: Drill cuttings



Output: Treated solids



Recovered Liquids: Drilling oil left / water right

Design characteristics

- High quality recovered drilling oil—low temperature, vacuum and nitrogen prevent deterioration of oil
- Low thermal energy consumption of 170 – 230 kWh / t—through highly efficient thermal oil heating
- Low wear and tear compared to other systems — due to robust and slow moving agitator
- Perfect control of the process —due to online monitored batch process
- Highest oil recovery rate > 99 % — final TPH content in treated solids < 0.07 % (DIN ISO 16703)
- High availability > 90 %
- Highest safety level — (CE and ATEX certified)