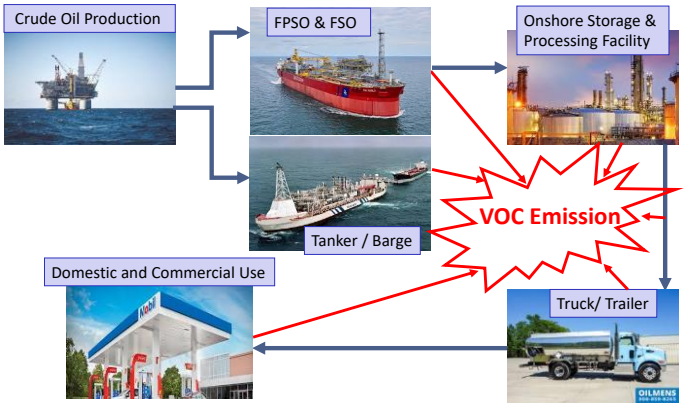
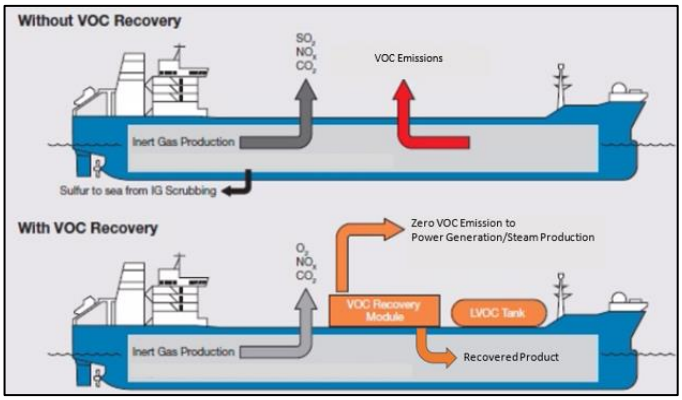
NGL TECH

Creating Value Thru' Innovation

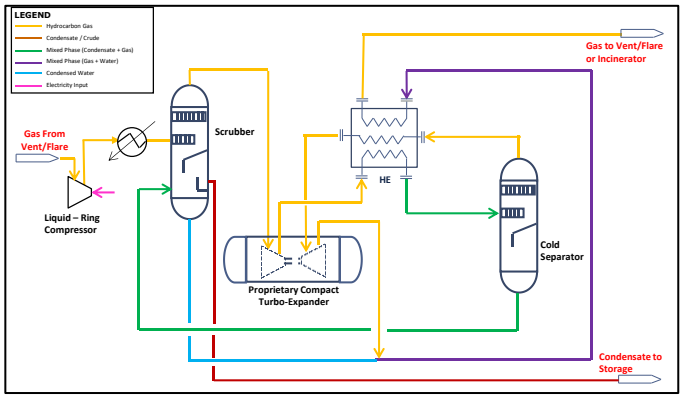
VOLATILE ORGANIC COMPOUND RECOVERY SYSTEM (VOC-RS™)



Sources of VOC Emissions



Shuttle Tanker With and Without VOC Recovery System



Typical Schematic of the VOC-RS™

VOLATILE ORGANIC COMPOUND (VOC) RECOVERY SYSTEM (VOC-RS™)

VOC emissions is a major issue worldwide as millions of barrels of crude and products are produced, transported and stored. Vents at storage tanks are typically cold vented and particularly during loading operations, significant VOC emissions occur which not only causes greenhouse gas emissions, but also emits hazardous and toxic gases. Numerous technologies are available to address these issues but to-date most are not techno-commercially viable for wide scale application. This is evident from the fact that VOC emissions from storage facilities on tankers, FPSOs, FSOs, tankers and fixed roof storage tanks are still prevalent and continuing to be among the major causes environmental damage and health & safety risk.

The VOC-RS™ (VOC Recovery System) is a breakthrough technology that is self-contained, compact and cost effective that eliminates VOC emissions whilst recovering valuable product from the vent gas, thus minimizing product losses in storage tanks. With revenue generated with product recovery, coupled with low CAPEX and OPEX of the VOC-RS™, payback period of the system is short, thus enabling wide scale application of the system to eliminate VOC emissions on a global scale.

ABOUT THE SYSTEM

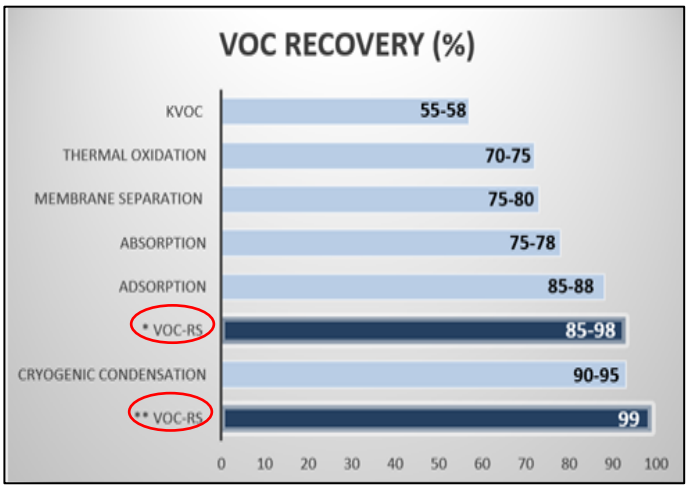
The VOC-RS™ is based on a proprietary, multiple award-winning concept of expansion cooling coupled with evaporative cooling[1]. The system is highly efficient, removing up to 98% of NMVOC from the vent gas. The system consists of a proprietary expander, with evaporative cooling and a self-regenerative hydrate/ice suppression system that enables deep chilling of the vent gas to maximize VOC recovery whilst minimizing emission of greenhouse and ozone depleting gases.

The low head feed gas compression and the absence of external refrigerant makes the system self-contained, compact and with minimal external electrical power requirements.

1. *Winner of OTC 2018 spotlight technology award*
   IChemE Malaysia Technology award winner & Global focused recognition award

Creating Value Thru' Innovation

VOLATILE ORGANIC COMPOUND RECOVERY SYSTEM (VOC-RS™)



Comparison of VOC Recovery

Note:

*** The gas to be released is incinerated prior to release or used as fuel.*

Typical Applications of VOC-RS™

VOC-RS™ VS OTHER AVAILABLE TECHNOLOGIES

The innovation combination of expansion and evaporative cooling, compact turbo-expander and self-generated hydrate/ice suppression system makes the VOC-RS™ superior in performance compared with other available systems. With a fraction of the power consumption required compared with other technologies, and significantly lower space and weight, the system is an enabler for wide scale implementation for VOC removal.

Applications include VOC removal from tanks vents on FPSOs, FSOs, shuttle tankers, onshore storage tanks, loading terminals, etc. Although VOC emissions have long been a major cause of pollutant and health & safety issue, apart from loss of product, few VOC recovery systems have been implemented due to techno-commercial challenges with current system. With a relatively short payback period, the VOC-RS™ can make VOC emissions a thing of the past.

MAIN FEATURES OF THE SYSTEM

- Able to chill vent gas down to -30°C without external refrigerant to maximize VOC recovery.
- Inbuilt self-regenerative hydrate/ice inhibitor enables maximization of VOC recovery without hydrate and icing issues.
- NMVOC recovery of up to 98% for vents.
- High NMVOC recovery minimizes product losses from storage tanks.
- A fraction of the power requirement compared to available systems in the market.
- Compact and light weight system with high availability.

NGLTech Sdn Bhd (864358-K)
Suite 8-3, 8th Floor, Wisma UOA II, No.21 Jalan Pinang, 50450 Kuala Lumpur
T: +6(03) 2164 4068 F: +6(03) 2181 3505 E: yuwana.m@ngltech.com
www.ngltech.com