

Äager

# Nitrile Fractionation Column Project

**Case Study**



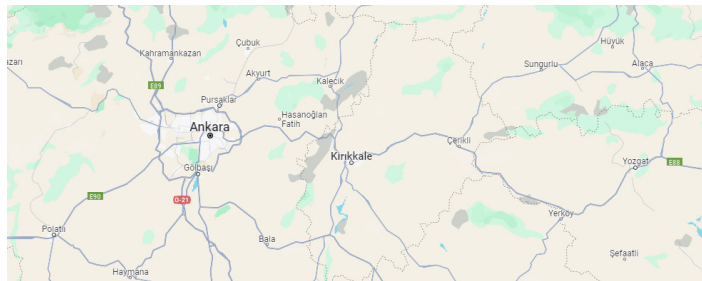
Heatexchangers

# Nitrile Fractionation Column Project

## Project Overview and Challenge

RPMInerals is a leading supplier of added-value specialty mineral and chemical products. RPMInerals' primary markets include the oil & gas well drilling fluids, metal casting, paper manufacturing, environmental and, civil engineering. RPMInerals is headquartered in Alexandria, Egypt with operating facilities in Borg El Arab and Amreya Free Zone, west of Alexandria.

Fractional distillation is the separation of a mixture into its component parts or fractions. Chemical compounds are separated by heating them to a temperature at which one or more fractions of the mixture will vaporize. It uses distillation to fractionate and is an important process in the chemical sector. ERGIL provides this project with the required products these processes for RPMInerals.



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## Action

ERGIL has collaborated with RMinerals for a project which starts in March 2020 and is planned to be finished in October 2022. This project includes 41 different products and is one of the most comprehensive stainless steel orders of ERGIL. Here is a summary of the product list for this project;

- ▣ Nitrilation HH Loop Reactor
- ▣ Fractionation Bottom Receiver
- ▣ Nitrilation Catalyst Preparation Vessel
- ▣ Cold Condenser Receiver and Cold Condenser
- ▣ Hot Condenser Receiver and Hot Condenser
- ▣ Chilled Condenser
- ▣ Ammonia Distillation Column Condenser
- ▣ 1st Nitrile Condenser
- ▣ Hydrogenation HH Loop Reactor
- ▣ Ammonia Absorption Reactor
- ▣ Formaldehyde Adsorption Reactor
- ▣ Fatty Acid Melting Vessel
- ▣ Distilled-Crude Nitrile Vessel
- ▣ Nitrile Receiver
- ▣ Filtration Vessel
- ▣ Hydrogenation Catch Tank
- ▣ Hydrogenation Catalyst Preparation Vessel
- ▣ Condensate Receiver
- ▣ Filter Wash Container Vessel
- ▣ Ammonia Distillation Column Feed Vessel
- ▣ Ammonia Distillation Column Receiver
- ▣ Ammonia Distillation Column Reboiler
- ▣ Nitrilation Catch Tank
- ▣ Product Storage Vessel
- ▣ Recycle Ammonia Vessel
- ▣ Nitrilation HH Loop Reactor Heat Exchanger
- ▣ Hydrogenation HH Loop Reactor Heat Exchanger
- ▣ Fractionation Reboiler
- ▣ Ammonia Absorption Column
- ▣ Nitrile Fractionation Column
- ▣ Degasser
- ▣ Spent Catalyst Cyclone
- ▣ Recycled Catalyst Cyclone
- ▣ Fatty Acid Tank 1
- ▣ Design Pressure: between 20 and full vacuum.
- ▣ Design Temperature: between 0-350 deg. celsius.
- ▣ Diameter: between 6 mm - 24 mm.
- ▣ Designed as EN 13445 standards.
- ▣ SS 316 L and 317 L materials are been used.
- ▣ RT, UT, and PT tests are carried out.
- ▣ Mechanical calculation and process calculation are done.
- ▣ Thermal analysis for the head exchangers is carried out.
- ▣ FEA tests for special equipment have been completed.
- ▣ Expansion below heat exchanger design and calculation are made in-house.
- ▣ Regarding PED 2014/68/EU standards, the CE mark is provided for all products.

Some technical details and specifications for these products we supplied are as below;

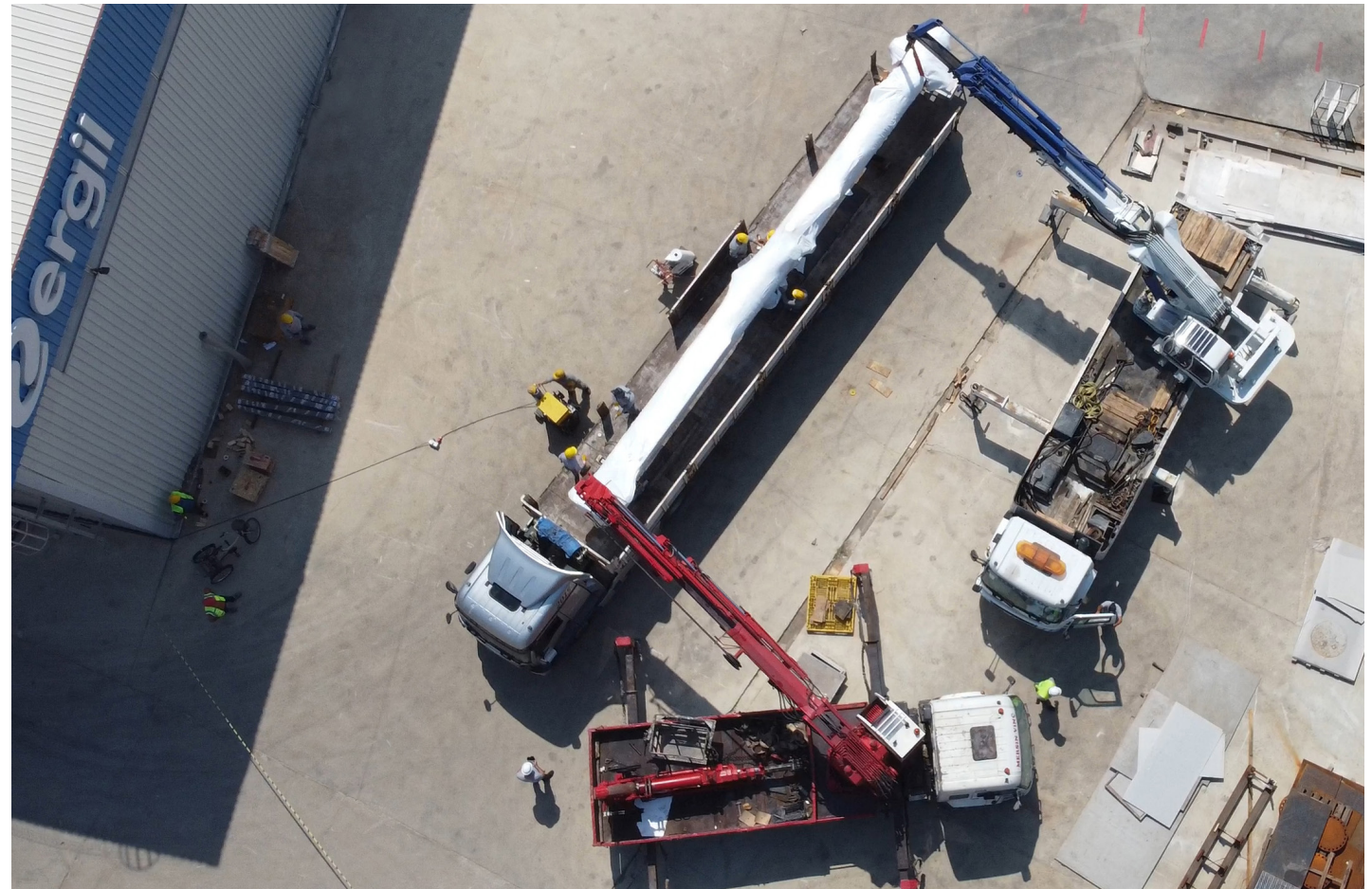
ERGIL's in-house engineering team designed, manufactured, and installed these products with the aspect of customer's requirements. The tanks that are provided are used either horizontally or vertically. Also, platforms and stairs are supplied for the customer to provide easy accessibility.



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## Result

With this project, ERGIL with its talented and experienced team, completed another important stainless steel order. ERGIL continues to offer a wide range of custom-made high and low-pressure vessels for the processing, storage, and transport of bulk liquids and gases; such as deaerators, absorbers, surge vessels, filters and coalescers, process towers, and columns along with shell and tube type heat exchangers.



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### case study series

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