

**TERRAFAME** | FINLAND | STRUCTURAL DESIGN | 2019-2021



ENGINEERING SOLUTIONS INSPIRED BY VISION

**NURIZON**  
CONSULTING ENGINEERS

# OVERVIEW

PROVIDING UNIQUE, INNOVATIVE AND COST-EFFECTIVE ENGINEERING SOLUTIONS SINCE 2010

Terrafame OY appointed Process Plant Technology (PPTech) to design a New Metals Converting Plant (NiSu) at their existing Sotkamo, Finland site. The NiSu consists of 3 processing plants, Cobalt sulphate (CoS), Nickle sulphate (NiS) and Ammonium sulphate (AMS).

PPTech appointed Nurizon Consulting (Pty) Ltd. [Nurizon] for the structural steel design of these plants.

The structures are generally separated into different modules for the different mechanical equipment.

The modules were designed separately, to accommodate all the design loads that could be applied within its design life. The modules were also ‘connected’ to the other modules, to enhance structural stability.

The three plants and the respective modules were design in South Africa. Fabrication and assembly took place in China. Complete assembled modules were sent via ship to Finland for installation and commissioning. The crystalizer units for AMS and Nis were the only units assembled on site. The project commenced in 2019 and commissioning for the plant started in 2021

- **Structural Design:**

- General and Project Coordination
- Structural design according to the Eurocode (structures manufactured in China and erected in Finland)
- Material Specification (extreme temperatures)
- Area 1631 Cobalt Sulphate Crystallization
- Area 1632 Nickel Sulphate Crystallization
- Area 1633 Ammonium Sulphate Crystallization

- **Fabrication Drawings:**

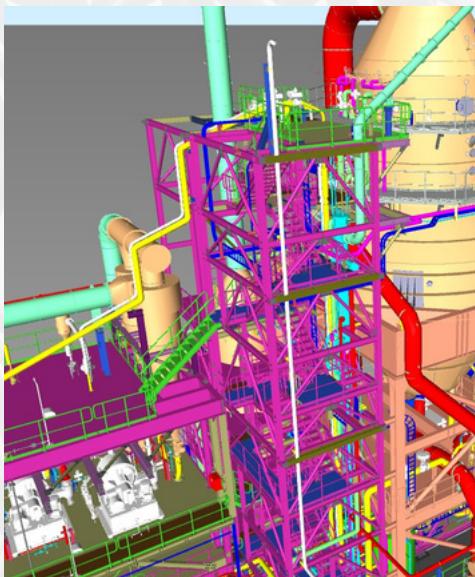
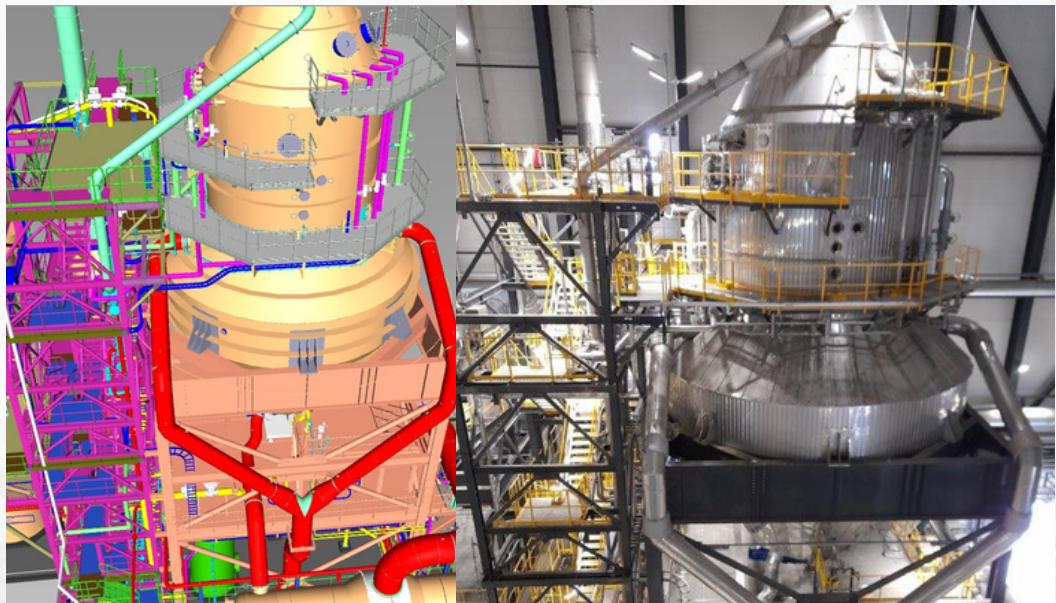
- Area 1631 Cobalt Sulphate Crystallization
- Area 1632 Nickel Sulphate Crystallization
- Area 1633 Ammonium Sulphate Crystallization

- **Fabrication and Construction Quality Assurance**



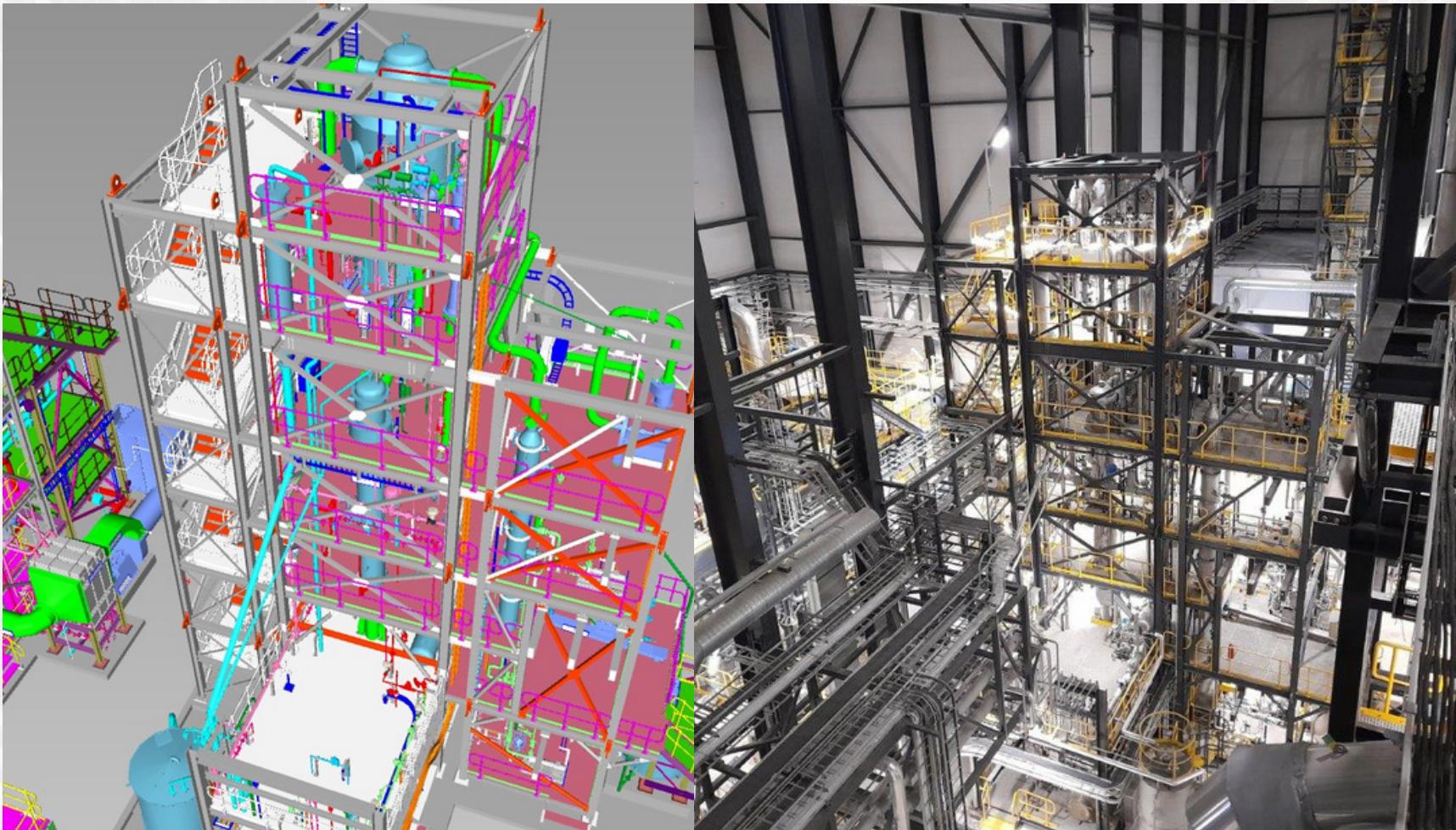
# NICKLE SULPHATE CRYSTALLISER STRUCTURE

The nickel sulphate crystalliser structure forms part of the larger plant and has a volume of approximately 700m<sup>3</sup> and has an operating load of 945 Tonnes, with dynamic loads of 70 Tonnes.



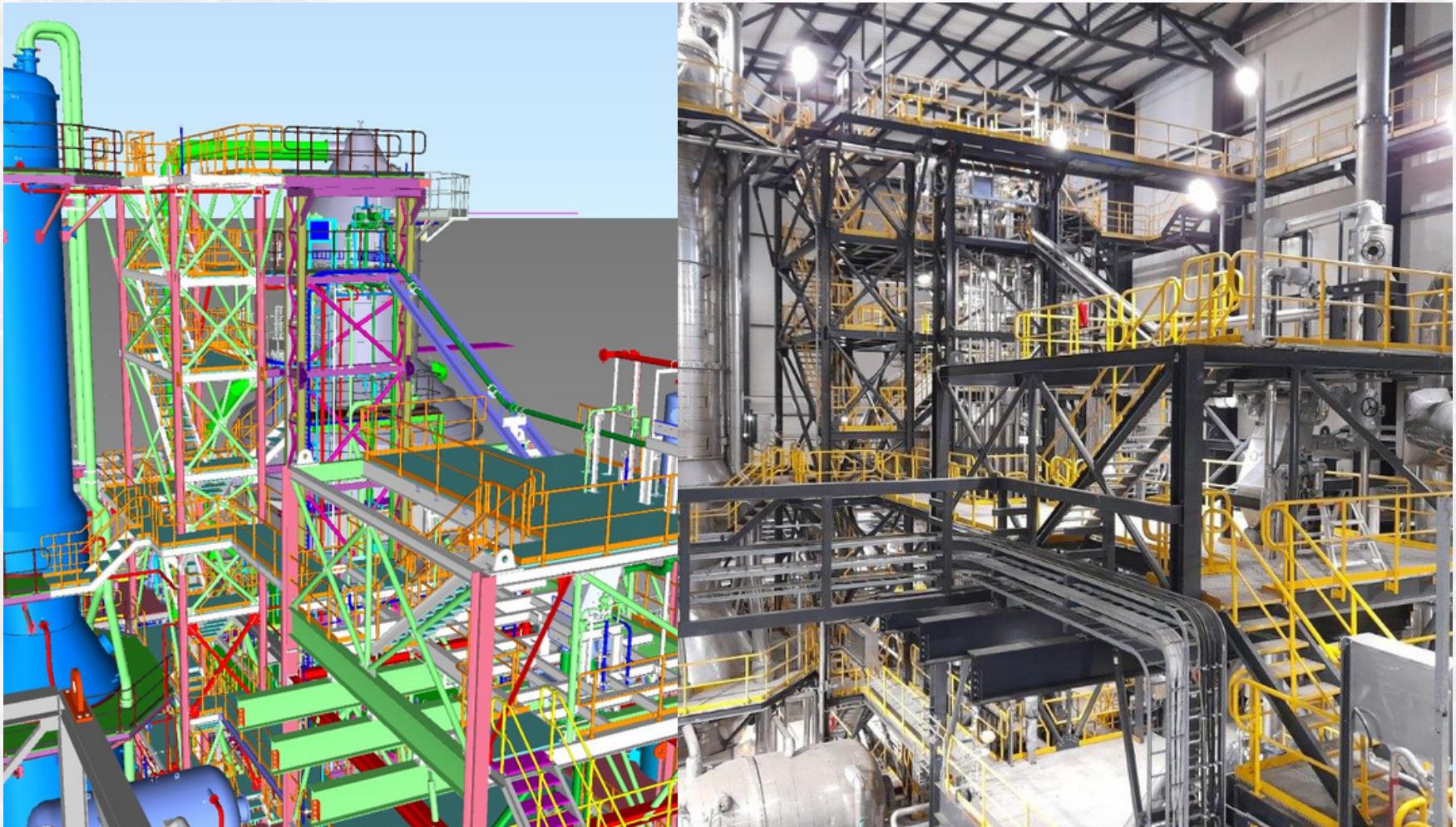
# COBALT SULPHATE PLANT STRUCTURE

The cobalt sulphate structure has a crystalliser approximately 23m<sup>3</sup> and has an operating load of 17.5 Tonnes. Other mechanical equipment fills up the steel structure that stands approximately 20m tall and 16m wide.

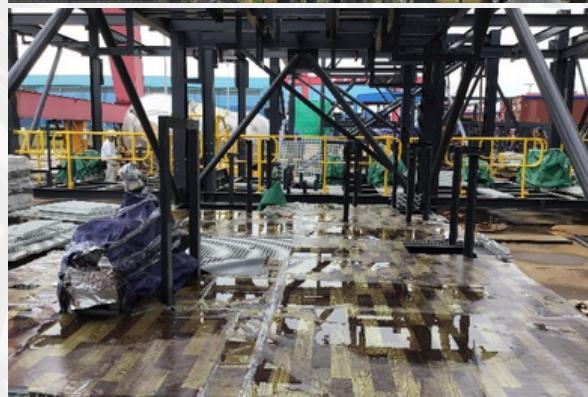


# AMMONIUM SULPHATE PLANT STRUCTURE

The ammonium sulphate plant has mechanical equipment as tall as 25m, with loads exceeding 400 tonnes. The equipment is housed in a beautiful steel structure spanning 45m in width.



# CONSTRUCTION



# CONSTRUCTION



# CONSTRUCTION

## AMMONIUM SULPHATE PLANT AND NICKLE SULPHATE CRYSTALLISER

FEBRUARY 2021



# WHO WE ARE BY **NUMBERS**

430+ SUCCESSFULLY COMPLETED PROJECTS

ACROSS 24+ DIFFERENT COUNTRIES

10+ YEARS EXPERIENCE

1 VIBRANT, HAND-PICKED, AND  
EXPERIENCED **NU-TEAM**

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