



Specialist in Metal Surface Treatment

# **Global Shutdown, Turnaround & Inspection Forum 22-23-24 May 2023 Amsterdam – The Netherlands**



## TODAY'S PRESENTATION



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## TODAY'S PRESENTATION

1. Motto: face the fact and act!
2. Brief company introduction
3. Markets and customers
4. What if traditional cleaning methods no longer suffice?
5. Focus on chemical technical cleaning
6. Case study fertilizer company
7. Case study industrial gasses company
8. Conclusion

# 1. Face the fact and act!

- For aging installations traditional cleaning methods no longer satisfy.
- We offer solutions with chemical technical cleaning.
- We provide desired results to improve asset reliability and smooth operations.
- Contamination will be dissolved and removed.
- Improved performance.
- Lower energy costs are the reward of innovative thinking.
- Environment friendly solutions.
- Emulsifying the contamination and moving it around?
- Dissolving the contamination and remove it permanently?

## Brief company introduction

### VECOM GROUP B.V.

- Established 1953
- Initially producer of chemicals
- Now service provider in metal laundry
  - ✓ Workshops in The Netherlands, United Kingdom and Belgium.
  - ✓ On site worldwide through **Vecom Industrial Services**.



# Markets and customers - sectors

- Blast furnaces
- Paper and pulp
- Pharmaceutical industry
- Oleo chemistry
- Marine industry
- Paint industry
- Water treatment
- Food industry
- Oil refinery
- Energy
- Natural gas extraction
- Chemicals – fertilizer
- Chemicals – plastics
- Petrochemical industry



National  
Multinationals  
SME  
EPC contractors

International  
Multinationals  
SME  
EPC Contractors

# Markets and customers – references worldwide





# Markets and customers – worldwide





## Cleaning methods

### Traditional options

- Mechanical treatment
- High pressure cleaning
- Decontamination

### State-of-the-art alternative

- Chemical technical cleaning

**Vecom Industrial Services** offer chemical technical cleaning solutions when the required level of cleanliness is not achieved via traditional methods. Our aim is to provide desired results to improve reliability and ensure smooth operations for asset owners.

## Problem definition and solution direction

Asset owners and their in-house contractors gradually come to the conclusion that especially with aging installations traditional cleaning methods no longer satisfy.

**Vecom Industrial Services** offer chemical technical cleaning solutions when the required level of cleanliness is not achieved via traditional methods. Our aim is to provide desired results to improve reliability and ensure smooth operations for asset owners.

## Mechanical treatment

- Grinding
- Blasting
- Drilling

## High pressure cleaning

Water is becoming scarcer almost everywhere in the world. At **Vecom Industrial Services** we have excellent ideas about a contribution that prevents savings first entail huge investments.

High-pressure cleaning requires a lot of water and produces just as much wastewater. With chemical technical cleaning, much less water is needed and the wastewater is collected, neutralized and even can be reused!

In addition, in many cases the degree of pollution in the outdated industry is no longer suitable for high-pressure cleaning. After all, you don't want to move pollution, you want to remove it permanently.

## Decontamination

The same applies to decontamination. All too often presented as chemical technical cleaning but in actual fact not much more than ordinary degreasing and as such only qualifying as chemical cleaning only because of the use of chemicals.

With decontamination the pollution is dissolved and moved around but not removed.

## Chemical technical cleaning – the approach

We ask clients to take samples of the contamination and we will examine it in our laboratory. Based on various tests, we determine on the basis of "the circle of Sinner" which combination of chemistry, mechanical force, time and temperature should be used because these four main factors determine the success of a cleaning.

**Vecom Industrial Services** adds an extra dimension to this. Our carefully built up expertise since 1953 means that the many successful solutions have now been laid down in an impressive library of **Vecom** cleaning procedures, which are included as a test in the advice to our clients.

# Chemical technical cleaning – the approach





# Chemical technical cleaning – pre-commissioning

- Pre-commissioning  
*After fabrication, prior to assembly - immersion*  
*After assembly - circulation*



# Chemical technical cleaning - post-commissioning

- Post-commissioning  
*Turnarounds and scheduled stops*  
*Emergency interventions*



## Chemical technical cleaning – two case studies

Fertilizer factory where for a prolonged period of time high pressure cleaning and mechanical drilling techniques were used to keep the over 1.000 tubes of some 6.00 meters in length open in the UREA stripper.

When efficiency dropped and energy consumption rose we were called in for thorough chemical cleaning.

By applying various batches of chemicals in multiple cleaning cycles we removed over 1.600 kilo's of scaling whereupon efficiency increased and energy consumption dropped.

## Chemical technical cleaning – two case studies

Urgent request for a chemical technical cleaning of an underground carbon steel pipeline which needed to be suitable for oxygen services for a world leader in gases, technologies and services for industry and health.

Contaminations of this pipeline contained different types of paint, grease and iron oxidation. For oxygen services, the removal of hydrocarbons (grease/oil/paint) is essential.

If hydrocarbons are present, this can lead to catastrophic fire and explosions which causes serious HSE incidents.

## Chemical technical cleaning – two case studies

The chemical cleaning was divided in four phases. The first phase was paint removing, the second phase was degreasing. Thereafter followed the pickling and the final phase was conserving the material through passivation. Between each phase the pipe was flushed with demineralized water. After the last phase the line was dried with nitrogen.

## Case study 1 – fertilizer company

After years of production a considered amount of scaling will accumulated on the inner surface of the urea stripper. This results in more energy costs, lower production capacity. In short, a decrease in efficiency.

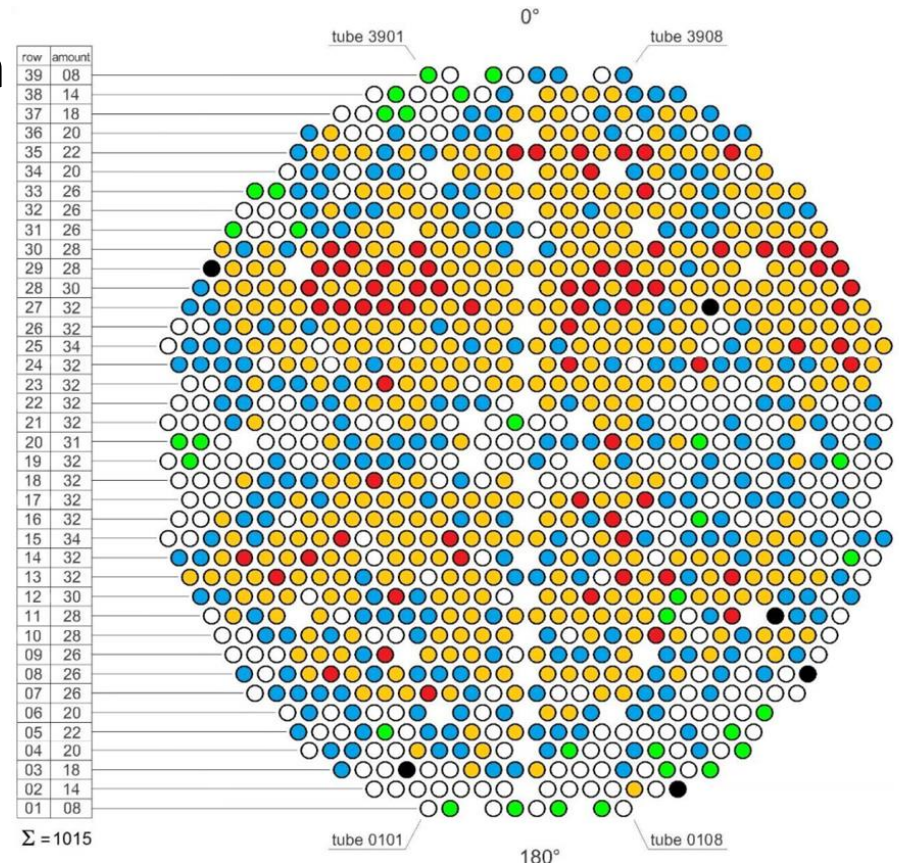
In cooperation with the world market leader in urea technology, **Vecom Industrial Services** has an in-house developed safe and proven procedure for cleaning urea strippers and recirculation heaters.



# Case study 1 – fertilizer company

- It all starts with an inspection

●	- plugged tube	( 6 tubes )
●	- minimum thickness 1.81...1.90MM	( 73 tubes )
●	- minimum thickness 1.91...2.00MM	( 408 tubes )
●	- minimum thickness 2.01...2.05MM	( 256 tubes )
○	- minimum thickness 2.06...2.15MM	( 240 tubes )
●	- minimum thickness > 2.15MM	( 32 tubes )





## Case study 1 – fertilizer company

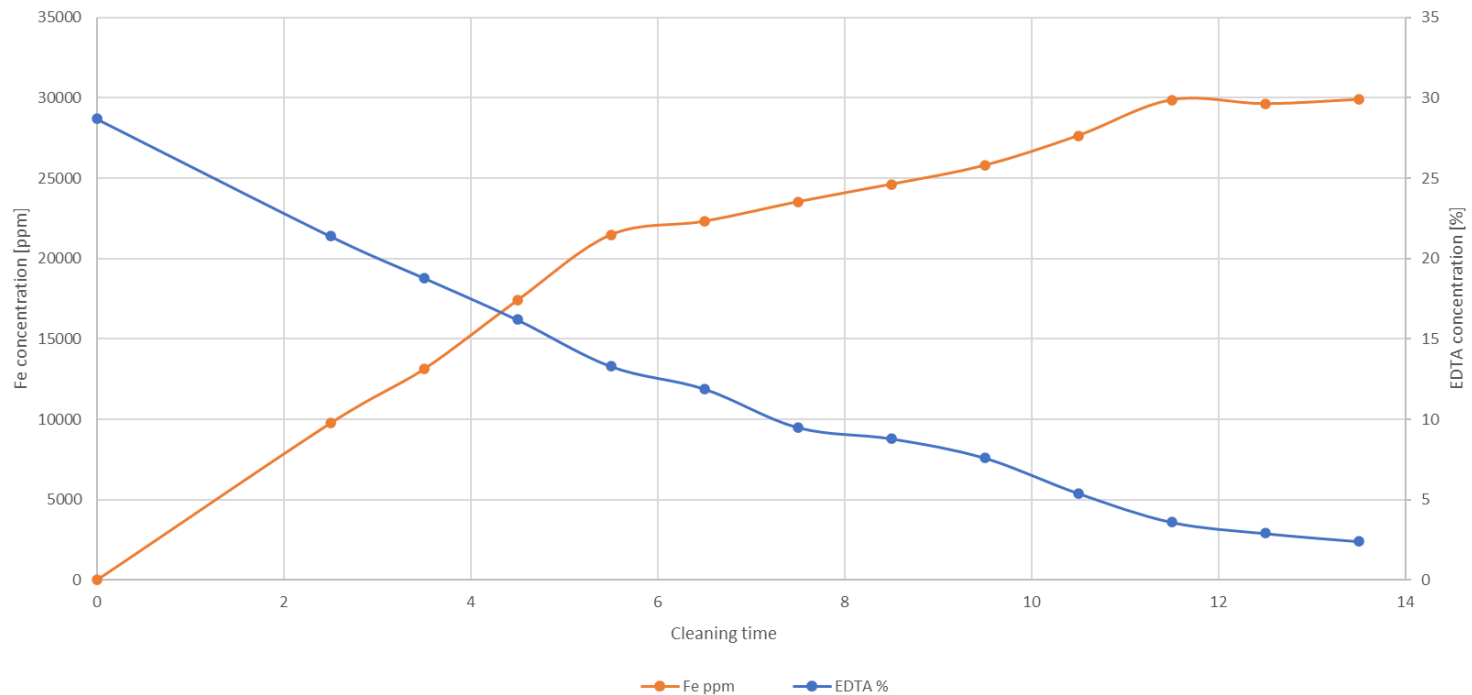
- After inspection, an estimation is made of the amount of present scaling.
- **Vecom Industrial Services** will calculate the amount of needed chemicals.
- Producing a client specific engineering.

## Case study 1 – fertilizer company



# Case study 1 – fertilizer company

- Example of urea stripper cleaning in progress



## Case study 1 – fertilizer company

- The advantages of chemical technical cleaning
  - ✓ Safe: no damage to base material
  - ✓ Quick: only days of cleaning (depending on amount scaling)
  - ✓ Effective: possible to remove all scaling

## Case study 1 – fertilizer company



## Case study 2 – industrial gasses company

- Urgent request to perform chemical cleaning for oxygen services.
- Contaminants are:
  - ✓ Different kind of paints
  - ✓ Hydrocarbons
  - ✓ Iron oxide(s)
- The removal of grease and iron oxides, and conserving carbon steel is common practice for the staff of **Vecom Industrial Services**.
- The paint removal needed some tests before the chemical cleaning could start.

## Case study 2 – industrial gasses company

- Two industry peers failed. Lots of promises but no results.
- **Vecom Industrial Services** was the last rescue. Huge time pressure.
- Flexibility is one of our core values. Tests were performed, the chemicals were arranged, within two days from the request **Vecom** was on site to perform the chemical cleaning.
- In cooperation with a pigging specialist is the chemical cleaning performed.
- Chemical cleaning through pigging results in less chemicals needed and less wastewater compared to circulation.



## Case study 2 – industrial gasses company

- Paint removing was done with a solvent
  - ✓ Solvent
- Degreasing
  - ✓ Alkaline degreaser, approved for oxygen clean
- Pickling
  - ✓ Inhibited hydrochloric acid
- Passivation
  - ✓ pH-neutral phosphate-based conservator

## Case study 2 – industrial gasses company

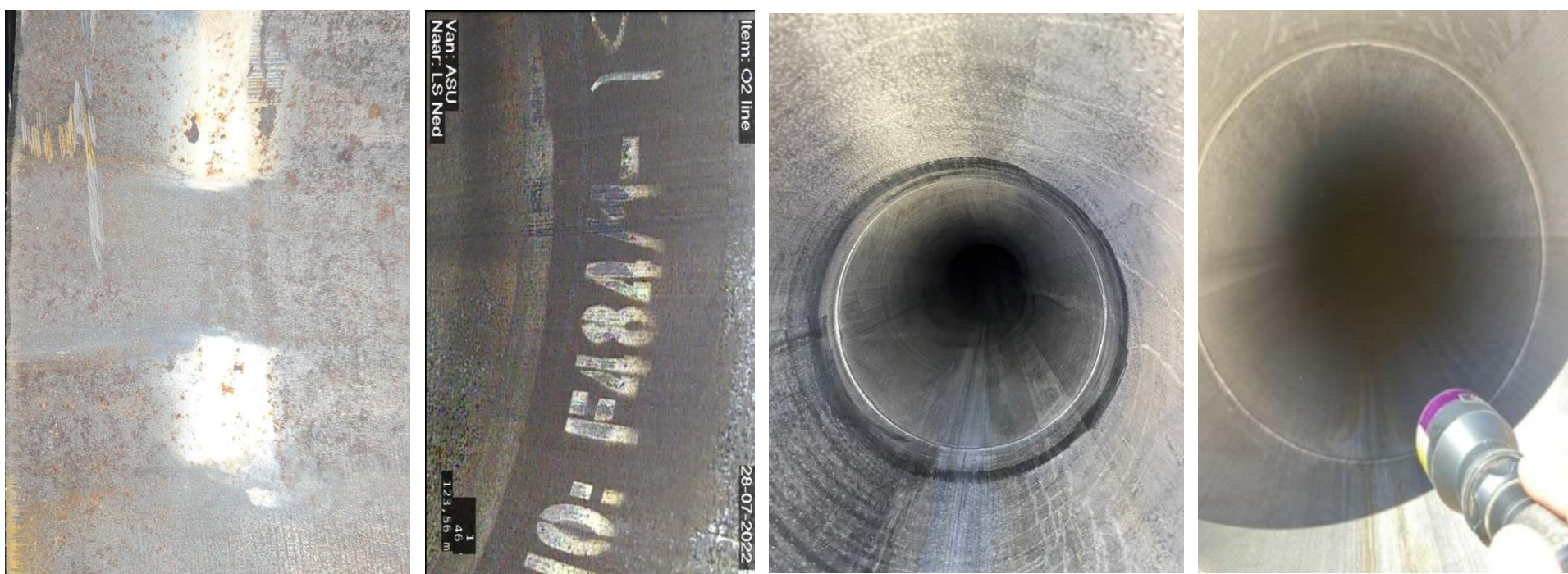
- The pig train



- ✓ Length of pipe 1.500 m<sup>1</sup>
- ✓ Diameter 16"
- ✓ Located 15 m<sup>1</sup> deep
- ✓ Huge volume, no full circulation job
- ✓ Reduction chemicals and waste water
- ✓ Pigging & chemical technical cleaning
- ✓ Carefully establishing contact time



## Case study 2 – industrial gasses company



Before

After

## Conclusion

**We are ready when you are!**

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