NEXTCHEM

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15TH SYMPOSIUM 2026

HP STRIPPER FOR THERMAL STRIPPING PLANTS

Nitesh Saidane

AGENDA

01

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BACKGROUND

BACKGROUND

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Again!!! Arrange crane.

Cut and make new piping connections!

Rearrange internals!

Oh, no! Already time to reverse the stripper!

Plug other tubes and lower plant capacity!

Attack!

TYPICAL ISSUES IN THERMAL STRIPPING

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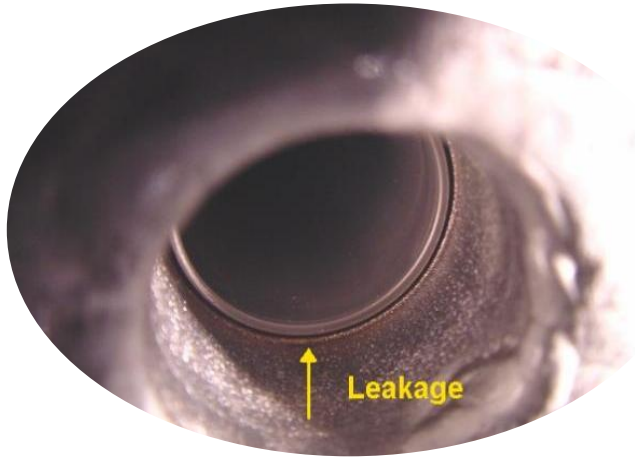
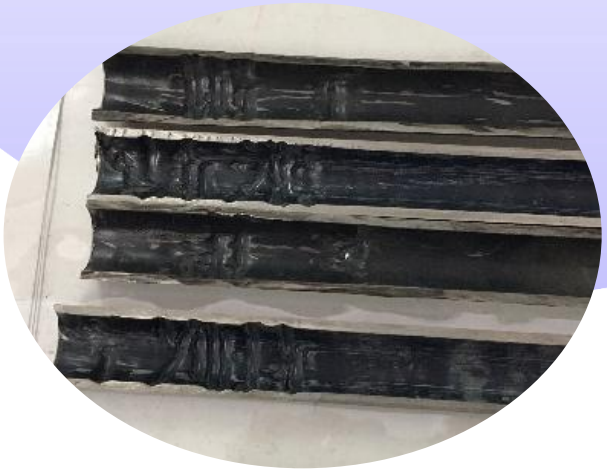
Titanium stripper

- Erosion: thinning toward the top side of tube end
- Reversing the whole equipment → increased OPEX
- Limited lifetime (~10-12 years)

Bimetallic stripper

- Excessive corrosion in the bottom end of the tube
- Lower bottom temperature, impacting OPEX and CAPEX.
- Continuation of maintenance of passivation air compressor
- Limited lifetime (~12-14 years)





STAMICARBON'S SOLUTION

Tailored design for thermal stripping technology plants

Alternatives reviewed by execution for weldability, cost, and weight at manufacturing workshop

Proven E-type (Safurex®) strippers replacing original equipment

In-depth investigation with clients and end users using thermal stripping technology

Dedicated development program for thermal-stripping HP stripper

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UREA PROCESS

UREA PROCESS TECHNOLOGY

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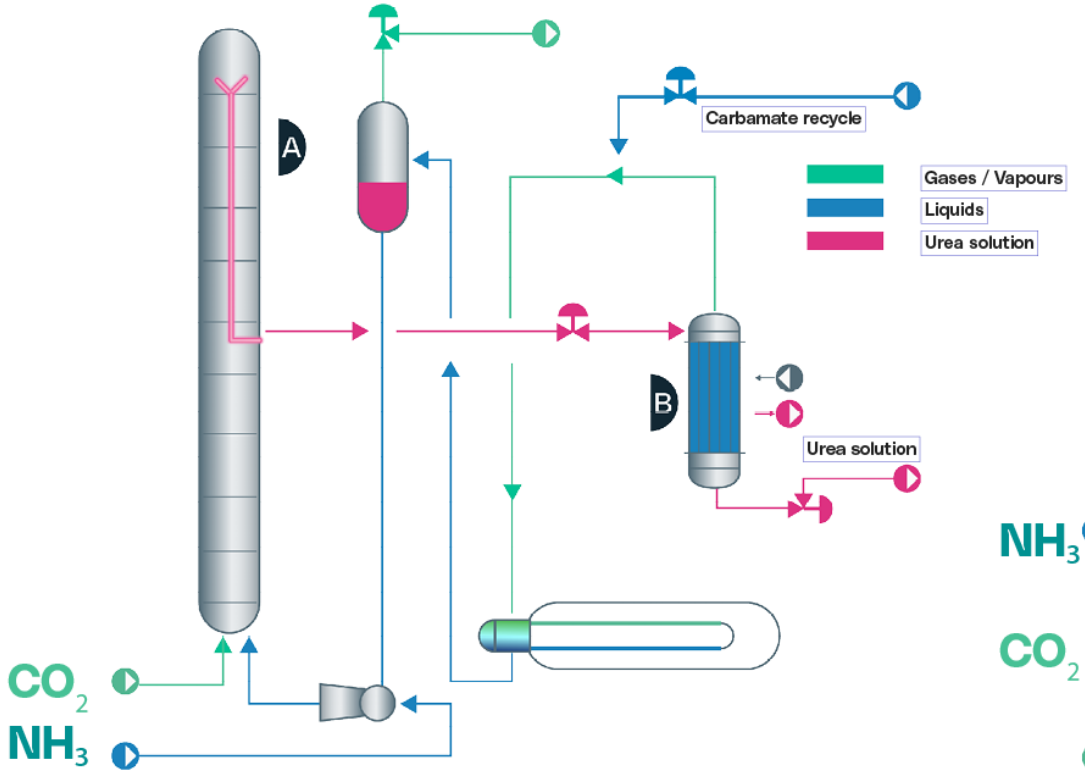
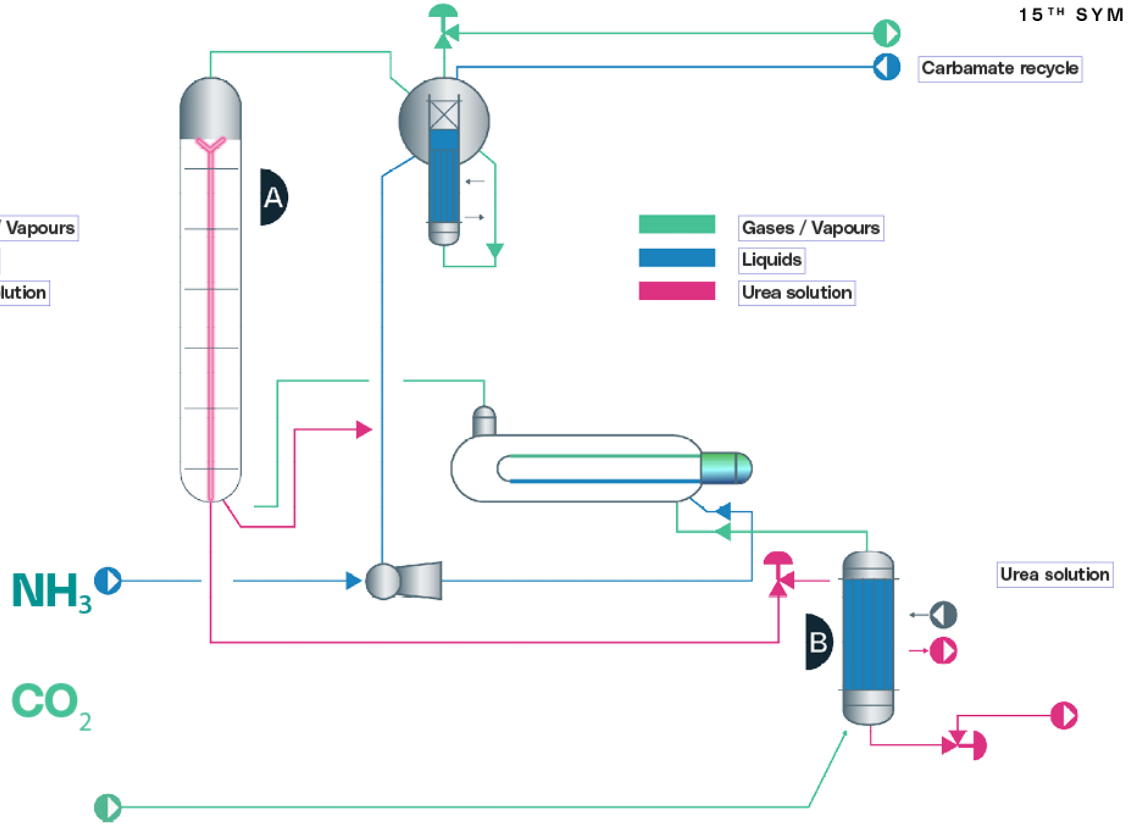


Process scheme of thermal stripping technology



Process scheme of CO_2 stripping process

TEMPERATURE PROFILE

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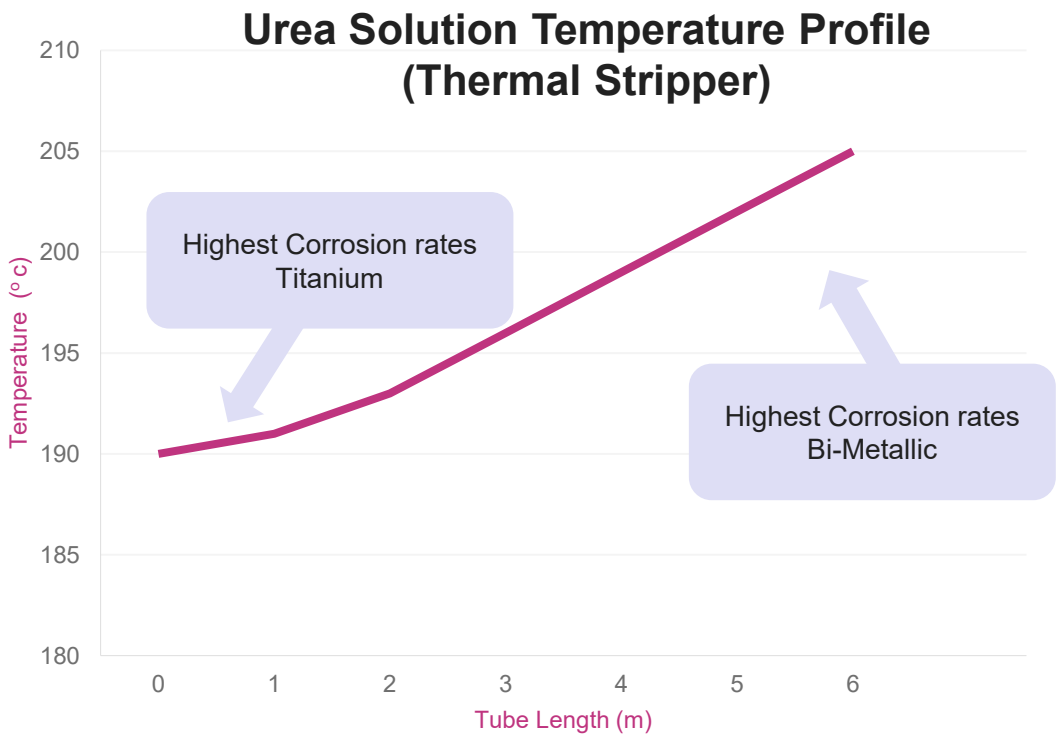

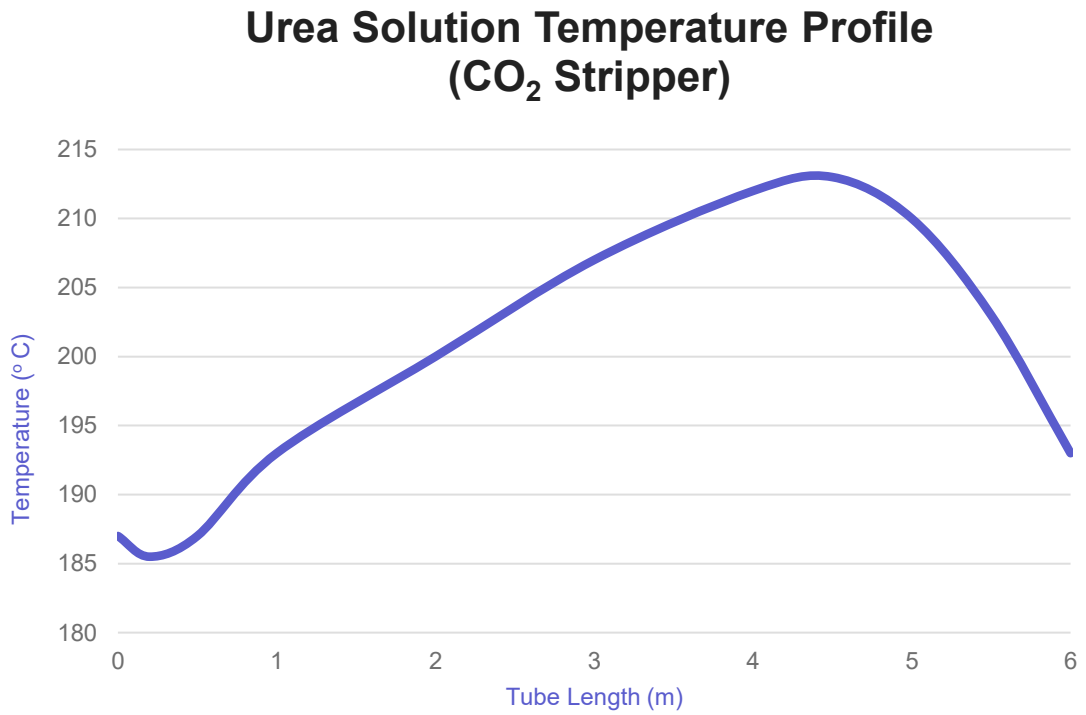

- Thermal stripper: monotonic heating; corrosion bottom (bimetallic) / top erosion (titanium)
- CO_2 stripper: max ~212 °C at ~4 m from tube top
- Cooling: shell-side heat, bottom CO_2 ~120 °C, evaporative cooling near top

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MATERIAL APPLICATION

MATERIAL OF CONSTRUCTION

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Tube material	Installed base	Status	Operating temperature °C
25-22-2 Cr/Ni/Mo	2	Out of production	204
Full zirconium	1	Out of production	210 or higher
OmegaBond	6	Out of production	210
Bimetallic	>60	Standard	204
Titanium	>80	For replacement only	207

- Stamicarbon offers the optimum solution for replacing both titanium and bimetallic strippers
- Through a tailor-made design of an HP stripper utilizing Stamicarbon proprietary steel grade.

STAMICARBON MATERIAL UPGRADES

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E.I-Type (Safurex® Infinity)

- Liner application
- No active corrosion
- Reduced oxygen need
- Increased operating flexibility
- Extended inspection intervals

E.S-Type (Safurex® Star)

- Tubes application for HP stripper
- Passive corrosion reduced by 20%
- Increase in lifetime
- Outstanding performance in thermal stripping / higher temperature

E.H-Type (Safurex® Degree)

- Liquid dividers application
- Isotropic structure
- Higher resistance to crosscut
- Lifetime: ~20 years

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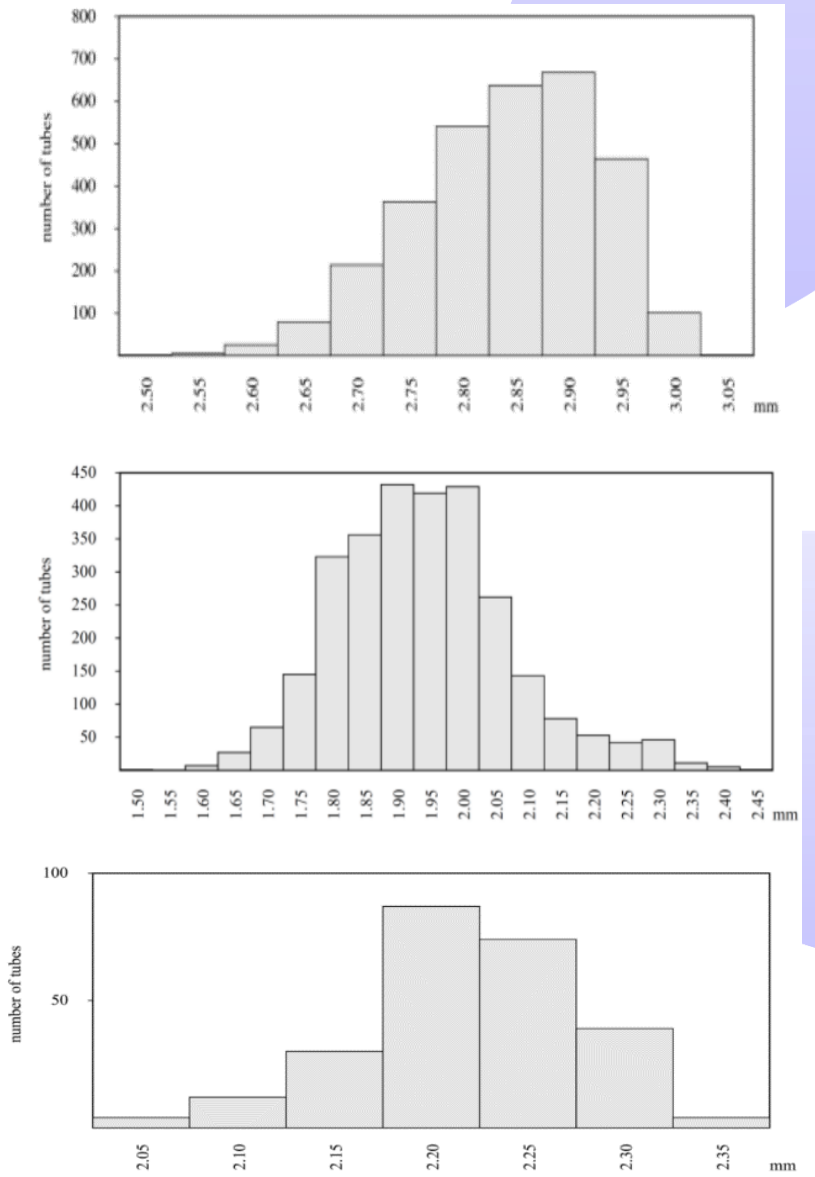
STAMICARBON EXPERIENCE

STAMICARBON EXPERIENCE

COUNTRY	PLANT CAPACITY	YEAR
Argentina*	3,250 mtpd	2003
Canada*	2,100 mtpd	2007
Russia	1,000 mtpd	2012

** Same stripper from Argentina moved to Canada for rest of the service.*



Normal Gaussian Distribution, indicating normal corrosion behavior

Stamicarbon BE.06 tube performance

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REPLACEMENT SOLUTION

STAMICARBON VALUE ADDITION IN REPLACEMENT

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Unchanged process

Implement leak detection

Radar level measurement instead of radioactive

Gain in plant flexibility

Extended Life-time

Optimized internals

*Single bracket supports

*Reduce nozzle numbers: from 25 to 16

*Eliminate the need of reversibility

*Single vapor belt

*Reduced tube protrusion at bottom tube sheet side

*Eliminate machining of tube protrusion at bottom

*Smaller bottom channel

Material upgrade

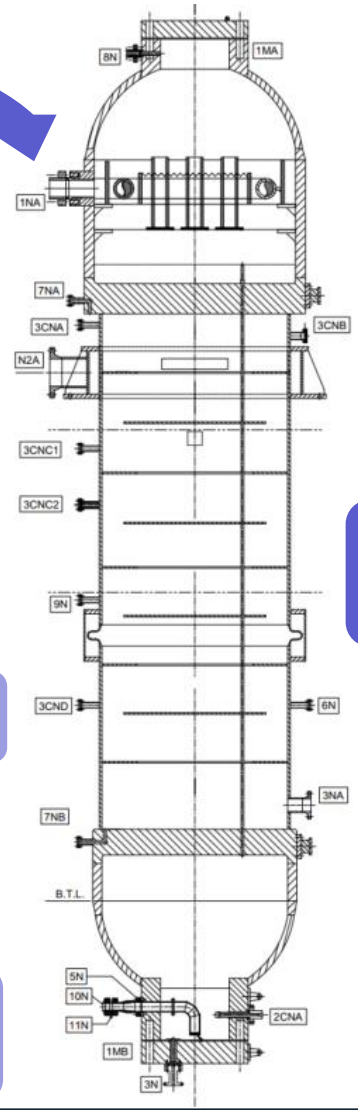
Weight optimization

No HP piping modification

Extended lifetime

No Limitation at 204°C= Potential capacity increase

No dedicated air compressor



Reduced CAPEX and OPEX

*For Titanium Stripper only.

#For Bimetallic Stripper only.

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CONCLUSION

CONCLUSIONS & KEY TAKEAWAYS

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- E-type material eliminates the need for reversibility (titanium) and oxygen passivation (bimetallic)
- Optimized overall design without changing the process
- More reliability and lower maintenance
- Option to increase heat exchange area with gain in plant flexibility
- Improved safety aspects
- Lower initial investment and reduced CAPEX

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THANK YOU

QUESTIONS?