



TEASER

HSL is a dual industrial decarbonization actor
with a unique technology that produces
low-carbon silicas and renewable hydrogen

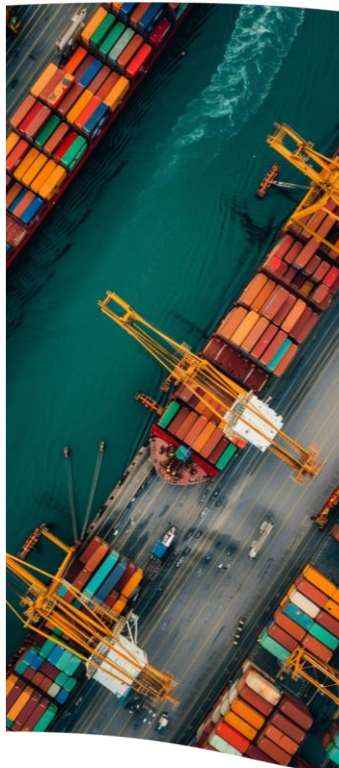
HSL AT A GLANCE

A single platform for renewable hydrogen and low-carbon silicas



HYDROSIL

Liquid carrier, on-demand hydrogen



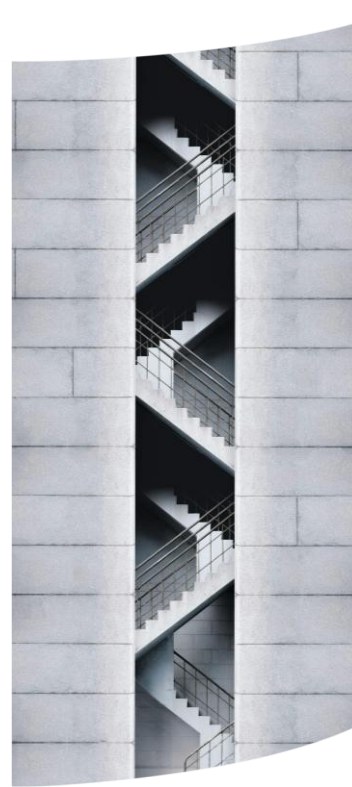
DECARBONIZATION

Enabling clean logistics and mobility



LOW-CARBON SILICAS

~80% less CO₂ Emissions & high purity



INDUSTRIALIZATION

From pilot to industrial scale

- ☛ **HydroSil:** proprietary **liquid carrier** enabling safe, high-density hydrogen storage using existing logistics enabling on-demand release
- ☛ **Decarbonization:** drop-in solution helping industries and transport cut emissions without new infrastructure
- ☛ **Low-Carbon Silicas:** co-produced high-value materials with **~80% lower CO₂ footprint** and immediate market demand
- ☛ **Industrialization:** proven technology **scaling from pilot to industrial** plants for global deployment



HYDROSIL SOLUTION

Next-generation carrier technology

ECO-FRIENDLY & LOW-CARBON

*~80% CO₂ reduction
(on average vs current
standards)*

LOW-CARBON SILICAS

*Co-product
valorization*

INFRASTRUCTURE COMPATIBILITY

*Conventional
chemical liquid
logistics*

SAFETY & EFFICIENCY

*7x higher density
(vs compressed gas at
200 bars)*

AFFORDABILITY & PERFORMANCE

*Low-cost & abundant
raw materials*

ENERGY-FREE H₂ RELEASE

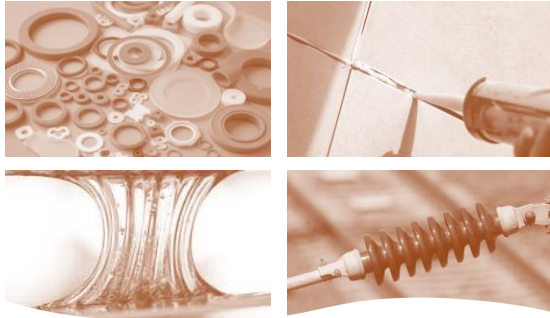
*High-quality,
spec grade D H₂*

HydroSil is a breakthrough **liquid carrier** that enables the production, storage and transportation of **high-performance, low-carbon silica**, while energy-free **renewable H₂ release** while it also functions as a **compact energy vector**, capturing renewable energy where it is cheapest, storing it in a stable liquid carrier, and transporting it via existing infrastructure

Notes: 1) On average vs current standards

WIDE RANGE OF INDUSTRIAL APPLICATIONS

Key industrial segments and global leaders driving adoption



PYROGENIC SILICA

Target segments:

- Silicon Elastomers
- Adhesives & Sealants
- Electronics



GREEN HYDROGEN

Target segments:

- Port Hubs
- Logistic Centers



PRECIPITATED SILICA

Target segments:

- Tire & Rubber
- Personal & Oral care
- Feed, Paints & Coating



ONE PROCESS – THREE MARKETS
Renewable H₂ + Low-carbon Silicas

FOCUSED ON RESEARCH
5 PhDs, 30+ FTEs, 7 nationalities

“HSL is a **dual industrial** decarbonization actor with a
unique technology that produces
low-carbon silicas and renewable hydrogen”

130+ PATENTS FILED
With international coverage

PYROGENIC SILICA
*Used in silicon elastomers
adhesives & coatings*

PRECIPITATED SILICA
*Used in tires & rubbers, oral care,
paints & coatings*

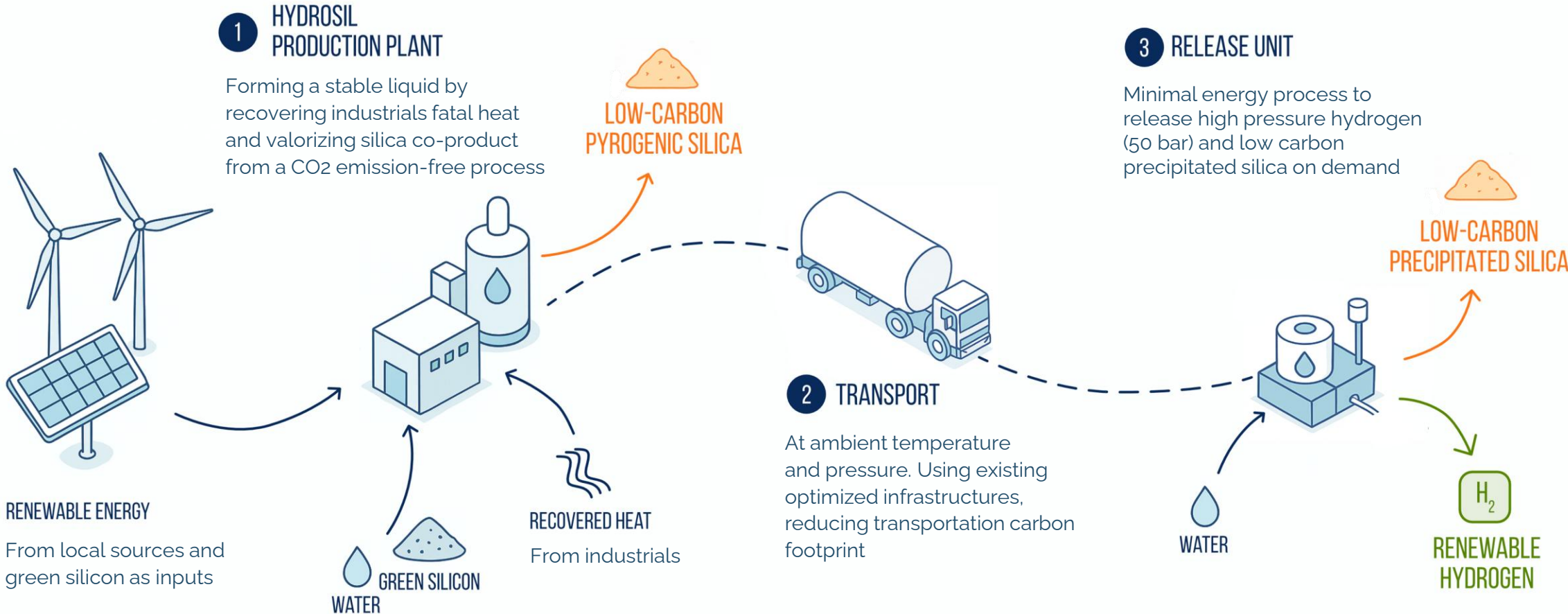
LOW-COST TRANSPORTATION
*Liquid logistics leading to
<€5/kg at scale by 2040*

ONE PROCESS, THREE LOW-CARBON OUTPUTS

Renewable H₂ and silicas, united in one patented technology



**130+ International
IP filings**



HSL LOW-CARBON SOLUTIONS

Comprehensive product portfolio addressing diverse industrial applications and end-user needs

2030 Market:
€4.5bn / 900 kt

LOW-CARBON PYROGENIC SILICA



- ♥ **Co-produced** during HCl recycling via flame pyrolysis
- ♥ **Uses green silicon** as green raw material
- ♥ Energy-optimized process with closed-loop HCl recovery
- ♥ Hydrophilic amorphous silica with **stable morphology**

2030 Market:
€17.2bn / 2,150 kt

RENEWABLE HYDROGEN



- ♥ Renewable H_2 with **ongoing RFNBO certification**
- ♥ Liquid stores H_2 at **7x the density** of compressed gas at 200 bars
- ♥ **High-quality H_2** – spec grade D

2030 Market:
€3.4bn / 2,550 kt

LOW-CARBON PRECIPITATED SILICA



- ♥ **Unique greener process** compared to traditional production
- ♥ **Generated during H_2 release from HydroSil**
- ♥ Produces **amorphous, fine silica** (elementary particle size nanometric, BET 50-250 m^2/g)

HYDROSIL: A NEW PARADIGM FOR HYDROGEN & SILICA

Quantified advantages proving HSL's dual low-carbon breakthrough

7X more H₂ density

- Liquid stores H₂ at **7x the density of compressed gas at 200 bars**
- **Safe handling** with flash point > 60 °C in ambient conditions

Affordable & scalable

- **No H₂ used** in manufacturing process
- Based on **abundant, low-cost raw materials**

D-grade H₂

- **On-demand high-quality H₂** with minimal energy input
- **Renewable hydrogen & ongoing certification process**

15 kt Silica / 1 kt H₂

- **Simultaneous low-carbon silica valorization** with H₂ generation
- **3x more silica transported** than standard silica in the same volume

0 changes needed

- **Fully compatible** with existing logistics and storage systems
- **No compression needed**, easily pumpable (100–200 mPa·s)

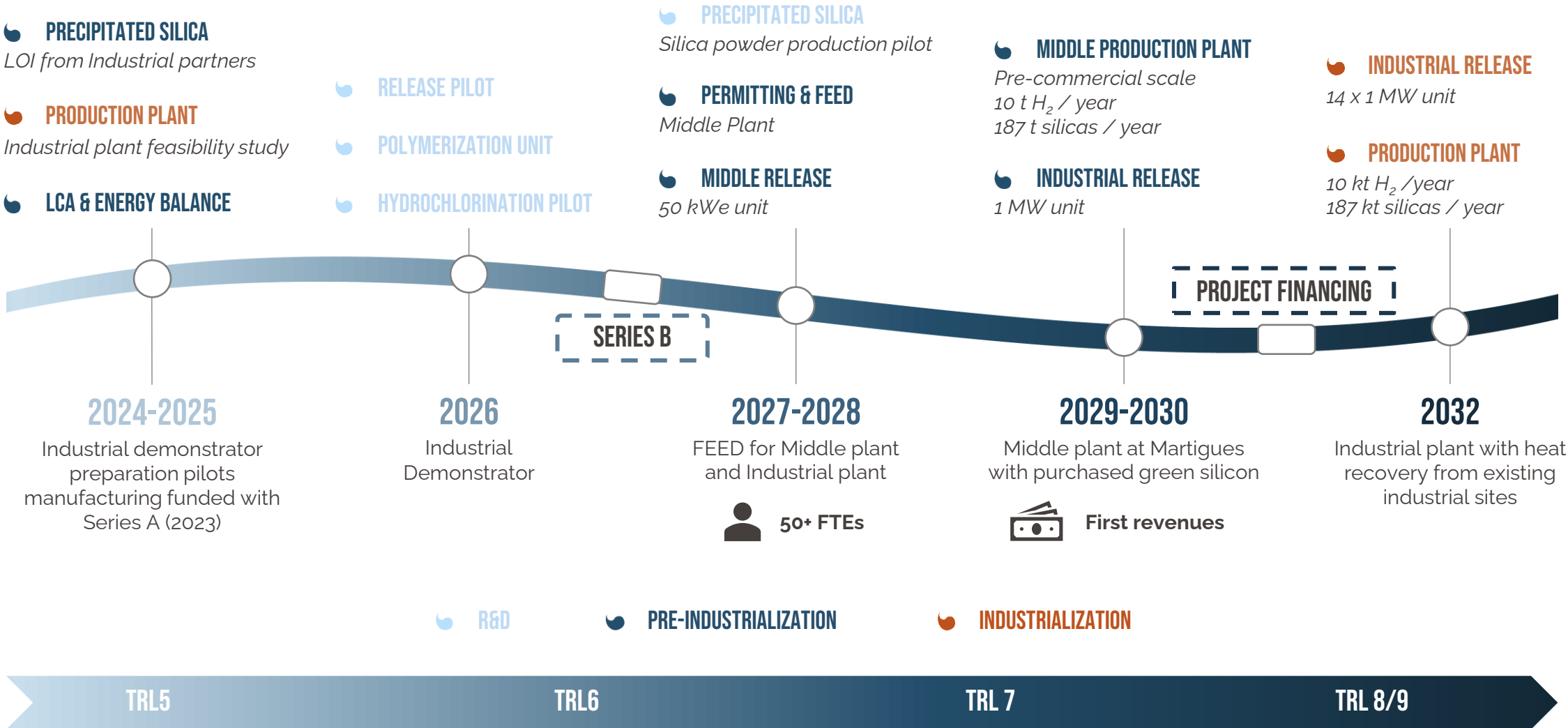
~80% CO₂ Reduction⁽¹⁾

- **Minimal energy input:** 5 kWh for 1 kg of low-carbon silica
- **Eco-friendly**, non-toxic, non-pyrophoric process

Notes: (1) on average when compared to existing processes

ACCELERATING TOWARD FULL-SCALE INDUSTRIALIZATION

A clear execution roadmap from pilot validation to commercial deployment



ABOUT HSL TEAM

Strong talent gathering to achieve HSL's mission

2015

foundation of
the company



2022

1st system
delivered

30+

collaborators

130+

patents

We look for the simplest and fastest
way to get things done with the
maximum impact

We think big and
strive for excellence

20

€m total
funding

12

co-dev
projects

STRATEGIC INTEREST FROM TIER-ONE INDUSTRIAL ACTORS

A growing ecosystem of industrial and infrastructure leaders supporting HSL's go-to-market roadmap



HSL's strong traction across industrial players provides the company with a unique position to engage the most value-creating partnerships for its deployment phase

SERIES B OBJECTIVES

Accelerating industrial scale-up

A unique dual-technology platform converting silicon into **low-carbon precipitated silica** and **renewable hydrogen**, addressing two major decarbonization markets

Interest of industrial leaders such as Solvay and Michelin, hydrogen offtakers, and port hubs like Antwerp and Rotterdam with potential co-developments under discussion, confirming the need for scalable low-carbon materials

Construction of the Middle Plant (10 t H₂ / 37 t silica per year) & Middle Release as the next industrial milestone toward full-scale production – **150 t of precipitated silica released on-site**

Technology validation for the first industrial plant (10 kt H₂ / 37 kt silica per year) by 2032 – 150 kt of precipitated silica released on-site

Advancing **TRL5-6 technology** (with Middle Plant & Release Unit), paving the way to **TRL7** & **TRL8**, validating continuous and high-pressure process operation

Economic competitiveness proven, with **~80% CO₂ reduction** and cost parity versus conventional silica and hydrogen routes

Strong IP and industrial positioning, enabling HSL to become a **European leader in circular and decarbonized chemistry**



HSL IS RAISING €15M

Supported by Tier 1 Partners

INDUSTRIAL & ENERGY LEADERS



INSTITUTIONAL/PUBLIC INVESTORS



LOGISTICS & INFRASTRUCTURE



FINANCIAL INVESTORS



Key Milestones

INDUSTRIAL INTEGRATED DEMONSTRATOR COMMISSIONING

- Full integration and continuous operation of the three TRL6 pilot units on a single industrial site

MIDDLE PLANT SITE AND REGULATORY SECURING

- Industrial site validated, permits advanced, and land development works initiated

PRE-COMMERCIAL PROOF VIA MIDDLE PLANT

- Demonstration of simultaneous hydrogen and silica production at pre-commercial scale

GIGA-PLANT TRANSITION STRUCTURING

- Pre-FEED completed with consolidated economics and a clear roadmap toward project financing

THE FUTURE OF SILICA STARTS WITH HYDROGEN



Bâtiment Lavoisier
Avenue Louis Philibert
13100 Aix-en-Provence (France)

[WWW.HSL.TECH](http://www.hsl.tech)



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DEDICATED TEAM

PHILIPPE RODRIGUEZ
philippe@avolta.io

Founding Partner

FRANCOIS DE RUGY
francois.derugy@avolta.io

Strategic Advisor

MEHDY LAUDRIN
mehdy.laudrin@avolta.io

Associate

ESTEBAN LAINE
esteban.laine@avolta.io

Senior Analyst

NICOLAS LAURENT
nicolas.laurent@avolta.io

Analyst

