I believe that water will one day be employed as fuel.

Jules Verne “The Mysterious Island” 1874

Let’s make it happen!

Worldwide Hydrogen Council 2021
Solvay Today

We are a science company, founded in 1863, whose technologies bring benefits to many aspects of daily life.

Our innovative solutions contribute to safer, cleaner, and more sustainable products found in homes, food and consumer goods, planes, cars, batteries, smart devices, health care applications, and water and air purification systems.

Our Group seeks to create sustainable shared value for all, notably through its Solvay One Planet plan crafted around three pillars: protecting the climate, preserving natural resources and fostering better life.
## 2030 Solvay One Planet goals
### Broad and strong progress

<table>
<thead>
<tr>
<th>Target</th>
<th>2030 targets</th>
<th>2021</th>
<th>Progress versus 2018</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce GHG emissions, scope 1 and 2, and Align with Science Based Targets initiative (SBTi)</td>
<td>Reduce by 30% (-2.5%/yr)</td>
<td>11Mt</td>
<td>-14% -11% structural</td>
<td>Above Paris Agreement</td>
</tr>
<tr>
<td>Phase out coal wherever renewable alternatives exist</td>
<td>Achieve 100%</td>
<td>27 pj (1 plant exiting coal)</td>
<td>-18%</td>
<td>Rheinberg in 2020, Dombasle in 2021, Devnya in 2022</td>
</tr>
<tr>
<td>Reduce negative pressure on Biodiversity</td>
<td>Reduce by 30%</td>
<td>-13%</td>
<td>-24%</td>
<td>Torrelavega Cuchia quarry restoration (CEFIC award), Paulinia’s (WHC Gold Certification), Santa Lucia conservation area</td>
</tr>
<tr>
<td>Increase sustainable solutions, % of Group sales</td>
<td>Achieve 65%</td>
<td>53%</td>
<td>+3pp</td>
<td>Solef® PVDF, Addibond™, Actizone™, SOLVAir® Marine</td>
</tr>
<tr>
<td>Increase circular economy, % of Group sales</td>
<td>More than double</td>
<td>5%</td>
<td>+1pp</td>
<td>Silica HDS, RhodiaSolv® IRIS, Amodel® Bios, Natural Vanillin, Augeo® Green Solvent</td>
</tr>
<tr>
<td>Reduce non-recoverable industrial waste</td>
<td>Reduce by 30%</td>
<td>58 kt</td>
<td>-34%</td>
<td>45 projects initiated</td>
</tr>
<tr>
<td>Reduce intake of freshwater</td>
<td>Reduce by 25%</td>
<td>315 Mm³</td>
<td>-5%</td>
<td>71 projects initiated</td>
</tr>
<tr>
<td>Safety with a zero accident policy (RIIR* indicator)</td>
<td>Aim for zero</td>
<td>0.43</td>
<td>-16%</td>
<td>Action plan on globalizing near misses</td>
</tr>
<tr>
<td>Accelerate DEI: Gender parity in mid &amp; senior management</td>
<td>Achieve 50% by 2030</td>
<td>25%</td>
<td>+1.3pp</td>
<td>Launched Solvay One Dignity 9 objectives and action plans</td>
</tr>
<tr>
<td>Extend parental leave time</td>
<td>16 weeks since 2021</td>
<td>implemented</td>
<td>achieved</td>
<td>16 weeks policy open to all co-parents regardless of orientation since January 2021</td>
</tr>
</tbody>
</table>

* Reportable Injuries and Illnesses Rate
Accelerating the transition to Green Hydrogen

Energy transition has to happen.

It is fundamental to reaching Net Zero, and hydrogen is an essential part of the mix.

Chemistry holds the key to transforming hydrogen into a green energy solution for the future.

At Solvay, we’re developing solutions based on our specialty materials to drive the green hydrogen economy forward.

We’re committed to enabling a faster transition to a green hydrogen economy for a clean planet.
Solvay Green Hydrogen platform: Relevant products and solutions all along the Green Hydrogen Value Chain

- **Generation**
  - PV/Wind

- **H2 Production**
  - Energy Storage
  - Electrolysis

- **Storage & Infrastructure**
  - Stationary Storage
  - Transportation & Supply

- **H2 Conversion**
  - Applications
    - Mobility
    - Power
    - Residential
    - Industrial

- **Platform Scope**
  - Distribution By road & sea
  - H2 Station & On-demand storage
  - Gas Grid

- **Renewable Energy**
  - Electrolyzer

- **Ionomers for Membranes**
  - (Redox Flow Batteries)

- **Polymers & Additives for Electrolyte and Electrodes**
  - Advanced Materials For Balance of Stack

- **Material for H2 Storage Vessels**

- **Polymers & Additives for Electrolytes and Electrodes**
  - Advanced Materials For Balance of Stack

- **Advanced Material for FC power trains**
  - (Balance of Plant)
  - Materials for H2 Storage Vessels
Today’s two main electrolyzers technologies (for producing Green H2)

<table>
<thead>
<tr>
<th>AEL</th>
<th>Alkaline Electrolysis (Established)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEM-EC</td>
<td>Proton Exchange Membrane Elec. (Establishing)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core of stack</td>
<td>Balance of stack (BoS)</td>
<td>Balance of Plant (BoP)</td>
</tr>
<tr>
<td>MEA</td>
<td>Stack</td>
<td>Electrolyzer Plant</td>
</tr>
</tbody>
</table>

- **Sulfone polymers**
  - For separator diaphragm
- **Sulfone/Sulfide polymers**
  - For cell frame
- **Fluoro-ionomers**
  - For membranes & electrode binders
- **Sulfone polymers**
  - For sub-gasket, spacers ...

**Materials GBU E&I Cluster** Coatings & liners
Solvay Advanced Materials relevant and meaningful Green H2 fuel cells for Mobility

H2 Fuel Cell Vehicle

Fluoro-Ionomers
For membranes & electrode binders

PPSU / PPS / PPA / TPC
For sub gaskets, endplates, bipolar plates...

Specialty Polymers
Solutions for hydrogen, air and thermal management loops

Specialty Polymers & Composites

H2 Fuel Cell System

Electrode
Membrane
Membrane Electrode Assembly (MEA)

Hydrogen System

Thermal Mgmt System

Air System

Balance of Stack (BoS)

Balance of Plant (BoP)

H2 Pressure Vessel System

H2 Tanks
Solvay’s extensive range of critical advanced materials is engaged to produce, store and convert Green H2

- Solvay is developing ionomers & structural materials for the PEM/AEL/AEM balances of stack and for the advanced H2 storage systems.
Eu collaborative projects enabling to design the technology value chains of the Green H2 market applications

- Solvay is co-developing the next generations of materials with key industry market makers and academic partners through collaborative European and Country funded projects…

… and is still open to engage into the next collaboration opportunities!
Key Takeaways

From our Advanced Material Solutions for Green Hydrogen

Making it happen.
We’re a key enabler of the green hydrogen evolution.

Supporting leading hydrogen innovation
Our innovation focuses on enhancements in system durability, efficiency, safety and total cost of ownership, helping our customers improve the viability and scalability of green hydrogen technologies.

Creating Unique Technology Expertise
Our platform of innovative materials and chemical solutions and fully dedicated global teams means we bring together unique scientific know-how that enables us to work with any technology and bring the solutions you need.

Accelerating through Partnerships
As the green hydrogen economy accelerates, we will continue to collaborate and create partnerships to make it happen.
FASTER TOGETHER.