

Waterstof Industrie Cluster: Minutes meeting 12/12/2023 @ Accelera by Cummins

Agenda:

- 10.00-10.10 : Welcome by Accelera by Cummins (Bernard Dupret, EMEA Sales director)
- 10.10-10.40 : New WIC members presentations
- 10.40-11.00 : Keynote speaker KBC, Investments in H2 economy (Erwin Caljon)
- 11.00-11.25 : Keynote speaker Electriq, Hydrogen storage in dry powder (Danny Weber)
- 11.25-11.40 : News from cluster members (Plastic Omnium, Air Products, Solhyd, SGS)
- 11.40-11.50 : WIC news
- 11.50-12.00 : Break
- 12.00-13.00 : Cummins activities & factory tour

New members since last meeting

Krohne, Pfizer, PFF, Ipcos, Soluforce, Chiyoda, IMEC, Vervaeke, Vopak, Bosch Thin metal technologies, Van Moer, FESTO

Presentation new members:

- **Vandersanden** : Wim Thewissen
 - Production of facade and street products & solutions (brick, clay pavers etc..)
 - Decarbonisation strategy: Pirrouet bricks storing CO2 (launched last Sept) and substitution of natural gas in high temperature processes (KILNS, 1100°C)
- **Verbraeken Infra group** : Bertrand Jardinet
 - Infrastructure projects in different sectors, a.o. gas, liquids and district heating, industry...
 - Design, construction and commissioning of hydrogen infrastructure (H2 backbone, industrial sites...)
- **Bosch Thin Metal Technologies**: Dirk Van den Heuvel
 - Thin metal technologies applied in electrolyser stacks (PEM)
 - Production of bipolar plates
- **Saint Gobain-Omniseal solutions**: Philippe Yeterian-Hirota Sato
 - Precision sealing and material solutions
 - Develop solutions for different parts of the H2 value chain
- **Honywell**: Bart Geyskens
 - Engineering, manufacturing, testing and commissioning of heating solutions for Thermal Processing Equipment
 - Production of H2 capable burners (0-100%), simulation of processes in own 'big lab'
- **Stahl-Electromach**: Geert Wouters
 - Design, production & supply of safety products and solutions
 - Explosion protection of H2 equipment, international certification
- **Krohne**: Jorgen Oorts

- Supplier of process measuring technology
- Ultrasonic flow measurement of H₂ in pipelines, Anode-cathode contamination prevention in electrolyzers, H₂ Leak detection
- **Technogas:** Laurent Femont
 - Engineering & construction of gas installations a.o. H₂ including metering systems
 - Working with French company Ataway on development of hydrogen refuelling stations

Keynote: Erwin Caljon, KBC, How can the hydrogen economy be financed? – A bank perspective

- The hydrogen economy requires big investments, banks can play a role but will only contribute for a limited part. Other investors (public funding, investment companies etc.) needed
- The bankability of H₂ projects should be improved to attract bank financing (increasing certainty on a.o. offtake process & volumes...)
- There is a strong interest in hydrogen projects because of sustainability commitments; EU taxonomy compliance to guarantee sustainable character of projects is key!
- KBC wants to play a role in the hydrogen market, as they have done before in the offshore market, and help to create a frontrunner position for Belgium in this field. They are investing in H₂ training of their workforce; they will develop a financing framework for H₂.

Keynote: Danny Weber, Electriq, Solid Inorganic Hydrogen Carrier

- New technical solution for hydrogen storage, with energy density close to ammonia but several advantages regarding safety for storage and transportation.
- Dry powder KBH₄ (Potassium Boro Hydride), that can be recycled after dehydrogenation. Release of the hydrogen is done by adding H₂O to the powder at low temperature (<100°C) and low pressure.
- In the reaction, also H₂ from the added water is released, such that the net amount of H₂ molecules is higher than the H₂ initially incorporated in the powder.
- Electriq has done several innovation steps on the initial process to convert KBH₄ to KBO₂ releasing hydrogen, with reduction of materials consumption and reduction of energy use.
- The first application targeted are off-grid power applications (gensets)
- Electriq has received support from the NL government and will build a factory for the powder production in Amsterdam, to be opened in 2026.

News from cluster members:

Plastic Omnium: Jos Reeskens – New energies division

Type IV H₂ pressure vessels, development centre in Genk, testing!

Large investments in hydrogen mobility, shift from automotive only to several mobility applications including heavy duty, buses and trains

Air Products: Suzy Valgaeren

Large investments in Hydrogen mobility

Production sites of green hydrogen in US and Saudi Arabia, with 26GW of electrolyser capacity planned, and production of blue hydrogen in US & Canada.

Import terminals in development in UK, NL and Germany.

Development of transnational EU network of HRS, with 9 stations announced and 10 extra in the pipeline.

For BE/NL: announced HRS in Rotterdam (2024) Zeebruges (2025), Gent (2026)

Solhyd: Jan Rongé

Spin-off Solhyd from KULeuven now established as independent company

First production line set up near Leuven

6M€ investment capital gathered

SGS: Sven Lataire

New large lab for H2 sample analyses has been established in Normandy

Strong in analysis capacity and throughput time realised

News from WIC/WN

- WaterstofNet is developing a project with the umbrella organisation of the secondary schools to refurbish a (second hand) H2 bus into a driving demonstration lab that can travel throughout the country to have school trainings on hydrogen. **Interested WIC members that want to sponsor this bus can announce themselves.** (contact Tom Verlinden).
- Subsidy calls BE: federal calls on clean industry and import, with deadline Jan 31
- Subsidy calls NL: Zero-emission trucks and Green chemistry, with deadines Dec 2023 and June 2024
- Subsidy calls EU: H2 bank, ETS-IF, CEF E/T, Clean H2 partnership...
- Events for 2024:
 - Online meet & greet, Jan 25 2024
 - **Hannover messe, April 2024: WIC members that want to join a FL pavillon with WIC and FIT, please announce yourself!**
 - WIC meetings: 21/03; 06/06; 19/09/05/12
 - WIC conference Oct 2024, tbd

Visit of Accerela assembly hall.

Present in the meeting (in person)

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| Jean | Aerts | SPIE |
| Marion | Bechtold | KU Leuven |
| Ben | Boudier | Eriks |
| Olivier | Bravin | Swagelok |
| Erwin | Caljon | KBC Bank |
| Nick | Carmans | P&V |
| Lenn | Carpentier | Solenco Power |
| Lilian | Chagneau | Tractebel Engie |
| Caroline | Coorevits | Sodeco Valves |
| Pieter | Couck | Solenco Power |
| Johan | De Blicck | Siemens |
| Wim | De Gang | Solenco Power |
| Rick | de Jong | Parker |
| Dimas | De Ridder | Solenco Power |
| Paul | De Veuster | Swagelok |
| Roger | De Vos | Atlas Copco |
| Sylvain | Demolder | Nenspower |
| David | Dierickx | Klinger |
| Jef | Dijckmans | Smulders |
| Sven | Duchatelet | Solenco Power |
| Frederik | Dullaerts | Sodeco Valves |
| Merlijn | Erbuer | Virya H2 |
| Laurent | Femont | Technogas |
| Isabel | François | WaterstofNet |
| David | Gay | Sirris |
| Bart | Geyskens | Honeywell |
| Stéphane | Granger | Honeywell |
| Peter | Gysen | Intertek |
| Michiel | Heeman | PFF |
| Sato | Hirotake | Saint-Gobain Omniseal Sol. |
| Rüdiger | Hoyer | Umicore |
| Stefaan | Janssens | Tialoc |
| Bertrand | Jardinet | Verbraeken Infra Group |
| Pieter Jan | Jordaens | Sirris |
| Steven | Keyzer | OCAS |
| Wouter | Koster | Ballast Nedam |
| Emile | Kruijswijk | Bosch |
| Tara | Larsson | Ghent University |
| Guillaume | Lassaux | Tractebel Engie |
| Roman | Latsuzbaia | Bureau Veritas |
| Chris | Lefrère | WaterstofNet |
| Joost | Lenis | DAF Trucks |
| Tony | Lippens | BIP Elneo |
| Francisco | López | Solenco Power |
| Stephaan | Maes | Intertec |

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| Hans | Magits | Atlas Copco |
| Yassine | Makhoukh | Toyota |
| Adwin | Martens | WaterstofNet |
| Stijn | Meel | WaterstofNet |
| Annelies | Mertens | Solenco Power |
| Wim | Morel | Emerson |
| Rene | Peperkamp | Croonwolter&dros |
| Mark | Philips | SGS |
| Marius | Ponten | VDL |
| Axel | Puystiens | HIMA |
| Jos | Reeskens | Plastic Omnium |
| Jochen | Reynaert | Somarine |
| Caro | Roeffen | Bosch |
| Jan | Rongé | Solhyd |
| Frank | Scheerlinck | BESIX |
| Sam | Schotte | Vives |
| Victor | Sileghem | Ghent University |
| Louis | Sileghem | Ghent University |
| Peter | Simkens | VKI |
| Ronald | Slegers | DAF Trucks |
| Amedée | Somers | Somarine |
| Ronald | Stegers | DAF Trucks |
| Ted | Straten | Bosal |
| Thomas | Swerts | Atlas Copco |
| Wim | Theeuwissen | Vandersanden |
| Tim | Theunis | Actemium |
| Adrien | Theunissen | BESIX |
| Olivier | Ulrici | John Cockerill |
| Suzy | Valgaeren | Air Products |
| Els | Van Bouwel | WaterstofNet |
| Koen | Van den Brande | Polders Investeringsfonds |
| Dirk | Van den Heuvel | Bosch |
| Wim | Van Den Mosselaer | Siemens Energy |
| Derrick | van der Hulst | Stahl Electromach |
| Marc | Van der Linden | Actemium |
| Marc | van Deth | Parker |
| Nand | Van Humbeeck | Eriks |
| Stefan | Van Laer | WaterstofNet |
| Sven | Van Lievendael | SPIE |
| Maxime | Van Peel | PMV |
| Wim | Van Rhijn | Transfurans |
| Björn | Van Thienen | Exion Hydrogen |
| Danny | Vancoppenolle | Bureau Veritas |
| Xander | Vanderfaeillie | Jan De Nul |
| Hugo | Vandormael | Covess |
| Liesbet | Vanhoof | WaterstofNet |

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| Tony | Vanswijgenhoven | Covess |
| Bjorn | Veldhuizen | TotalEnergies |
| Paul | Vercammen | BIP Elneo |
| Flip | Verhoeven | Engicon (Geldof) |
| Serge | Verhulst | MRC Global |
| Thomas | Verkinderen | Klinger |
| Guy | Verkoeyen | Exion Hydrogen |
| Tom | Verlinden | WaterstofNet |
| Pieterjan | Versteede | Jan De Nul |
| Piero | Wattier | Swagelok |
| Danny | Weber | Electriq Global |
| Guy | Willemot | Tessengerlo Group |
| Hans | Wolters | Parker |
| Geert | Wouters | Stahl Electromach |
| Philippe | Yeterian | Saint-Gobain Omniseal Sol. |

Online participants

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|----------|----------------|---------------------------|
| Philippe | Alboort | Arcelor Mittal |
| Mari | Amenomori | Chiyoda |
| Rinaldo | Bellingeri | APK-Sicim |
| Lut | Bollen | Vlaamse overheid |
| Ronald | Carrette | Besix |
| Eric | De Coninck | Arcelor Mittal |
| Dirk | De Keulenaer | Messer |
| Mathijs | De Laet | Antwerp Terminal Services |
| Marc | Devos | Krohne |
| Guy | Franssens | SGS |
| David | Guthrie | Air Products |
| Alain | Hanneuse | Sibelga |
| Roland | Hequet | John Cockerill |
| Marc | Heylen | Capgemini |
| Davine | Janssen | WaterstofNet |
| Marc | Meeus | Umicore |
| Philippe | Quenon | Tessengerlo Group |
| Neha | Roy | Hyster Yale |
| Niels | Tobback | Messergroup |
| Herman | Van Damme | G&V |
| Franky | Van den Berghe | Willemen |
| Thomas | Van Nooten | IOK |
| Sara | Vander Beken | Sweco |
| Siegbert | Verhulst | Air Products |
| Sandra | Wauters | BASF |
| Michiel | Winckelmans | Air Products |
| Paolo | Zoni | Sicim |

