

Press release

Niederweningen, 13 May 2009

News blackout until 14.05.09 - 10.00

Emission-free, fuel-cell-driven compact sweeper

The world's first emission-free, fuel-cell-driven compact sweeper was presented in Basel today. The forward-looking prototype called CityCat H₂ was engineered by Bucher Schörling in Niederweningen, Switzerland. The fuel cell drive system is powered by hydrogen.

The Swiss project to jointly develop a forward-looking compact sweeper together with other partners was led by Empa (Swiss Federal Laboratories for Materials Testing and Research) and the Paul Scherrer Institute (PSI). Experienced municipal vehicle manufacturer Bucher Schörling contributed its expertise in sweeper engineering and the prototype.

Combining "clean" hydrogen as a source of energy and efficient fuel cell/electric drives enables practically emission-free, climate friendly operation. The aim of the CityCat H₂ project is to move fuel cell technology from the laboratory to the road. Hydrogen is currently the subject of intense research in many countries as a potential fuel for vehicles of the future. By opening the door to this technology, municipal vehicles could play a key role in its introduction.

The prototype is based on a Bucher Schörling CityCat 2020 compact sweeper and features a fuel cell hybrid drive. Its diesel engine was replaced by a hydrogen-driven fuel cell system. Due to the steady way in which they are operated, compact sweepers are very well suited to this type of environmentally-friendly drive technology. In addition to the operational changes, a concept also had to be developed to guarantee safety in the event of failures, potential operating errors or accidents. Despite the added weight, the hydrogen-driven fuel cell system has significantly reduced the vehicle's energy consumption. For this application in a municipal

vehicle, the chosen fuel cell/battery hybrid solution is the most energy-efficient power option. When integrating this new drive technology into the existing compact vehicle, its increased space requirements posed a particular challenge to vehicle engineers.

Apart from its ultimate purpose, street cleaning, the vehicle is also being used for research by various teams of experts during the 18-month on-road tests in the 2000-Watt Society of the pilot region, Basel. During on-road use, a detailed look will be taken at this drive technology with regard to how it behaves during operation as well as how components age. Data collected from on-road operation will be used to validate the vehicle's longitudinal dynamics model developed for the layout of the drive components. Apart from the purely technical examinations, the Novatlantis – Sustainability at the ETH Domain initiative is monitoring the vehicle's operation while taking a close look at issues such as the acceptance of hydrogen as a vehicle fuel and its economic viability.

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