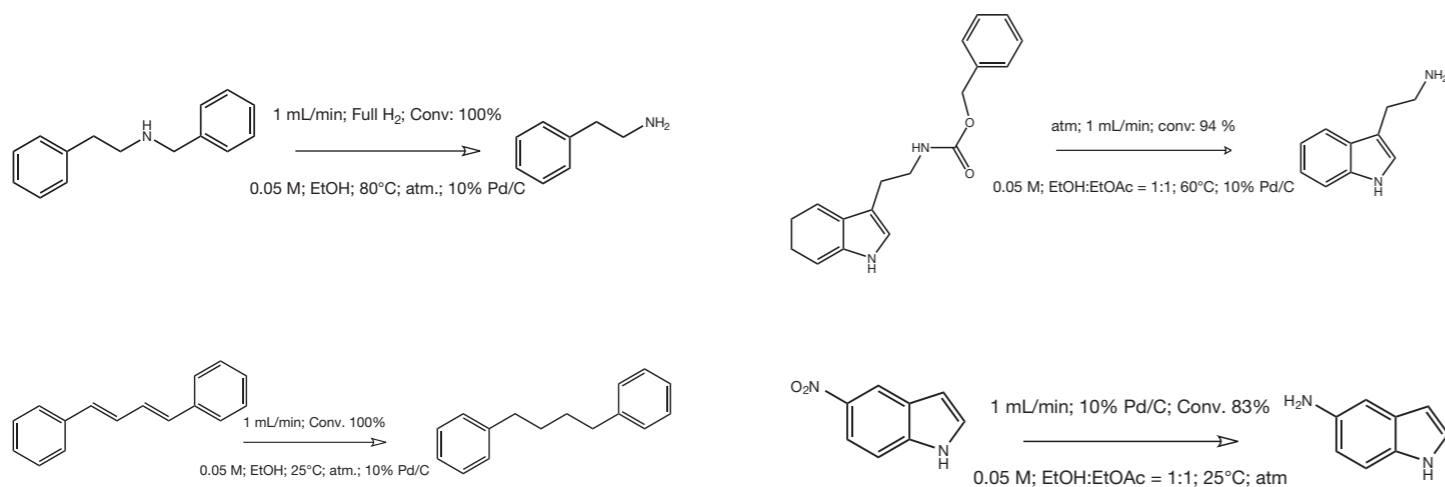


Some chemistry examples performed on the H-Cube Tutor™:



CatCart Packer™

Users can pack their own catalysts/reagents in a safe, easy and cost effective way with our CatCart Packer™.

The CatCart Packer™ enables users of the H-Cube Tutor™ to pack their own catalysts into cartridges and screen them for rapid optimization.

Using the CatCart Packer™ takes three simple steps: adding the catalyst/reagent, adding the filters and sealing the CatCart®.

After filling and sealing, the CatCart® is ready for use.

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"Good reactions"™



H-Cube Tutor™ Hydrogenation reactor for academic use



DESIGNED FOR ACADEMIC USE

The H-Cube Tutor™ hydrogenation reactor - a simple and safe reactor to enable undergraduates and researchers to perform hydrogenation as part of their degree. Current undergraduate programs do not include a practical session on hydrogenation due to the safety concerns with handling hydrogen (in balloons or cylinders) and pyrophoric catalysts.

However, approximately 5 - 10% of reactions in the whole of the chemical industry are forms of hydrogenation and so it is essential for their future industrial or academic careers that the students gain first hand practical experience with hydrogenation during university.

The H-Cube Tutor™ is a continuous-flow hydrogenation reactor designed solely for academic affiliations for education purposes.

The H-Cube Tutor™ is derived from ThalesNano's H-Cube®, an R&D 100 Award winning bench top hydrogenation reactor, which has been available to both academia and industry since 2005. The H-Cube® has been widely adopted by the pharmaceutical industry for medicinal chemistry research and is rapidly becoming the standard for hydrogenation, replacing the existing "shaker" type technologies.

The H-Cube Tutor™ retains the key benefits of the original H-Cube®, such as:

Safer

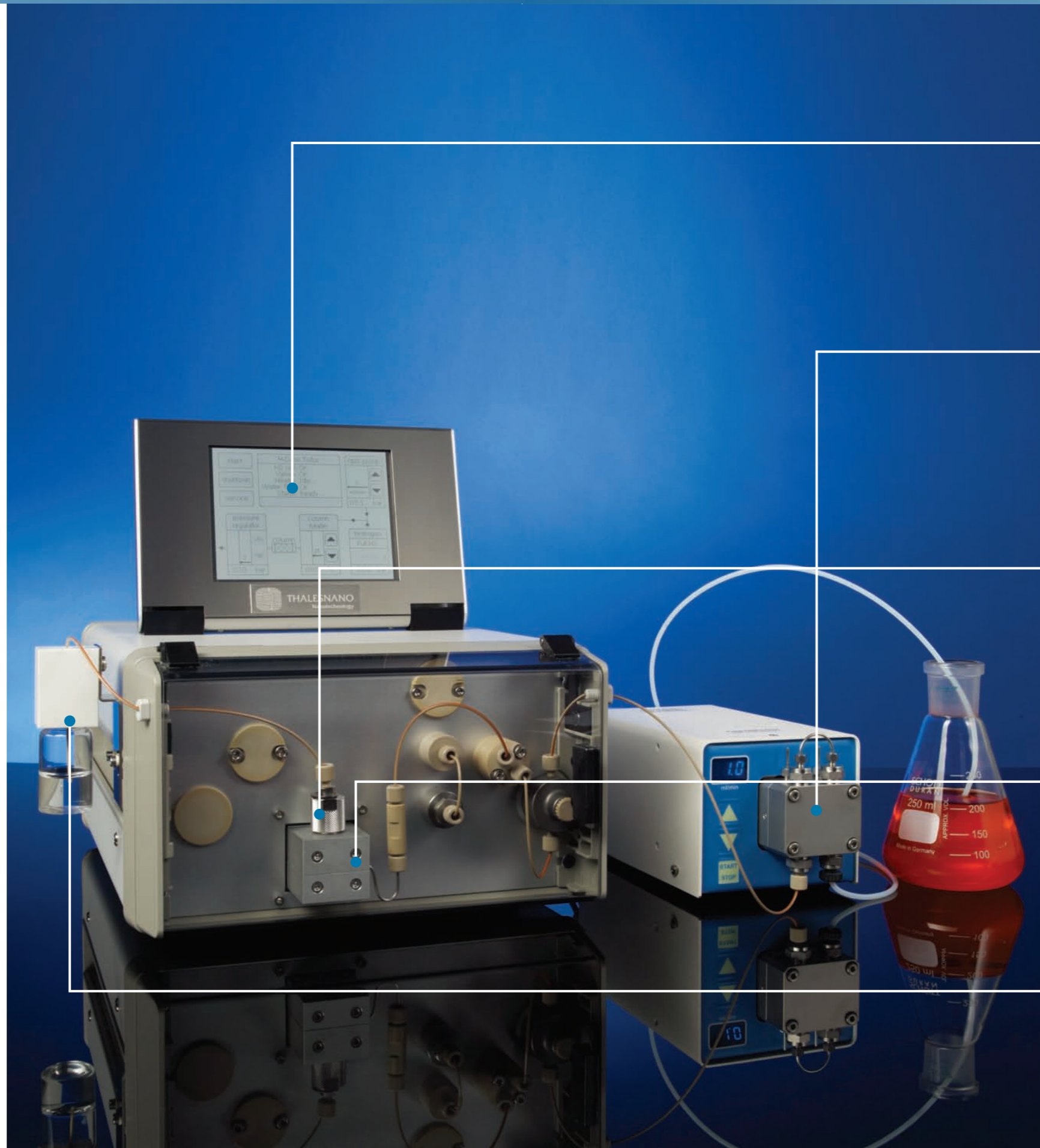
- No hydrogen cylinders necessary - hydrogen is generated from electrolysis of water on demand
- No catalyst filtering, weighing out, or clean up - catalysts are packed into disposable cartridges

Efficient

- Reactions go to completion in minutes
- React compounds at temperatures up to 100°C safely
- Analyze reaction mixture after 4 minutes!
- Easy to use - chemists of all levels can learn how to use it in minutes

Convenient

The H-Cube Tutor™ is not just an educational tool. The H-Cube Tutor™ has the same high reactivity as the original H-Cube®. Reactions still progress in minutes between scales of 10 mg and 10 g, making the reactor ideal for research too.



1. Touch Screen Panel

Operating the H-Cube Tutor™ is very simple. Select temperature, flow rate, and press Start! Temperature may be changed during the reaction for quick optimization.



2. Solvent/Substrate Inlet

The pump supplies the flow of substrate solution through the reactor at flow rates up to 3 mL/min.



3. CatCart®

All catalysts are contained in a cartridge. The CatCart® system is safe enough for students of all levels to use.



4. Reaction Zone

In the reaction zone, the CatCart® may be heated between room temperature and 100°C.



5. Collection Zone

The product is collected after approximately 4 minutes. Results of reactions can be obtained quickly and then optimized. Perfect for a practical lesson.