From a garage in Etoy to a Fortune 500
Venture Ideas EPFL

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Le solaire fait briller le vaudois HCT et attirer Applied Materials

Le leader américain a racheté la société basée à Cheseaux pour 583 millions de francs.

ALEXANDRE SONNAY
À LAUSANNE

L’américain Applied Materials a jeté son dévolu sur le vaudois HCT Shaping Systems. Pour 475 millions de francs suisses, son chiffré d’affaires de 14% de son chiffre d’affaires est de 20% et en doublement de son bénéfice net à 5,6 millions.

De son côté, Applied Materials a annoncé son intention de racheter en avril un quasiquadruplement de son chiffre d’affaires pour 20% et un doublement de son bénéfice net à 5,6 millions.

Un demi-milliard pour un pionnier vaudois du solaire

Rachat HCT Shaping Systems, leader dans les machines à découper le silicium, est repris par Applied Materials

Une entreprise vaudoise prend place au cœur de la révolution photovoltaïque

Energie Le rachat de HCT par Applied Materials montre que le solaire entre véritablement dans l’ère industrielle
The very first wire saw
A physicist starts a business

- In 1986, he made the first solar multi wire saws for Ciposa in Cortaillod.
- First Location: a 200m² garage in Etoy
- As a physicist and inventor, Dr. Hauser filed more than 40 patents.
- Most wire saw machine base concepts which are today on the market started with the HCT concept

First Multi Wire Saw from Dr. Hauser
HCT today

- Head office and production building in Cheseaux
- Logistics building in Bussigny
- New head office / Logistics building under construction

- 230 employees

- Product Marketing/ Engineering/ Logistics and Assembly

- Strong outsourcing strategy for parts manufacturing
History & Milestones

1982  Start of Dr. Hauser’s initial research

1986  First delivery of a wire saw

1996  Delivery of the 100th wire saw

1998  Entry of HSBC (today Montagu) as new majority owner

2002  Delivery of the 250th machine

2005  Production of world’s largest multi-wire saw

2005  Introduction of squaring machine for solar wafer production

2005  Opening of service centre in China

2006  Introduction of cropping machine for solar wafer production

2006  Delivery of more than 100 machines in one year

2006  Opening of service centre in China

2007  HCT acquired by Applied Materials

2007  Delivery of the 500th wire saw

2007  Joint venture with Supplier in China
Wire Saw Technology

**Cropping**
Slicing tops and tails of mono- and multi-crystalline silicon ingots

**Squaring and Bricketing**
Slicing tops and tails of mono- and multi-crystalline silicon ingots.

**Wafering**
Slicing mono and multi-crystalline ingots into wafers
A basket full of ideas
Where we come from...

Semiconductor Cycles
(Total IC Shipments [B$] source: VLSI)
The Photovoltaic Life Cycle

Phase-in

- Thin Films
- Ribbon
  Cont. Casting

Maturation

- New cell concepts
- Casting
- Scie a fil (wafering)

Saturation

- Cellule standard
- Pulling
  Siemens

Phase-out

- Photovoltaic

Applied Materials Confidential
A playground for new ventures

- Worldwide efforts to address climate change, energy security and water management are headline news.
- National and international agendas are trying to address positive change (EU/Kyoto++).
- These factors combine to make Cleantech an exciting growth area that will continue to attract increasing levels of attention and investment in the coming years.
- Example of Cleantech sectors:
  - Advanced Materials and Nanotechnology
  - Energy Generation, Storage, and Infrastructure
  - Environmental Information Technology
  - Waste Treatment, Water Purification and Management
  - Materials Recovering and Recycling

Source: Time magazine, 9 April 2007
Areas of opportunities

- Leverage solar panels to develop new architectural solutions

- Standalone energy sources combined with a sustainability programme
Clean energie – 50% of our supply in 2050

Source: German Advisory Council on Global Change, 2003
About Applied Materials

- The global leader in Nanomanufacturing Technology™ solutions for the electronics industry
- Revenue (last 4 quarters thru 2Q'07) = US$9.9B
  - 78% of recent orders (Q1'FY07) outside US
- Strong commitment to R&D: last 5 years = US$5.1B
  - IP portfolio ranked #1 by IEEE* in semiconductor equipment and #6 overall from over 1000 global electronics companies
- Worldwide employees ~ 14,000

Nanotechnology in future everyday life

- Nano-particle paint to prevent corrosion
- Thermo-chromatic glass to regulate the influx of light
- Organic Light Emitting Diodes (OLEDs) for displays
- Photovoltaic film that converts light into electricity
- LEDs are now powerful enough to compete with light bulbs
- Scratchproof, coated windowpanes using the lotus effect
- Menu card made of electronic cardboard
- Nanotubes for new notebook displays
- Fabrics coated to resist stains
- Piezomats prevent annoying vibrations
- Hip joints made from biocompatible materials
- The helmet maintains contact with the wearer
- Intelligent clothing measures pulse and respiration
- The Bucky-tube frame is as light as a feather, yet strong
- Fuel cells provide power for mobile phones and vehicles
- Magnetic layers for compact data memory
Applied Energy and Environmental Solutions

Solar  Glass  Web  OLED  New
Applying Nanomanufacturing to Solar

FIRST

Cost per transistor

1974 | 2004
4 trillion | 1,400,000 trillion
10 cents | 5 nano-dollars

20,000,000x Cost Reduction

 THEN

Cost per area

1995 | 2005
0.3 million m² | 25 million m²
$30,000 / m² | $1,500 / m²

20x Cost Reduction

NEXT

Cost per watt

2005 | 1995
$1,500 / m² | $30,000 / m²
Applied Materials Worldwide

Sales and/or Service Offices
- India
- South East Asia
- China
- Taiwan
- Korea
- Japan
- North America
- Europe
- Israel
- .. and Cheseaux

Research, Development and Engineering and/or Manufacturing Centers:
- Silicon Valley, California
- Austin, Texas
- Horsham, England
- Rehovot, Israel
- Bangalore, India
- Feldkirchen, Germany
- Heimstetten, Germany
- Alzenau, Germany
- Crolles, France

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