

PRESS RELEASE

Sapphire 2010 Report

The second half of 2010 faces shortage conditions that should be resolved in 2011...

A comprehensive survey of the main market metrics and companies involvement in sapphire materials for electronic applications

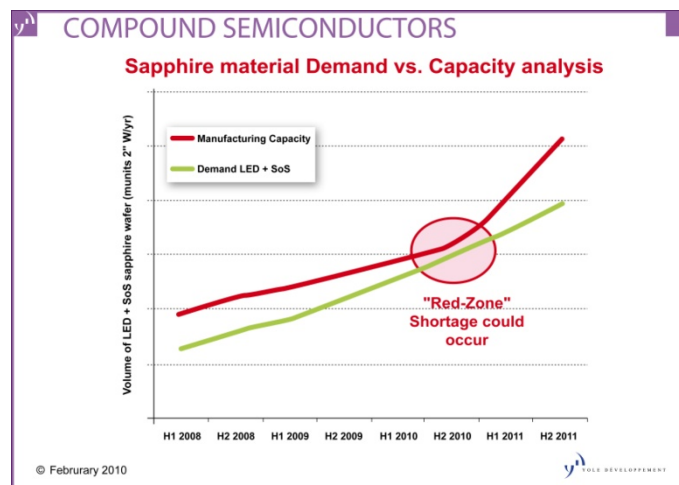
Feb. 9th, 2010 – Yole Développement updated its new markets & technological study dedicated to sapphire industry. Yole's report details major market metrics of the current and projected sapphire device and substrate business, describing the targeted applications, the key players, the supply-chain, the volumes and related market size of each segment.

Yole Développement's analysis gives an estimation of the total market size from 2005 to 2013, highlighting the strengths and weaknesses of sapphire materials industry. It also describes the current challenges of this market including the shortage risk at wafer level.

Sapphire material market will exceed \$200M in 2010 despite the downturn

Sapphire product is serving mainly 2 applications in the electronics field: GaN-based LED and RF devices, both for mobile phones (Silicon-on-Sapphire "SoS" technology). The sapphire substrate market for electronic applications has reached a market volume of approximately 9 million wafers (2" equivalent) for LED augmented by some 10's of thousands 6" and 8" wafers for SoS RF applications in 2009. Despite the 2009 economic situation and thanks mostly to LCD LED backlight applications, the c-plan sapphire wafer market grew +4% over 2009 compared to 2008 in the LED segment.

On the other hand, r-plan sapphire business for SoS applications has been strongly affected by the recession as the main application markets are related to consumer appliances (mainly mobile phones). "As a result, a -55% revenue decline has been observed on the r-plan side", says Dr Roussel, Project Manager at Yole Développement.





2" sapphire price as low as ever but shortage risk could generate turbulence

The price pressure on 2" remains critical and Yole Développement's models showed that most of the suppliers are having a very tiny margin on that material and some of them are even losing money in that business. The 2" price level, especially in Taiwan, was extremely low and the psychological \$10 threshold has probably been reached. *"We are forecasting a ~ 5% price increase across the board. However, just like for cores, it will be unevenly distributed through the different diameters, with 2" price to increase up to 40% in 2010 while, on the other hand, we expect 3" and 4" price to remain stable compared to their low of 2009 and actually decrease another 20% compared to their ASP through 2009", explained Dr Roussel.*

Indeed, Yole's Demand-Capacity analysis shows a "risk-zone" that should occur during the second half of 2010, where all the planned capacity won't be fully installed, facing a demand in LED that can create some turbulence. Now, Yole Développement feels comfortable saying that this stress period should end early in 2011 with the full ramp-up of sapphire producers.

Companies listed in this report

Acme Corporation, Alpha Crystal, Amberwave, Apeks, Arc Energy, Aixtron, Astek, Atlas, Azzurro Semiconductors, Bluglass, Comadur, Ching Mei Crystals, CREE, Crystal Applied Technology, Crystal GmbH, Crystal On, Crystal Q, Crystal Systems, Crystal Wise, Cyberstar, Epistone, Exiton, Fujimi, Group IV semiconductor, Gavish, Hrand Djeva-hirdjian, Hitachi ME, Honeywell, Iljin Display, International Rectifier, Impex, Insaco, Interoptec, Jurapol, Kyocera, Lattice Semiconductor ...

Authors

- **Philippe Roussel** holds a Ph-D in Integrated Electronics Systems from the National Institute of Applied Sciences (INSA) in LYON. He joined Yole Développement in 1998 and is leading the Compound Semiconductors and Power Electronics techno-economical market analysis department.
- **Eric Virey** holds a Ph-D in Optoelectronics from the National Polytechnic Institute of Grenoble. In the last 12 years, he's held various R&D, engineering, manufacturing and marketing position with Saint-Gobain. Most recently, he was Market Manager at Saint-Gobain Crystals, in charge of Sapphire substrates and materials for optical telecoms.

Sapphire 2010 report

Catalogue price: Euros 3,990

Publication date: February 2010

For special offers and price in dollars, please contact David Jourdan (jourdan@yole.fr or +33 472 83 01 90).

Other publications dedicated to the Compound Semiconductors Industry

SiC Market Report – 2010 Edition

The detailed major market metrics of the current and projected SiC device and substrate business, describing the targeted applications, the key players, the supply-chain, the volumes and related market size of each segment...

HB LED & LED Packaging Report – 2009 Edition

The market is a high-growth field in the semiconductor industry. The supply chain is filled with various players from LED die manufacturers (Epistar, Forepi...), to LED assembly suppliers (Harvatek, Citizen, Liteon, Samsung...) to fully integrated players (Lumileds, Osram ...)

SiC CoSim+ - 2009 Edition

Evaluate the manufacturing cost of SiC devices with Yole Développement's comprehensive cost analysis tool.

About Yole Développement

Created in 1998, Yole Développement is a market research and strategy consulting firm analyzing emerging applications using silicon and micro manufacturing. With 20 full time analysts tracking MEMS, Microfluidics, Compound Semiconductor, Power Electronics, Photovoltaic, Advanced Packaging and Nanomaterials, Yole Développement supports companies and investors worldwide to help them understand markets and follow technology trends.

Services

- Market research and market data
- Technology analysis
- Market workshop
- Strategy consulting

- M&A support, fund raising and due diligence through Yole Finance

Publications

- Collection of market & technology reports



- Players & technology databases and market data

- Manufacturing cost simulation tools
- Component reverse costing analysis

Media

- Critical news, Bi-weekly: Micronews, the magazine
- In-depth analysis & Quarterly Technology Magazines: MEMS Trends Magazine – 3D Packaging Magazine – PV Manufacturing Magazine
- Online disruptive technologies website: www.i-micronews.com
- Exclusive Webcasts
- Live event with Market Briefings

Contacts

Yole Développement
45 Rue Ste Geneviève, 69006 Lyon, France
Tel: +33 (0) 472 83 01 80

Fax: +33 (0) 472 83 01 83
www.yole.fr

For information about:

- Compound Semiconductors and Power electronics activities, Dr Philippe Roussel (roussel@yole.fr)
- Yole Développement: J.C Eloy (eloy@yole.fr)