Outlook for CMP Consumables

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Semiconductor Industry Status

- In 2001 the Semiconductor Industry was negatively affected by three major factors:
  - Excess Inventory
  - Economic Slowdown
  - Overcapacity
Chip Volumes & Sales

![Bar chart showing YoY % change in Wafer Starts vs. Chip Sales vs. Cabot Micro Revenue from 1999 to 2001.]

- **Wafer Starts (All Nodes)**
- **Semiconductor Sales**
- **CCMP Revenue**
- **Wafer Starts (0.3μm & Below)**

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Advanced Technologies Remain Strong

- Demand for advanced IC devices (0.25\(\mu\)m & below) has remained strong
- In addition, advanced technologies are becoming an increasing percentage of chips produced
- This trend is expected to continue
CMP Technology Adoption

Wafer Starts: Feature Size < 1.0 Micron

Source: VLSI Research

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Wafer Starts by Linewidth 2000 thru 2006

Source: VLSI Research

Requires CMP

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Shrinking Linewidths = Increasing # of Polishing Steps

Polishing Steps by Node

Source: VLSI Research

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Copper Chip Capacity Growth

- Currently ~4 fabs are producing copper chips at capacity
- Twenty fabs are ramping with ten in pilot production
- By 2003 30-35 fabs producing copper chips should be at capacity
Copper Capacity Growth

Capacity Growth of Fabs Producing Copper Chips

Source: Semiconductor Equipment and Materials International.

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Copper vs. Tungsten/Oxide vs. Wafer Starts

Copper vs. Tungsten/Oxide vs. VLSI wafer starts

Sequential Growth

Q1 '01  Q2 '01  Q3 '01  Q4 '01  Q1 '02  Q2 '02  Q3 '02  Q4 '02

Copper  Tungsten/Oxide  VLSI Seq. Growth

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Tungsten/Oxide vs. Copper Slurry

CMP Slurry Market - Tungsten/Oxide vs. Copper

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Total Slurry Market Sequential Change

- Q1 '01: -19%
- Q2 '01: -8%
- Q3 '01: 0%
- Q4 '01: -1%
- Q1 '02: 8%
- Q2 '02: 16%
- Q3 '02: 14%
- Q4 '02: 14%

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  Cabot Microelectronics (CCMP-$55.04; 2H)
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