

## Study links microchip jobs to miscarriage

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The thousands of women who work inside the nation's microelectronics factories are exposing themselves to a higher risk of miscarriage, researchers at the University of California at Davis announced Thursday at the conclusion of the largest health study of its kind.

The study showed women who work inside "clean rooms" where microchips are made had 1.4 times as many miscarriages as those who worked outside manufacturing areas.

The miscarriage rate for women working

in the manufacturing areas was 14 percent, compared with 10 percent for those working elsewhere, primarily in office jobs.

The independent study, funded by the Semiconductor Industry Association, looked at the health histories of 904 women, who were pregnant during the late 1980s, half of them working in chip manufacturing areas and half of them not. No Austin plants were involved in the study.

Researchers described the increased risk as significant, but "not substantial."

"For an individual, it's a small increase (in risk), not a large increase," said Marc Schenker, the professor who headed the study. "Our data show the increase in risk

was about the same as for cigarette smoking during pregnancy."

The study reflects on the risks posed to an estimated 35,000 U.S. workers turning out microchips, more than 60 percent of whom are women, according to industry figures. Industry activists say most of those women chip workers are also minorities.

In the Austin area, several thousand people are estimated to work inside the manufacturing areas at three major chip production companies: Motorola, Advanced Micro Devices and Cypress Semiconductor. Thousands more work for Texas Instruments in **See Study, A16**

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Dallas.

The Semiconductor Industry Association, a large trade group of chip-producing companies, announced a four-step plan based on the study. The plan includes:

- Working to minimize employees' exposure to toxic materials.
  - Accelerating efforts to eliminate the ethylene-based glycol ethers that are used in the photolithography stage of chipmaking.
  - Recommending the immediate sharing of information among companies related to alternative safe chemicals.
  - Forming a high-level task force, including representatives from Austin's Sematech research consortium, to make more specific recommendations by March 31.
- Heavy attention, industry leaders said, will be placed on eliminating ethylene-based glycol ethers, which have been cited in other studies as a source of concern.
- "From the industry perspective, the days of ethylene-based glycol ethers are numbered," said Andrew Procassini, president of the Semiconductor Industry Association.

"While we have consistently taken steps to protect the work force from potential exposure to harmful chemicals," he said, "we must work further to reduce exposure levels and continue to seek alternatives."

Critics of the semiconductor industry noted the report came after a decade of warnings about potential problems related to the use of toxic chemicals.

"They've been more concerned about the next generation of chips than the next generation of children," said Ted Smith, head of the San Jose-based Silicon Valley Toxics Coalition.

Smith said the industry has delayed taking decisive action when warned by previous smaller studies, including one funded by Digital Equipment Corp. six years ago.

"They are not going to be able to make excuses any longer about whether or not they have a problem," he said.

Officials at Advanced Micro Devices and Motorola noted their companies offer pregnant women the opportunity to transfer out of manufacturing areas if they want.

But Jeff Gorin, a spokesman for Motorola in Phoenix, acknowledged very few workers actually request transfers.

"There is no groundswell" requesting transfers, Gorin said. Because of worker training and safety precautions, he added, "they understand... the risk is very small."