

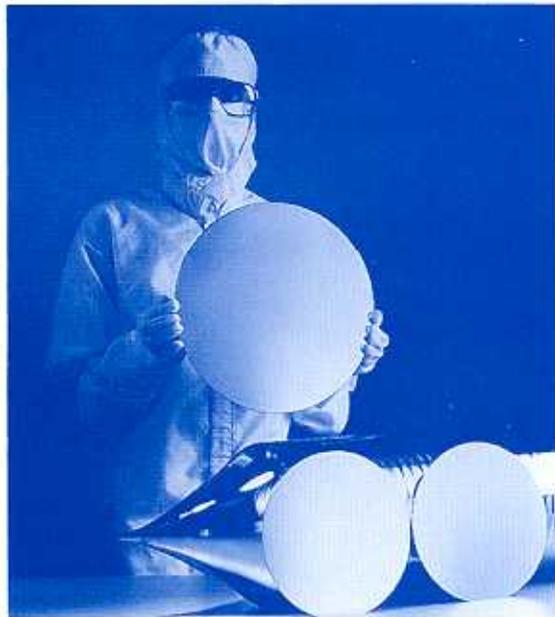


# 1994 AWARD WINNER

## MEMC ELECTRONIC MATERIALS, INC.

MEMC Electronic Materials Company is a leading supplier of single crystal silicon, the raw material that forms the basis of the entire worldwide Semiconductor Industry. MEMC has operated continuously in St. Peters, Missouri since its original start-up by Monsanto in 1959, which makes it the oldest merchant producer of silicon wafers in all world areas except Japan. MEMC was acquired by HULS AG in early 1989.

MEMC has 5000 employees worldwide and 1900 employees at its St. Peters, Missouri headquarters. It serves a dynamic worldwide Semiconductor market with well known customers like IBM, AT&T, Motorola, Siemens and Samsung. Manufacturing facilities are located near all major semiconductor centers in: St. Peters, Missouri; Spartanburg, South Carolina; Santa Clara, California; Kuala Lumpur, Malaysia; Chonan, Korea (joint venture), Utsunomyia, Japan; Novara, Italy; and Merano, Italy. A joint venture is in the planning stage for Taiwan and a joint venture with IBM called SiBond was started in early 1994 for very advanced raw materials for future generation Semiconductors.



## MEMC - ST. PETERS PLANT A SNAPSHOT

MEMC - St. Peters began operations in 1959 at a remote plant location 30 miles from St. Louis, Missouri. Today, MEMC - St. Peters at 160 acres and 1900 employees strong is the largest active employer in St. Charles County, one of the most rapidly growing industrial areas in the U.S.

MEMC - St. Peters boasts a rich history of technical contributions to the Semiconductor Industry. Among those are the initial technology for polishing of silicon wafers, developments in growth of silicon crystals, the provision of epitaxial silicon films for advanced CMOS applications and numerous published papers in the peer reviewed scientific literature.

The St. Peters' Plant vision is to create the highest possible return for the investment of our stakeholders who are employees, shareholders, customers and suppliers by achieving alignment with our mission throughout the plant. This alignment is achieved by every employee identifying with four major strategy areas which are known simply as the "Four C's": Customer Satisfaction, Cost Control, Culture of Empowerment and Corporate Citizenship. Each year during November the St. Peters management team utilizes an updated operations strategy from corporate management with their associated data analysis to develop the annual "plant goals document" which is organized into the structure of the "Four C's". This document is then utilized to develop goals for all employees either in the form of functional goals documents or team quality improvement goals. Quarterly reports are given to all employees by the Plant Manager showing current status against goals.

In order to keep pace with the extremely dynamic electronics industry, we realized some years ago that we must maximize the input of every employee in the decision making process. After several false starts at utilization of a team based work environment, sufficient inertia toward a team based operation was developed during the start-up of a

new Advanced Products Department in the late 1980's and the entire hourly work force was converted to teams in January 1994. Concurrent with this move, an hourly incentive plan utilizing quality, productivity and spending as factors was started. Gains in all these performance and quality indices are regularly being achieved.

In a recent third party customer survey, over 70% of those responding rated MEMC as better or best, when compared to the competition. From 1991 to 1993, we have received 20 customer awards and commendations. Earlier this year, we were the recipient of the 1993 "Missouri Pollution Prevention Award" in the large industry category and in 1992 we won the "Concerned Safety Company Award" given by the World Safety Organization. As our Quality Policy indicates, we strive to delight, and in a fast moving industry like Semiconductors, this means our path is never-ending. Empowerment is the key.

### QUALITY IMPROVEMENT SYSTEM

Our Quality Improvement System (QIS) is the process which integrates quality improvement and customer satisfaction into all functions at St. Peters. This process has evolved over a period of years (as shown in the table below). The QIS includes tools, approaches and methods used to bring about continuous improvement in all activities. Tools include fundamental and advanced statistical techniques, FMEAs and benchmarking to name a few. The Plan, Do, Check, Act (PDCA) cycle of the improvement process for defect reduction is utilized in the QIS.

### MAKING PEOPLE MEMC'S COMPETITIVE ADVANTAGE

|      |   |
|------|---|
| 1994 | Plant-wide Teams                        |
| 1993 | Total Machine Performance\Gainsharing   |
| 1992 | Expand Empowered Work Groups            |
| 1991 | Leadership Skills Training              |
| 1990 | Team Skills Training                    |
| 1989 | Pilot-Empowered Work Groups             |
| 1986 | Quality Improvement System              |
| 1985 | Work Redesign Groups                    |
| 1984 | SPC Training for Hourly Work Force      |
| 1983 | SPC Training for Engineers and Managers |
| 1982 | Quality Suggestion Program              |
| 1982 | Quality Awareness Program               |
| 1981 | Employee Meetings About Quality         |

The infrastructure used to deploy this systematic commitment to quality and stakeholder delight begins at the facility's highest levels, with the Plant Manager and his direct reports participating in the company-wide SCQT (Strategic Customer Quality Team) and the plant SQC (Strategic Quality Council).

The SCQT is a company-wide team with representatives from several functional and world areas. The team surveys fifteen strategic customers annually, meets quarterly, develops one to three year improvement goals for product and service quality issues and assigns resources to address them.

The SQC includes the St. Peters' senior staff and the Corporate V.P. of Quality. This team meets monthly to develop the strategic quality direction for the plant.

Two additional, and very vital, components of QIS include the Plant Quality Improvement Council (PQC) and Quality Improvement Team Meetings (QIMs). The PQC is composed of a cross section of staff, salaried and hourly employees that meet monthly to share and celebrate progress and gain recognition.

The QIMs are ad hoc hourly and/or technical groups formed to work on specific problems related to plant goals (the "Four C's"). Total Machine Performance (TMP) teams and other quality improvement efforts fall under the general QIM designation.

As early as 1985, teams of operators were playing key roles in the design of a realigned Wafering work flow using JIT principles. In 1990, operator teams were used extensively during the design of the new 200mm Advanced Products crystal pulling and wafering processes. Today, operator teams are designing the work flow surrounding new and existing processes.

Employee involvement, commitment, education and loyalty...empowerment. This is the key to success. Without it the required chain of suppliers and customers would be non-existent.

#### For more information, contact:

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