

Cleaner Air or Polluted Water?

The Clean Air Act Amendments of 1990 mandated that at least 2% of reformulated gasoline by weight consist of oxygen. MTBE or methyl tert-butyl ether is by far the most common oxygenate utilized to meet that mandate. Nearly 95% of the global production volume of this chemical is used in reformulated gasoline. The residual 5% is used as a gasoline additive at varying levels either to secure high-octane values or to facilitate combustion in regions that exceed acceptable levels of air quality.

However, there are increasing concerns now about the leak of MTBE from underground storage tanks into ground water in levels that—while they may not pose an immediate health hazard—are high enough to cause taste and odor problems. In fact, the potential risks are considered serious enough that some states like California are in the process of banning its use.

If the oxygenate requirement continues to be mandated, other alternatives to MTBE will have to be found and ethanol appears to be the only candidate at present. An Environmental Protection Agency advisory panel has recently concluded a study; a summary of the panel's recommendations is available on the Web at <http://www.epa.gov/oms/consumer/fuels/oxypanel/blueribb.htm>. Clearly this controversial matter has wide-ranging environmental and economic implications and is far from being resolved. Stay tuned for further developments.

New Generation Chips

No, we are not referring to the edible variety here! Three different semiconductor companies are touting new generation microprocessor devices of a rather different genre.

The first, from Texas Instruments Inc., evolved from a two-decade long R&D effort sponsored largely by the military. This digital light processor, variously called DLP, DMD or MEMS, is based on light reflection off a grid pattern packed with tiny, tiltable micro-mirrors. Software directs these mirrors to tilt either toward or away from the light lens thousands of times a second. The combination of movements forms images and image contrast. Initial applications of these devices focused on high-speed printers but have recently expanded to other markets including TV, video, and movie projection.

Two other radically new chip designs were announced recently by Sun Microsystems Inc. and by National Semiconductor Corp. The Sun chip is designed to handle complex graphics, voice, and video and is aimed at the fast-growing market for communications and media-processing chips. The new chip is dubbed MAJC (pronounced "magic") and stands for microprocessor architecture for Java computing. Thanks to an unusual design that essentially turns a single chip into a parallel processing system, MAJC chips are claimed to perform complex functions at extremely high speeds. While the acronym specifies Java as the language vehicle for this chip, MAJC will also run programs in other languages such as C and C++.

The last new chip on the block, from National Semi, is built around a "system on a chip" concept and comprises

seven million transistors. This member of the so-called Geode family is designed to handle computing, graphics, audio, and even digital video. Many information appliance manufacturers are claimed to have shown interest in using these chips. However, it does not appear that the "Intel Inside" logo will disappear anytime soon. Rumors are that Intel is making a combo chip, code-named Timna, which could appear a year after Geode. All this raises the larger question: is it the end of the road for PCs and will info appliances gradually take over the consumer market? This issue will be addressed in these pages in the months ahead.

Solar Power

Although power from renewable geothermal, wind, and solar energy sources combined accounted for less than 1% of the domestic market (1997 figures from the U.S. Dept. of Energy), proponents of renewable energy sources are convinced that the next century will belong to them. BP Amoco (London, England) recently announced its Plug in the Sun program: solar panels will be installed on the roofs of many of its newest gas stations worldwide. Plans are also underway to install several prototype sites (with output in the 20-40 kW range) in France and the U.S. With the recent acquisition of Solarex, BP Amoco is poised to be the dominant player in the solar energy market.

Proponents of solar power will also be heartened to learn that the recent Orbiter 3 round-the-world balloon flight featured solar photovoltaic cells (20 of them, each with 60 W output operating at an efficiency of 14%) to charge up lead-acid batteries aboard the balloon. The solar energy conversion system was custom-built for the flight by Solarex (Frederick, MD).

Mega-Mergers

Allied Signal and Honeywell announced a merger to create a new \$25 billion dollar international company (to be also called Honeywell). This company will feature four main business units with interests in transportation and power, engineered materials, automation and controls, and aerospace. Company sources identify the merger with a shift from "product mentality" to "solutions mentality." Regulators in both Europe and the U.S. are scrutinizing the merger.

In another development, Dow Chemical Co. agreed to buy longtime rival Union Carbide Corp. This purchase could spur the fortunes of Dow, which will challenge DuPont Co. as the largest U.S. chemicals manufacturer with about \$24 billion in annual sales. The deal is expected to close early next year. The projected sale caps a long period of uncertainty for Union Carbide following the Bhopal disaster.

These news items originated from various media releases. Further information may be obtained by contacting the Editor.