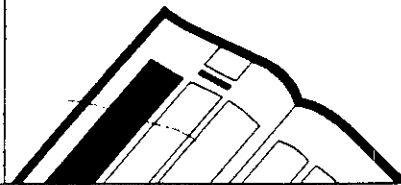


Environ. Sci. Technol., Vol. 19, No. 4, 1985 295



In another CPI-related development, ceramics are drawing interest as critical components of the heat exchangers and transfer systems that carry the excess heat (in some cases, up to 3000°F or 1649°C) generated in steel furnaces and aluminum smelters.

Researchers at Corning Glass Works, for example, have developed a specialized silicon carbide heat transfer system that can be used continuously at up to 3100°F (1704°C), exhibits high thermal shock resistance and can dissipate as much as 20 watts of heat per square centimeter per hour. The ceramic, named Celcor Hexaloy SA, was developed by The Carborundum Co., Niagara Falls, NY, and extruded into panels with Corning dies. Heat transfer is effected via laser-drilled holes in the panels.

While ceramics' relatively high costs still pose something of an obstacle to full acceptance in this application, the huge market potential—in excess of \$1 billion a year, by some estimates—is a major incentive to the research drive. Some recent developments, in fact, may help to increase ceramics' share of the heat exchanger market:

- Carborundum has announced a new high-volume extrusion process for manufacturing heat exchanger tubes featuring internal fins and baffles. The innovation, likely to be of particular interest to CPI companies, triples the tubes' surface area, thus permitting the use of smaller, less expensive tubes.

- Carborundum and Coors Porcelain, Golden, CO, reportedly can produce very small-diameter smooth tubes in volume for about \$30 a foot—only about 20 percent of the current price for such heat exchanger tubes.

Electronics comprises yet another potential business area for advanced ceramics. The materials have long been workhorses of the industry in many applications, such as supporting and insulating silicon chips in microcircuits. And Japan's Hitachi has recently announced a new silicon carbide that may be used as a heat-dissipator in high-power electronic systems.

Ceramics' unusual electrical prop-

Selective Sequestrant

The story is that the eyes of cats given chelating agent EDTA lose their ability to glow in semi-darkness. The sequestrant removes the metallic elements that form the reflective pigments. But EDTA is one of the treatments given people suffering from lead poisoning, and the cat tale points up a major problem—EDTA removes too many vital elements, including copper and zinc, while it cleanses the body of lead.

Now, it looks as if a treatment based on 2,3-dimercaptosuccinic acid zeros in on the lead with far lesser effect on other metallics. Mercaptosuccinic acid is not a patentable compound, says pharmacologist Joseph Graziano, PhD, of Columbia University's College of Physicians & Surgeons, who has been working with material supplied by Johnson & Johnson. Commercial medications "will probably be marketed by a new firm," says Graziano.

The Sin of Wages

John Harvey-Jones, no favorite of Margaret Thatcher's, has gotten himself deeper in the British Prime Minister's doghouse. The Imperial Chemical Industries chairman does not like the Thatcher government's economic policies, and recently he told a House of Lords committee so. Number 10 Downing Street reacted sharply, as might be expected; over-reacted, some say. For a man who got a 68 percent pay hike this year, a Whitehall staffer noted sourly, the ICI chief is hardly in a position to criticize. Mrs. Thatcher contends that such large pay raises make it difficult for the government to encourage wage restraint.

Personal Touch

Stauffer Chemical broke new ground in magazine advertising recently—Stauffer's ads in Farm Industry magazine were individually personalized. Each subscriber, in his particular copy of FI, found the ad for Dyfonate insecticide mentioned his name.

The printing trick calls for putting the name onto completely bound and addressed copies by a system worked out by Video Jet Co., Chicago. Video Jet's equipment opens a magazine to the Stauffer page, zaps in the subscriber name and then moves the magazine onto

the mailing stage. "It's not 'prohibitively costly,'" says Steve Venarchick of Webb Co., the printers of Farm Industry. "But it doubles the time needed to get an issue in the mail."

Leapfrog Breakthrough?

Had enough breakthroughs? Bill Harris, senior vice-president of PPG Industries, offers relief. In his remarks at this year's Pittsburgh Chemical Day, he called for "leapfrog" R&D projects to revitalize the US chemical industry. But, he warns, leapfrog projects are "larger, more expensive and riskier" than incremental developments. In short, you can kiss your money goodbye if your leapfrog does not turn into a prince.

Against the Grain

Brucine has long been used to denature alcohol, and now it seems that a variant on that idea has surfaced in Europe, where grain production is a hotly contested issue. The Common Market Commission, eager to keep some 3 million metric tons of British wheat out of milling markets, is thinking of coloring the UK grains with dyes. The wheat, of bread-making quality, would thus be downgraded, knocking about \$20 to \$30 a ton off the world price and making it suitable for use only in animal feeds—presumably, for color-blind livestock.

The Price of Color

Seems the hue of the ancient and expensive royal purple dye (reserved for the aristocracy, hence "born to the purple"), can be altered by varying the species of snail used, and by the process used to extract the dibromo indigotin dye precursor from the mollusk's gland. It takes about 60,000 shelled snails to make a pound of dye.

Like many of the dye extraction processes of early times, purple dye production created environmental problems. First was the emission problem of rotting snail bodies. And then, points out Patrick McGovern, an archeochemist at the University Museum of the University of Pennsylvania, the "crude alkaline solution of ammonia [usually urine] was used to reduce the dye." To fix the color, the treated fabric was then oxidized. "Altogether, a very smelly process."

NOTICE

December 21, 1984

R. Johnson
L. Maye

C. Hawkins
A. Howard
E. Maye
R. Thompson

IMPORTANT AND CRITICAL

Our blood leads are increasing rather dramatically and are now at dangerous levels.

Three people at 50 or above.
Plant average up from 37 to 42.
Fourteen employees above 40.

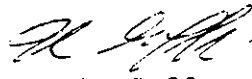
Each of you should plan to take positive action to assure we reduce plant blood lead levels immediately. Please include the following in your program:

- A. Implementation of red hat program.
- B. Increased usage of breath air from compressor.
- C. Use of the green rubber respirators.
- D. Constant check of seal using the 3M nebulizer.
- E. Observation to assure each employee follows all Industrial Hygiene rules.

eg: Finger nail brush
Showering
Clothes vacuuming
Clean lockers
rinsing mouth

Please be prepared to discuss this with me the week of December 24th.

HCG:ck


H. C. Gaffney

CYWI 3-000871

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