



In the effort to preserve and maintain the fragile ecology of our planet, these recently selected abstracts are represented to help readers of Journals of Materials Engineering and Performance stay current on legislation and compliance with global environmental issues and regulations. They are reprinted from Metals Abstracts and Materials Business File with permission from Materials Information, a joint service of ASM International, Materials Park, Ohio, and the Institute of Materials, London, England.

EPA Responds to Industry Fears. The EPA recently responded to growing industry fears that plant violations uncovered in voluntary environmental audits will increasingly be used in federal state and enforcement actions. EPA Administrator Carol Browner called for a public forum in late July to evaluate the agency's current approach on environmental audits. EPA policy strongly encourages self-auditing to improve a company's environmental performance. But the agency's ability to use audit information in leveling fines and penalties is a strong disincentive to voluntary efforts. AFS pointed out only months ago in a meeting with EPA enforcement chief Steve Herman that contradictions in the agency's policy on self-audits and disclosure are sending the wrong message to industry and will keep companies from making environmental progress. Several states have already passed legislation to carve out "safe harbors" from enforcement for companies that try to improve compliance through self-auditing. Other states are considering similar law changes.

Cited: *Mod. Cast.*, Vol 84 (No. 9), Sept 1994, p 10 [in English]. ISSN: 0026-7562. PHOTOCOPY ORDER NUMBER: 199409-S4-0078.

Four Paths to Living With the Coke Blues: [U.S. Regulations Governing Coke Ovens]. Faced with increasingly tough U.S. environmental regulations governing coke ovens, steelmakers are responding in a variety of ways. Four cases are described. Inland Steel Industries Inc. (Chicago, IL), opted to exit cokemaking entirely, relying instead on outside sources. Acme Metals Inc. (Riverdale, IL), has invested in coke oven improvements the company says already meet 1998-1999 standards. Bethlehem Steel Corp. (Bethlehem, PA), is completing a pad-up rebuild of the No. 2 coke battery at its Burns Harbor, IN, plant. Geneva Steel, Vineyard, UT, is relying on maintenance and work practices to comply with the regulations, at least so far.

E. Courtier. Cited: *Am. Met. Mark.*, Suppl. Steelmaking and the Environment, 20 Sept 1994, p 10A [in English]. ISSN: 0002-9998. PHOTOCOPY ORDER NUMBER: 199409-S4-0069.

Meeting PM-10 Rules [U.S.] May Get a Lot Tougher. PM-10 refers to particulate matter with an aerodynamic diameter of 10 μm or less, essentially the size of a grain of talcum powder. The PM-10 standards regulate emissions from a variety of sources, including automobiles; steel mills; nonferrous metal production facilities; chemical manufacturing; petroleum refining; electrical utilities; mining; agriculture; pulp, paper, and lumber processing; and mineral products and glass manufacturing. The main sources of PM-10 emissions at mills are furnaces, particularly older electric furnace and basic oxygen furnace operations. The current PM-10 standard allows for 150 μg of particulate matter to be released per cubic meter of air. Environmental groups, however, have been proposing that the U.S. Environmental Protection Agency review the PM-10 rules and tighten the standard to either 75 or 50 $\mu\text{g}/\text{m}^3$ of air.

K.J. Selland. Cited: *Am. Met. Mark.*, Suppl. Steelmaking and the Environment, 20 Sept 1994, p 7A [in English]. ISSN: 0002-9998. PHOTOCOPY ORDER NUMBER: 199409-S4-0068.

Steelmakers on the Hook in Great Lakes. The time is drawing near for the U.S. Environmental Protection Agency to release final rules regulating water pollution and requiring cleanup of some discharges. The Great Lakes Water Quality Initiative was a result of legislation approved by Congress in 1990. The standards, due out in March 1995, will pertain to the five Great Lakes (Huron, Ontario, Michigan, Erie, and Superior) and would encompass eight surrounding states (Michigan, Ohio, Illinois, New York, Pennsylvania, Indiana, Wisconsin, and Minnesota). Steelmakers in that

region are remaining tight-lipped on the topic; five major Midwest steel companies have said it is too soon to tell what could happen or how they would react.

L. Cohn. Cited: *Am. Met. Mark.*, Suppl. Steelmaking and the Environment, 20 Sept 1994, p 6A [in English]. ISSN: 0002-9998. PHOTOCOPY ORDER NUMBER: 199409-S4-0067.

What Does It All Cost and Is It Worth It? [Compliance With U.S. Federal Environmental Laws]. As the nation has pursued the goal of a cleaner environment, the U.S. steel industry has taken its share of blame and has claimed its share of progress. The price tag for compliance with federal environmental laws varies not only with each specific law but also with each company's own circumstances and choices, not to mention the method and time frame used in calculating the cost. Also, price tags have many components (capital costs, expenses for facility maintenance, energy and waste disposal costs, fees for lawyers and consultants) some of which are easier to tally than others. But the steel industry is trying to keep tabs on the costs. It also says it is mindful of the benefits, boasting that its discharges of pollutants into the air and water have been reduced by >90% in the past two decades.

B. Schmitt. Cited: *Am. Met. Mark.*, Suppl. Steelmaking and the Environment, 20 Sept 1994, p 4A [in English]. ISSN: 0002-9998. PHOTOCOPY ORDER NUMBER: 199409-S4-0066.

The Environmental Audit: [European Community] Regulations and the Polymer Industry. Whether we like it or not, companies will soon have to establish extensive environmental management strategies. A new European Community environmental regulation will come into force in April 1995. The regulation asks industry to take a pro-active approach to the management of the environmental impact of all its activities and calls for companies to establish and implement environmental policies, objectives and programs, and effective environmental management systems. Moreover, the policy should, in addition to providing for statutory compliance, include commitment to reasonable continuous improvement of environmental performance. The environmental management systems will be subject to audit procedures, and performance results are to be published, in the form of verified environmental statements, and made available to the general public.

D. Booth. Cited: *Mater. World*, Vol 2 (No. 9), Sept 1994, p 475 [in English]. ISSN: 0967-8638. PHOTOCOPY ORDER NUMBER: 199409-P7-0245.

Busy Year for Environment Action. A key role was played by the Plastics Industry Association (PIA) in coordinating industry waste reduction agreements with the Victorian (Australia) EPA under the Resource Recovery Act. Products covered by these agreements are PET, HDPE, and PVC bottles, EPS produce boxes, polystyrene garment hangers, and six-pack can carriers. Other activities of PIA over the past year include a workshop to explore ways of creating more demand for recycled plastics products, and action to develop recycling and other environmental programs by various taskforces covering materials handling film, check-out bags, drinking cups, and HDPE bottles.

Cited: *Plast. News Int.*, Sept 1994, p 8 [in English]. PHOTOCOPY ORDER NUMBER: 199409-P4-0044.

Avoid Health and Safety Rules at Your Own Cost. Overall the cost to U.K. employers of work-related ill-health and accidents is estimated at between 4 to 9 billion/year, according to a new HSE report. The impact of work-related ill-health and industrial accidents continues to grow despite unprecedented measures to reduce the causes of these problems in the

workplace. The latest figures show that between 5 to 10% of all U.K. industrial companies' gross trading profit in 1990 (up to 360 for each person employed) is paid out on work-related ill-health and accidents in the United Kingdom. Much tougher criminal liability enforcement measures are now being taken in a bid to bring the point home to those responsible for the crucial need to improve standards. Enforcement and criminal liability are reviewed in areas such as the polymer industry where problems are likely to exist.

R. Bretton. Cited: *Plast. Rubber Wkly.*, 2 Sept 1994, p 6 [in English]. ISSN: 0032-1168. PHOTOCOPY ORDER NUMBER: 199409-P4-0041.

Metall Mining Corp. to Settle a Lawsuit. Metall Mining Corp. (Toronto, Ontario, Canada) is on the verge of a lawsuit settlement that would cost the company \$4.8 million in fines and possibly shut down its Copper Range Cu smelter in northern Michigan, USA, for two years, a company executive said. The company has an agreement in principle to pay \$4.8 million in fines for violations of air emissions regulations, said Peter Rozee, Metall's general counsel. The company is also considering the possibility of installing interim improvements to the smelter at a capital cost of \$23 million, he added. Rozee emphasized that an official settlement had not been reached and that a decision had not been made as to the fate of the smelter.

D.J. Caney. Cited: *Am. Met. Mark.*, Vol 102 (No. 187), 28 Sept 1994, p 2 [in English]. ISSN: 0002-9998. PHOTOCOPY ORDER NUMBER: 199409-G7-0283.

EPA Goes After Gaston Copper on Waste. The U.S. Environmental Protection Agency has slapped Gaston Copper Recycling Corp. with an order spelling out steps the company must take to deal with questions of hazardous waste at its Gaston, South Carolina, USA, facility. The order, issued in consultation with the South Carolina Department of Health and Environmental Control, listed a detailed series of actions required under the Resource Conservation and Recovery Act (RCRA).

Cited: *Am. Met. Mark.*, Vol 102 (No. 186), 27 Sept 1994, p 2 [in English]. ISSN: 0002-9998. PHOTOCOPY ORDER NUMBER: 199409-G4-0072.

Clean Water Fight Looms in Congress. Metal miners' environmental wars will resume in 1995, and some of the biggest battles will be over water, experts told the American Mining Congress annual convention in Phoenix, Arizona, USA. Reauthorization of the Clean Water Act will raise lots of metal-related issues. Restrictions on the use of wetlands will be debated. And promulgation of policies to protect the Great Lakes will set a precedent for regional regulations. All of those issues will be holdovers from this year, according to panelists who discussed Washington's water pollution agenda. But they warned the mining trade association that the subjects were very much alive and that now is the time to plan ahead.

B. Schmitt. Cited: *Am. Met. Mark.*, Vol 102 (No. 185), 26 Sept 1994, p 1, 7 [in English]. ISSN: 0002-9998. PHOTOCOPY ORDER NUMBER: 199409-G4-0071.

European Composites Body Pushes Health and Safety. Assisting molders to meet European and national levels for styrene emissions has been adopted as a priority by the European Organisation of Reinforced Plastics/Composite Materials (GPRMC). The GPRMC, an umbrella group comprising the national trade associations for reinforced plastics and composites throughout Europe, recently held its annual Management Committee meeting in Barcelona, Spain. The Management Committee identified, as part of its action plan, a need to concentrate on health and safety issues, particularly styrene exposure levels. A guide on handling polyester resins has recently been produced in English and will be translated and made available to molders via national bodies in each country. The second area highlighted by the Management Committee is the problem of the distortion of free competition within the European Union (EU) as a result of financial and other support given to the steel industry by the Commission for the EU. The GPRMC believes that the position of the composites industry would be improved if accurate statistics were available to support its arguments on the importance of the industry to overall employment in Europe.

Cited: *Adv. Compos. Bull.*, Sept 1994, p 11 [in English]. ISSN: 0951-953X. PHOTOCOPY ORDER NUMBER: 199409-D9-0067.

[U.S. Clean Air Act] Sanctions Provisions: What to Expect. A ruling by the U.S. Environmental Protection Agency was expected to activate in many areas the initial sanctions required by the Clean Air Act (CAA) in cases where states failed to submit State Implementation Plan (SIP) revisions by the due dates in the Act. EPA issued this ruling on 4 Aug 1994, with an effective date of 3 Sept 1994. Sources planning to locate or

make major modifications to existing sources in areas affected by potential sanctions should check with the state air pollution control agency to determine if they are likely to be affected. On another matter, the EPA is required to establish emission standards for existing and new major sources that reflect the use of maximum achievable control technology (MACT). The fact that MACT standards for the ceramics/refractories industry will not be set until 2000 or later does not mean that the industry will not be affected by air toxics requirements under the CAA in the near term.

K. Berry. Cited: *Ceram. Ind.*, Vol 143 (No. 4), Sept 1994, p 33 [in English]. ISSN: 0009-0220. PHOTOCOPY ORDER NUMBER: 199409-C4-0006.

Ceramic Fibers, a Possible Carcinogen. Ceramic fibers have been labeled by Health & Human Services (U.S.) as a known carcinogen. The material is now included in the National Toxicology Program's annual report on carcinogens. Ceramic fibers join fiberglass and 173 other substances in the report which was mandated by Congress. OSHA and other agencies use the report to trigger regulatory requirements, primarily regarding labeling of substances or other means of communicating hazards to those exposed to the substances.

Cited: *Ceram. Ind.*, Vol 143 (No. 4), Sept 1994, p 15 [in English]. ISSN: 0009-0220. PHOTOCOPY ORDER NUMBER: 199409-C4-0004.

Definition of Scrap as Waste Threatens International Trade. A warning to consumers of scrap metals that their supplies are endangered by supranational legislation intended to control the cross-frontier movement of hazardous wastes, came from the Spring Convention of BIR (The International Bureau for Recycling) in Barcelona, Spain. Restrictions arising from mistaken classification of secondary metals as waste were likely to have a particularly serious impact on countries outside the OECD. While OECD had adopted three color categories, which include the majority of recyclable metals in a "green" list subject only to normal commercial controls, the UNEP Basel Convention set far more onerous burdens on established trade. Furthermore, a regulation introduced by the European Union combined aspects of the Basel Convention and the OECD decisions and represented the most complicated aspect of an extremely complex situation.

Cited: *Steel Times Int.*, Vol 18 (No. 4), July 1994, p 3 [in English]. ISSN: 0143-7798. PHOTOCOPY ORDER NUMBER: 199408-S4-0064.

U.S. Steelmakers at Odds With Black Lung Bill. A bill to address black lung disease has raised red flags among some steelmakers, and they are joining forces with the coal industry to fight the measure as it awaits a U.S. Senate committee vote. A provision in the Black Lung Benefits Restoration Act would include coke oven workers among those who could seek redress from employers if they developed the disease. The bill passed the House on 19 May 1994 and is pending in the Senate Labor and Human Resources Committee, where a markup is possible the week of 22 Aug.

B. Schmitt. Cited: *Am. Met. Mark.*, Vol 102 (No. 159), 18 Aug 1994, p 2 [in English]. ISSN: 0002-9998. PHOTOCOPY ORDER NUMBER: 199408-S4-0058.

Steel Welcomes New Plan in Which EPA [U.S. Environmental Protection Agency] Is a Partner. A new partnership between steelmakers and the U.S. Environmental Protection Agency holds promise for making regulation less costly and more flexible. The EPA announced on 20 July 1994 its Common Sense Initiative, a pilot program to work with specific industries, including steel and metal finishing, on developing cohesive, efficient, and effective strategies for environmental regulation suited to industries' unique circumstances. EPA hopefully will ease industry's reporting and recordkeeping burden, while also reviewing procedures for permits.

B. Schmitt. Cited: *Am. Met. Mark.*, Vol 102 (No. 139), 21 July 1994, p 1 [in English]. ISSN: 0002-9998. PHOTOCOPY ORDER NUMBER: 199408-S4-0057.

Environmental Groups Are Subject of Study. A recently released study provides an in-depth analysis of the environmental movement and its campaigns directed at the plastics industry. The study, published by Harriman Cehmconsult Ltd., London, U.K., identifies the different tactics that environmental groups will use in future campaigns. The environmental movement has grown into a powerful campaigning force with 70 million members worldwide and a total income exceeding \$2.5 billion/year, Harriman said. It is unlikely that environmental campaigns against the plastics industry will relax, according to the company. "The Environmental Movement and the Plastics Industry" documents aspects of the major environmental groups, including plastics campaigns, green politics, financial

profiles, partnerships with business, and green backlash. Aspects of the plastics industry the study examines include industry response to the environmental challenge, the role of trade associations; interpolymer market competition, and efforts to improve public perception of plastics.

Cited: *Plast. News (Detroit)*, Vol 6 (No. 27), 5 Sept 1994, p 11 [in English]. ISSN: 1042-802X. PHOTOCOPY ORDER NUMBER: 199408-P7-0231.

Scientists Reject Chlorine Ban, Favor Testing. Supporting the chemical industry, a panel of Michigan, USA, scientists has rejected a blanket chlorine ban in favor of testing individual chlorine compounds to identify health hazards and study alternatives (a process they said could take 30 years). The Michigan Environmental Science Board issued a report, "Impacts of Chlorine Use on Environmental and Public Health," in July. Michigan is a key industrial state in the Great Lakes region, where some environmentalists and industry have squared off over chlorine. MESB members endorse discussions of risks and benefits of chlorine among industry, government, and public interest groups. But that debate, the report concludes, "should be reflective of sound science, the current importance of chlorine to society and the lack of alternatives to known safety and effectiveness. It would seem reasonable that known and suspected harmful chlorinated compounds or processes could be eliminated over a period of 30 years or less."

B. Bregar. Cited: *Plast. News (Detroit)*, Vol 6 (No. 28), 12 Sept 1994, p 7 [in English]. ISSN: 1042-802X. PHOTOCOPY ORDER NUMBER: 199408-P4-0037.

Federal Bill [U.S.] Would Examine Health Risks of Indoor Air. The U.S. federal government may develop a list of health risks in indoor air, which plastics industry officials fear could prompt some consumers to avoid plastic products. The Indoor Air Act of 1994 passed the Energy and Commerce Committee 9 Aug and may soon face a vote in the full House. Plastics industry officials believe the bill could lead to overstatement of the risk of some plastics products, which emit small levels of chemicals that may be cited as indoor air contaminants. The bill calls for the Environmental Protection Agency to publish the list of significant indoor air hazards, as well as write guidelines to identify and prevent indoor air risks, launch a public awareness campaign on indoor air quality and study the sources and health effects of contaminants.

J. Gardner. Cited: *J. Plast. News (Detroit)*, Vol 6 (No. 25), 22 Aug 1994, p 5 [in English]. ISSN: 1042-802X. PHOTOCOPY ORDER NUMBER: 199408-P4-0036.

[U.S.] Automakers Move Toward New Generation of Greener Vehicles. U.S. federal initiatives and state emissions regulations are driving car makers into a race for new technologies to meet energy and environmental goals. A partnership was established in Sept 1993 between the government and U.S. automakers to revolutionize the technical base of the nation's automotive industry. The Partnership for a New Generation of Vehicles (PNGV), nicknamed the clean-car or supercar initiative by some, involves the Big Three automakers: General Motors, Ford, and Chrysler. Besides near-term improvements in auto efficiency, emissions, and manufacturing technology, the initiative is aimed at the development of totally new production prototypes within a decade that will achieve up to three times the fuel efficiency of today's models. Another new program, the U.S. Automotive Materials Partnership (USAMP), aims to develop new lightweight and recyclable materials that can help improve the fuel economy of today's cars without compromising passenger safety and vehicle affordability. USAMP research will focus on six major groups of materials: polymer composites, light metals (aluminum, magnesium, and metal-matrix composites), engineered plastics, cast iron, steel, and ceramics.

D.L. Ilman. Cited: *Chem. Eng. News*, Vol 72 (No. 31), 1 Aug 1994, p 8-16 [in English]. ISSN: 0009-2347. PHOTOCOPY ORDER NUMBER: 199408-P4-0035.

Germany Passes "Closed-Loop" Law. Germany's upper house has passed what's widely known as the "Closed-Loop Economy Law." The statute calls for manufacturers to eliminate as much production waste as possible and ensure that their goods are properly recycled or destroyed after use. Even foreign companies that sell goods in Germany will need to make sure that their products are recycled or destroyed according to federal guidelines. The law also could cut exports of plastics waste to recyclers who depend on subsidies for reclaiming Germany trash. This effectively gives control of all German recycling to the country's federal government. Carmakers, electronic device producers, and construction goods manufacturers are among some of those German companies that already have user

take-back schemes for their products. According to Germany's DKR, the Cologne-based company charged with recycling the country's plastic packaging, more waste is sent abroad than recycled at home. The country's exports reached approximately 397 million lb last year.

Cited: *Mod. Plast.*, Vol 71 (No. 9), Sept 1994, p 17 [in English]. ISSN: 0026-8275. PHOTOCOPY ORDER NUMBER: 199408-P1-0105.

Noise in the Foundry. An article discusses the noise at work, especially in foundries. The Noise at Work Regulations 1989 (U.K.) set out what has to be done to prevent such unnecessary damage to hearing occurring at work. Topics included are permitted noise level, action levels, assessment, actions required by manufacturers, and personal protection.

F. Irving. Cited: *Foundry Trade J.*, Vol 168 (No. 3496), July 1994, p 331-332, 334 [in English]. ISSN: 0015-9042. PHOTOCOPY ORDER NUMBER: 199408-G4-0060.

Cost of Compliance With Potential Future [U.S.] Federal Mine Waste Regulations for Copper Heap/Dump Leaching. Preliminary results of a U.S. Bureau of Mines study of potential costs of compliance with possible federal regulations for copper heap and dump leaching are presented. The regulations could arise under amendments to the Resource Conservation and Recovery Act and/or the General Mining Law. Estimates are given for the cost of compliance with possible technology standards that would require the use of liners and closure caps regardless of terrain and underlying geology and hydrology. This cost is compared to the cost of compliance with 1992 state requirements for terrains typical of those found at existing copper leach sites in the southwestern United States. Incremental compliance costs are found to widely exceed screening criteria used by the U.S. Environmental Protection Agency to denote significant economic impact.

L.B. Rothfeld and R.L. Dolzani. Cited: *Min. Eng. (Colorado)*, Vol 46 (No. 9), Sept 1994, p 1089-1093 [in English]. ISSN: 0026-5187. PHOTOCOPY ORDER NUMBER: 199408-G4-0057.

Keeping on Top in Coating Clean. U.S. aluminum producers and coaters have adopted various techniques to reduce fugitive emissions of volatile organic compounds (VOCs) from their coating operations and say technology is keeping them a step ahead of ever-tightening Environmental Protection Agency regulations. In addition, companies are fielding a variety of ways to apply material on an aluminum product, other than the use of solvent-based pigments, as a way to virtually eliminate VOC emissions, but that move depends on the type of market the product will go to and cost considerations. Use of a dry powder pigment or anodizing, which applies an electrostatic coat that becomes part of the product, reduces VOC emissions drastically; however, those operations have different benefits, disadvantages and results.

M. Knights. Cited: *Am. Met. Mark.*, Vol 102 (No. 139), 21 July 1994, p 8-9 [in English]. ISSN: 0002-9998. PHOTOCOPY ORDER NUMBER: 199408-G3-0136.

112(g) (Update) Permits. On 1 April 1994, EPA published proposed guidance to states for implementing Section 112(g) of the Clean Air Act Amendments of 1990 (CAAA). In cases where EPA has not yet promulgated a MACT standard for an industry, 112(g) requires facilities to perform their own case-by-case MACT determination for any modifications to their existing plant that will cause a greater than de minimis increase in emissions. Since EPA is at least several years away from publishing the MACT standards for composites, many industry facilities will have to comply with these case-by-case requirements. In the 1 April proposal, EPA set a de minimis level for styrene of only one ton/year.

J. Schweitzer. Cited: *CI Compos.*, Aug-Sept 1994, p 4-5 [in English]. PHOTOCOPY ORDER NUMBER: 199408-D4-0012.

Danish Count Environmental Cost. Following financial reconstruction in 1990 and multimillion Krona investments in environmental improvements, Danish steelmaker Det Danske Stålværk has been labeled by the European Commission as the cleanest steelworks in the European Union. But this green situation is causing DDS to see red. "It's completely unfair that we're subjected to stringent environmental requirements when the steel used for public works is imported," says Jorgen Overgaard, technical director. The present Danish government's wish to increase CO₂ taxes by 600% means an extra expense of DKr100 million (pounds sterling 10.15 million) for DDS which currently enjoys exemption from the tax, being classed as energy intensive, "and that will force us to close," says Mr. Overgaard.

Cited: *Steel Times*, Vol 222 (No. 7), July 1994, p 263 [in English]. ISSN: 0039-095X. PHOTOCOPY ORDER NUMBER: 199407-S4-0053.

Landmark Decision Over PVC Ban. A landmark decision to reverse a municipal ban on polyvinyl chloride (PVC) construction products has been taken on environmental grounds by the German town of Bielefeld. The town's original decision in 1987 to restrict the use of PVC triggered a number of other civic restrictions in Europe and the USA, as authorities responded to environmental pressure to ban PVC products. A main concern was over the environmental effects of the smoke given off when the products were incinerated on disposal. Bielefeld's environmental committee has now lifted its restriction on rigid PVC construction products, after re-evaluating their use for long-life applications such as window frames and pipes. The European plastics industry has called on other civic authorities who have restricted PVC use to reconsider their position and lift their restrictions. The PVC industry has argued consistently that PVC is a vital material for modern society, performing better in eco-balance analyses than most alternative materials, including wood, metals and glass.

Cited: *Fire Flammabl.*, Aug 1994, p 3 [in English]. PHOTOCOPY ORDER NUMBER: 199407-P4-0034.

EPA [U.S. Environmental Protection Agency] Changing Approach to Pollution. The U.S. Environmental Protection Agency will begin a program of regulating and preventing pollution, industry by industry, rather than by specific pollutants. Six industries, including auto manufacturing, computers and electronics, printing, and oil refining, will be involved in the pilot phase of the program, called the Common Sense Initiative. It will aim to tailor pollution prevention and regulatory programs to specific industry demands. The program will provide more flexible and less expensive environmental protection, while ensuring that overall waste is reduced, rather than shifted from one form of emission to another.

Cited: *Plast. News (Detroit)*, Vol 6 (No. 24), 15 Aug 1994, p 3 [in English]. ISSN: 1042-802X. PHOTOCOPY ORDER NUMBER: 199407-P4-0033.

[U.S.] Mercury in 1993. U.S. consumption of mercury fell 10% in 1993, and by year end had dropped 63% since 1988. Mercury gradually is being eliminated from products whenever possible owing to its toxicity.

Photocopies of complete articles are available from the MI Document Delivery Service at ASM; please call 216/338-5151, ext.450 for order and price information.

Furthermore . . .

The 1994 edition of the Environmental Engineering Selection Guide is available free from the **American Academy of Environmental Engineers**. The guide provides a listing of environmental firms, including a description of the firms' services, sizes, and the names of certified engineers. For a copy, contact AAEE at 130 Holiday Court, Suite 100, Annapolis, MD 21401.

Uniroyal Chemical has saved more than **4.9 million pounds of waste materials** from the landfill during 1994. This has been achieved by using reusable packaging from Georgia-Pacific Corporation. Products are warehoused in the corrugated packaging system which is designed to provide enough strength for multi-layer storage. After a product order is filled, the container is saved and reused for additional warehouse storage.

Engineers in the power industry have **developed mechanical and chemical processes for reducing hazardous air emission, particularly nitrogen oxides, in coal- and gas-fired combustion facilities**. Researchers at the **University of Dayton** have drawn a correlation between the mechanical properties of the flame in a

Chlorine and caustic soda manufacture continued to be the largest domestic use for mercury. Consumption decreased 14% from 1992 owing to some plants switching to membrane cell technology, which does not require mercury. Environmental legislation has limited the use and disposal of mercury. In the future, mercury likely will be used only where it is absolutely necessary. The U.S. consumption, production, shipments, stocks, and trade figures are tabulated.

S.M. Jasinski, K.J. Bacon, and A.M. Burk. Cited: *Min. Ind. Surv., Mercury*, 22 July 1994 [in English]. PHOTOCOPY ORDER NUMBER: 199407-G8-0624.

The Nonferrous Metal Industry and the Environment [Original title: L'Industrie des Metaux Non-Ferreux et l'Environnement]. All the regulations are there, whereby the nonferrous metal manufacturer is supposed to protect the environment. But all the loopholes are there also. How can the entrepreneurs be convinced of this? There are numerous applications for which metals may be recycled infinitely. Aspects included in the study are: furnace stack gas and dust, liquid effluents and by-products, some of which have a high earning value.

S. Ferquel. Cited: *Réal. Ind.*, Feb 1994, p 51-55 [in French]. ISSN: 1148-7941. PHOTOCOPY ORDER NUMBER: 199407-G4-0049.

Examining the Options to Clean Up Foundry Melting. The 1990 Environmental Protection Act (EPA) places strict regulations on emission levels from British foundries. The control of cupola emissions is complex, so foundries must choose whether to continue their present process or change to electric melting. Although the capital costs of switching can be substantial, modern induction furnaces offer the most economical method of melting for iron foundries needing to comply with the EPA. Electric melting not only meets EPA emission standards, but also increases melt flexibility. Electric melting also produces substantial savings in the cast of refractory material, along with lower energy costs.

Cited: *Mater. World*, Vol 2 (No. 2), Feb 1994, p 77 [in English]. ISSN: 0967-8638. PHOTOCOPY ORDER NUMBER: 199408-51-1479.

combustion system and low emissions. Co-swirl provides more stable combustion than counter-swirl. Massachusetts Institute of Technology has designed a multi-annular burner that aids in the reduction of nitrogen oxides emissions from swirling, turbulent diffusion flames. Gas re-burning, an injection process, has reduced nitrogen oxides by 70% in work at the Energy and Environmental Research Corp. Limiting the rate at which fuel and air are mixed can also reduce nitrogen oxides as joint research between Babcock & Wilcox and Dayton Power & Light Company has discovered.

Davy International is leading a team for the **clean-up of a hazardous waste site** in connection with the Oresund Fixed Link, a 16km highway/railway bridge-tunnel complex which will connect Copenhagen, Denmark to Malmo, Sweden. The site includes wastes such as coal ash, cement plant baghouse filter dust, municipal waste and industrial sludges, as well as significant amounts of hazardous chemical wastes, heavy metals and organics. For further information, contact Davy International at 412/566-3330.