
Environment

In the effort to preserve and maintain the fragile ecology of our planet, these recently selected abstracts are represented to help readers of the *Journal of Materials Engineering and Performance* stay current on legislation and compliance with global environment issues and regulations. They are reprinted from Metals Abstracts and Materials Business File with permission from Materials Information, a service of Cambridge Scientific Abstracts, Bethesda, Maryland, USA.

EF Shops To Receive Environmental Order. Electric-arc furnace mills in the U.S. Midwest will be told by environmental authorities to conduct self-audits of soil, water, and air and report the results by 1 May 1997. Close to 30 mills in Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin are scheduled to receive letters from U.S. Environmental Protection Agency Region V outlining a list of regulations that apply to the industry. The compliance review was instigated after technical staff at the EPA noted increasing power consumption among electric-arc furnace mills in recent years, which environmental authorities attributed to an increase in steel production, and correlated a potential increase in pollution.

N.E. Kelly. Cited: *Am. Met. Mark.*, Vol 104 (No. 224), 18 Nov 1996, p 2 [in English]. ISSN 0002-9998. PHOTOCOPY ORDER NUMBER: 199703-S4-0020.

Metals Take Up Arms against the "Mother of All EPA Regs." The U.S. metals industry braced to do battle with the Environmental Protection Agency over new stricter air-emission standards for ozone and particulates expected by executives to require expensive control technologies. C.E. Browner announced on 27 Nov 1996 proposed standards that would subject a wider range of industrial particulate emissions to controls. Whereas the agency's current particulate-matter standard, known as PM-10, calls for the regulation of dust, dirt, and similar particles down to 10 μm in diameter, the agency now wants to add regulations governing particulates as small as 2.5 μm . Smaller concentrations of particulates also would become subject to regulation.

N. Kertes. Cited: *Am. Met. Mark.*, Vol 104 (No. 232), 2 Dec 1996, p 1, 7 [in English]. ISSN 0002-9998. PHOTOCOPY ORDER NUMBER: 199703-G4-0032.

Pollution Regulation Said Key To Future of Copper Business. Pollution regulation will be the biggest influence on the copper business in the future, M. Kyto, vice president of technology for Outokump Technology, told the 8th International Flash Smelting Conference. Ever-more-stringent environmental regulation is "the main external trend that has influence on the copper business," Kyto said. He said that in many countries the acceptable level of sulfur recovery is now 95%, while only a few years ago it was 90%. Kyto noted that in Japan sulfur recovery has been in excess of 98% for some years and is still increasing.

G.T. LaRue. Cited: *Am. Met. Mark.*, Vol 104 (No. 225), 19 Nov 1996, p 6 [in English]. ISSN 0002-9998. PHOTOCOPY ORDER NUMBER: 199703-G4-0031.

Green Threat to Traditional Boat Building. Hallberg Rassy Varu is Sweden's second largest boat builder and the only one with its own glass reinforced plastics (GRP) molding shop. Its boats, all in excess of 9.5 m long, are made using traditional GRP techniques and fitted out to high standard. HR-Marinplast builds some 155 to 170 yachts a year using hand lay-up and spray-up techniques. But HR's traditional boat building methods are under threat from proposed new environmental legislation driven by initiatives such as Agenda 21 and the Rio Earth Summit which require emissions of volatile organic compounds (VOC) to be cut to 70% of their current level by 2001.

A. Weaver. Cited: *Reinf. Plast.*, Vol 40 (No. 12), Dec 1996, p 26-27 [in English]. ISSN 0034-3617. PHOTOCOPY ORDER NUMBER: 199703-D4-0004.

A Summary of EPA Rule on Certification and Training for Residential Deleading. The U.S. Environmental Protection Agency's Rule on Certification and Training for Residential Deleading was published 29 Aug 1996 in the *Federal Register*, Vol 61 (No. 169). The rule is the EPA's

final response to the residential portion of Title X, signed by President Bush on 28 Oct 1992. The rule is limited to target housing and child-occupied public buildings. Other structures which have lead (Pb) paint on them are specifically excluded. These include bridges, superstructures, commercial buildings, and other public buildings. The rule is still of interest, however, because it may signal EPA's direction when it turns its attention to the superstructures part of its mandate.

Cited: *Compliance*, Vol 5, 1996, p 1-2, 11 [in English]. PHOTOCOPY ORDER NUMBER: 199702-S4-0008.

Steelmakers Doing Well with Environment. A report titled "Energy and Environmental Profile of the U.S. Iron and Steel Industry" issued by the U.S. Department of Energy's Office of Industrial Technologies was produced as the result of the formation of a partnership with the iron and steel industry to accelerate the development of technologies and processes that will improve the industry's energy efficiency and environmental performance. The report notes that more than 95% of the water used in producing and processing steel is now being recycled, discharge of air and water pollutants has been reduced by >90% over the past 20 years, solid waste production at a typical mill has been reduced by >80%, and most hazardous wastes once generated by the industry are now being recycled or recovered for reuse. Also, steel has an overall recycling rate of ~55%, much higher than other materials, and ~70% of all purchased scrap is consumed by EAF/mini-mills. According to the report, the U.S. iron and steel industry has invested ~\$6 billion in pollution control systems. In a typical year, 15% of the industry's capital investments go toward environmental projects.

M. Munzer. Cited: *Am. Met. Mark.*, Vol 104 (suppl.), 23 Sept 1996, p 24-25 [in English]. ISSN 0002-9998. PHOTOCOPY ORDER NUMBER: 199702-S4-0006.

Easier Slag Recycling in Wisconsin. Steel slag cannot be reused in steelmaking immediately, as it generally takes six months for the slag to cure. This six-month period has provoked legal controversy as to whether the slag is a commodity or a waste coproduct. The U.S. state of Wisconsin's Dept. of Natural Resources currently is reviewing the state's regulation of steel slag in proposed rules for Chapter NR 538 "Beneficial Use of Industrial By-products" (22 Aug 1996, draft). The state considers steel slag an "industrial by-product" under the classification of "ferrous foundry slag."

R.V. Chalfant. Cited: *New Steel*, Vol 12 (No. 11), Nov 1996, p 91 [in English]. ISSN 0897-4365. PHOTOCOPY ORDER NUMBER: 199702-S4-0005.

Metals Sector Upset at Shift in U.S. Policy. With less than two months before the next international meeting on global climate policy, many sectors of the metals industry are still reeling from shock at the recent shift in U.S. policy that has opened the door to adopting a binding agreement to curb greenhouse gas emissions. While environmentalists universally praised the move, sources inside the iron and steel, copper, and aluminum industries said that such a mandatory compliance would spell massive industry restructuring and severe job loss. In Oct 1996, the aluminum industry fired off a letter to the State Department in an attempt to clear up any doubts about U.S. support of existing voluntary programs.

N. Kertes. Cited: *Am. Met. Mark.*, Vol 104 (No. 210), 29 Oct 1996, p 6 [in English]. ISSN 0002-9998. PHOTOCOPY ORDER NUMBER: 199702-G4-0025.

Georgia Passes Liability Exemption for Scrap Processors. The U.S. state of Georgia has passed law HB 1227 that relieves scrap recyclers from third-party downstream liability for environmental cleanups at con-

suming sites in the state, provided the recyclers supplied "recovered materials" consisting solely of scrap paper, plastics, glass, textiles, rubber (other than whole tires), metals, and/or spent lead-acid, nickel-acid, nickel-cadmium, or other batteries. Under the law, scrap recyclers cannot be held liable for the cleanup of any site that was contaminated as a result of the owner's or operator's actions and that must be cleaned up under state law. It does not apply to cleanups mandated under the federal Superfund law, nor does it apply to any cleanups at recyclers' own facilities. Georgia became the third state, following PA and MI, to clearly enunciate that arranging for recycling is not tantamount to arranging for the treatment or disposal of waste.

Cited: *Scrap*, Vol 53 (No. 5), Oct 1996, p 27 [in English]. ISSN 0898-0756. PHOTOCOPY ORDER NUMBER: 199702-G4-0018.

EPA Excludes Recyclers from Potential Reporting Requirement.

The U.S. EPA has recently expanded its list of industries that must report toxic releases as defined by its toxic release inventory (TRI) program, but did not include recyclers classified under SIC code 5093. If recyclers had been added to the list of industries covered under the TRI reporting mandate, they would have been subject to the program's costly and time-consuming requirements and could have faced additional requirements and fees solely because they were part of the inventory. The exclusion may be temporary, however, as the EPA has suggested that it may add to the list of obligated industries in the future. Recyclers classified under SIC codes 20 to 39 remain subject to TRI reporting. In addition, those recyclers subject to reporting certain hazardous chemicals under the Emergency Planning and Community Right-to-Know Act still must do so.

Cited: *Scrap*, Vol 53 (No. 5), Oct 1996, p 27 [in English]. ISSN 0898-0756. PHOTOCOPY ORDER NUMBER: 199702-G4-0017.

Scrap's Future: Looking a Decade Ahead. The scrap recycling industry in the United States is subject to numerous governmental regulations and legislation, particularly in the environmental and occupational safety areas. A current trend of increasing regulations and legislation has caused recyclers to incur greater capital expenses for lobbying efforts and compliance equipment and personnel. Also, the industry is experiencing increased consolidation to achieve economies of scale on compliance costs. The good news is that the attitude of regulators has shifted from the 1970's command-and-control style to one of growing cooperation and open-mindedness as to how objectives can be achieved. Benefits from this approach include a recent proposed rule that would remove processed scrap metal from the EPA's definition of solid waste, exempting it from regulation under the Resource Conservation and Recovery Act (RCRA). As the

American public is said to be likely to remain sensitive to environmental issues, scrap recyclers are advised to accept standards and insist on a much more efficient regulatory process. Regulatory challenges faced by Macon Iron & Paper Stock Co. Inc., Macon, GA, are described.

K. Kiser. Cited: *Scrap*, Vol 53 (No. 5), Oct 1996, p 44-46, 48, 50 [in English]. ISSN 0898-0756. PHOTOCOPY ORDER NUMBER: 199702-G1-0052.

Practical Environmental [Compliance] Tips [for Recyclers]. Advice is given on how scrap recyclers in the United States can comply with environmental regulations simply and inexpensively. Suggestions include developing a source-control program to identify those materials that, if improperly managed, could present a threat to human health and the environment; improving equipment maintenance; and implementing a purposeful housekeeping system. Containing and collecting free-flowing residual fluids from oily scrap is an essential component of environmental compliance, as is identifying areas of an operation that are potential sources of leaks and spills.

R.K. Wiener and D. Kendziorski. Cited: *Scrap*, Vol 53 (No. 5), Oct 1996, p 53-54, 56-60, 62 [in English]. ISSN 0898-0756. PHOTOCOPY ORDER NUMBER: 199702-G1-0049.

Taking Control of Styrene Emissions. Various industry estimates indicate that the open-molding sector of the composites industry uses anywhere from 56 to 98 million lb of polyester and vinyl ester resins each year. Styrene, also known as vinylbenzene or phenylethylene, plays two key roles in the processing of these thermosetting resins. First, because styrene has low viscosity, adding it to polyester and vinyl ester creates a thinner mixture, allowing the resins to properly wet out reinforcements. Second, styrene provides the mechanism to crosslink the molecule chains, enabling the resins to cure. Because of styrene's potential for adverse health and environmental effects, styrene is targeted for heavier regulation by both the U.S. Environmental Protection Agency and the Occupational Safety and Health Administration. Most recently, the composites industry, represented by five trade associations, agreed with OSHA to encourage all industry facilities to achieve an occupational exposure level for styrene of 50 ppm for an 8 h time-weighted average, with a 15 min ceiling of 100 ppm. Improved resins, manufacturing advances, and better air-control systems that help fabricators meet coming regulations are described.

A. Hudson. Cited: *Compos. Technol.*, Vol 2 (No. 5), Sept-Oct 1996, p 32-37 [in English]. ISSN 1083-4117. PHOTOCOPY ORDER NUMBER: 199702-D4-0003.

Photocopies of complete articles are available from the Document Delivery Service at ASM; please call 216/338-5151 ext. 5450 for order and price information.

Furthermore...

Dow Chemical Company, Midland, MI, has formed Raven Group Ltd., a joint venture to manage its environmental remediation projects, 85% owned by Dow and 15% by EOP Group Inc., Washington, D.C., an environmental consulting firm. Raven will identify cost-effective remediation solutions at Dow's U.S. manufacturing facilities.

1995 despite substantial reductions by coatings operations. Net increases were about 185 metric tons (203 tons) or 10%. However, the 2091 metric ton (2301 tons) total still represented a 78% reduction from the 9723 metric tons (10,696 tons) reported in 1988. For more information, contact: PPG Industries Inc., One PPG Place, Pittsburgh, PA 15272-0001.

According to two Environmental Protection Agency reports, releases (emissions plus wastes sent to disposal or treatment facilities) generated by PPG Industries' U.S. facilities increased in

Air-Cure Technologies, Houston, TX, a supplier of manufactured equipment and engineered systems used in the processing, treatment, and movement of gases and liquids, has submitted a

proposal to its shareholders to *change its name to ITEQ Inc.* The name, short for international technology and equipment, is intended to reflect the increasing importance of the processing business for the company.

Nirex, London, a radioactive waste disposal company, *has appointed a contractor to build a rock laboratory if the company receives planning permission from the Environment Secretary.* The shaft-sinking and site-works contracts have been awarded to the Cementation Joint Venture group, comprising Kvaerner Cementation and Cementation Mining. The science design contract has been won by the GIGA joint Venture Group: GeoScience Ltd., Intera Inc., and Sir Alexander Gibb & Partners. Construction of the laboratory would create about 120 jobs, and 50 scientific staff would be employed to carry out experiments in the completed laboratory.

In testimony before the U.S. EPA, the **Ohio Chamber of Commerce** *presented its opposition to the agency's proposed revisions to the ozone and particulate matter mandates.* If enacted, the standards could cause most Ohio counties to be designated as nonattainment areas and be forced to implement costly measures to further reduce their ozone and particulate matter levels. The Chamber opposes the standards because they lack a sound scientific basis, and they fail to conform with several statutory requirements, particularly consideration of the standards' economic impact. Statistics from the EPA show that nationwide and in Ohio, air quality has improved significantly in the past ten years.

Quality, Safety, and Environment: Synergy in the 21st Century, a book by Pascal Dennis and published by **ASQC Quality Press**, demonstrates that safety and environment are influential factors within the quality arena. The author explains how applying quality management principles to safety and environmental issues can result in growth for an organization where safety and environment endeavors are concerned. The book shows that problems stemming from quality, safety, and environment share the same root cause and respond to the identical remedies offered by a modern quality-management system. For further information, contact: ASQC Quality Press, P.O. Box 3005, Milwaukee, WI 53201-3005; tel: 1/800/248-1946; fax: 414/272-1734.

Fiberglass-reinforced plastic (FRP) is helping to ensure that fishing enthusiasts always have a large supply of popular redfish and speckled trout by *providing a reliable way to store seawater at the world's largest redfish hatchery.* The Sea Center Texas facility of Texas Parks and Wildlife uses FRP in six outdoor storage tanks to store seawater until it is needed for various parts of the indoor hatchery operation. A pipeline brings the seawater to the tanks via a 11 km (7 mile) barge canal. This water is then filtered, recirculated, and stored in the vessels until it is needed to maintain the brood, or parent fish, which are responsible for breeding. The tanks, with 3 m (10 ft) diameter and 6 m (20 ft) height, were fabricated by the chop-hoop filament-winding method using Derakane 411-350 epoxy vinyl ester resin from **Dow Chemical Company** and fiberglass with 5 cm (2 in.) thick polyurethane foam, which allows the water temperature to remain stable until needed. For more information, contact: Customer Information Group, Dow Chemical Co., P.O. Box 1206, Midland, MI 48641; tel: 1/800/441-4369.
