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# Environment

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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.

**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 Byproducts" (22 Aug 1996, draft). The state considers steel slag an "industrial byproduct" 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 Al 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 consuming 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 20-39 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. Kendzioriski. *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, since 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 cross-link 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 (OSHA). 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 are described that help fabricators meet coming regulations.

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.

**EPA Lightens Industry's Burden in Water Quality.** The U.S. EPA has found that most of the pollution found in surface-water bodies is coming from nonpoint sources such as highways and streets; it is not coming from large industrial facilities but rather from daily lives. As a result, instead of greater regulation of industry, the trend will be to ease up on industry and place greater emphasis on storm-water runoff from urban, agricultural, and forestry areas. Although the national pollutant-discharge elimination system (NPDES) for process waste water primarily has relied on technology, the EPA's storm-water program has taken a new direction and focuses largely on placement and handling. An agency proposal in June 1995 that outlines a four-tiered approach to performance-based reporting and monitoring that offers reductions in reporting and monitoring activities is described.

R.V. Chalfant. Cited: *New Steel*, Vol 12 (No. 10), Oct 1996, p 74 [in English]. ISSN 0897-4365. PHOTOCOPY ORDER NUMBER: 199701-S4-0001.

**Aluminum Accepting Emissions Proposal.** The Al industry is backing a U.S. Environmental Protection Agency plan that targets a 50% reduction in air toxic emissions because the industry knows it can't do any better under Clean Air Act requirements than the proposed rule. The rule, which will affect 24 existing primary Al reduction plants nationwide and any future plants, would reduce air toxins and other emissions by ~5700 tons annually and cost the industry an estimated \$160 million to implement, according to the EPA. Although the industry's cost estimates are about three times that amount, an industry source said the changes are necessary to comply with Clean Air Act regulations.

N. Kertes. Cited: *Am. Met. Mark.*, Vol 104 (No. 200), 15 Oct 1996, p 6 [in English]. ISSN 0002-9998. PHOTOCOPY ORDER NUMBER: 199701-G4-0008.

**Guide Tackles MDI Emissions Reporting.** A new item that provides guidelines for reporting methylene diphenyl isocyanate (MDI) and polymeric methylene diphenyl isocyanate (PMDI) emissions is available from the Society of the Plastics Industry's Polyurethane Division (SPI-PD). In foundries, MDI-based products are used as binders in producing sand molds and cores. As these binders are heated to high temperatures, the cured MDI-based binders decompose and are released. EPA requires any business having ten or more employees that process >25,000 lb or use >10,000 lb of MDI or MDI/PMDI mixtures in a calendar year to prepare an EPA toxic release report, known as Form R. The guide, titled "MDI/Polymeric MDI Emissions Reporting Guidelines for the Polyurethane Industry," assists processors or users in identifying all possible release sources from transfer, storage, processing, use and disposal of the chemicals, and determining their MDI and PMDI emissions. The guide identifies four techniques for estimating the amount of released MDI/PMDI: direct measurement, engineering calculation, mass balance, and emission factors.

Cited: *Foundry Manage. Technol.*, Vol 124 (No. 10), Oct 1996, p 13 [in English]. ISSN 0360-8999. PHOTOCOPY ORDER NUMBER: 199701-G4-0002.

**DCPD Expertise Cuts Styrene in Polyesters.** In an unsaturated polyester (UP), styrene effectively serves two important functions: resin thinner and cross-linking monomer. The fact that it also serves those functions cost effectively explains why styrene has remained the monomer of choice for more than 50 years. Because of the high level of attention given styrene, an overview is in order. This report covers: a background on styrene and its functions, the status of styrene regulations, research on styrene replacements, and the conclusions from that research. The research was conducted under a technology transfer agreement between Alpha/Owens Corning (AOC) of the USA, BASF AG of Germany and Takeda Chemical Industries Ltd of Japan. AOC's contribution to the tripartite research was to develop lower styrene-content versions of E 834 series dicyclopentadiene (DCPD) polyesters.

M. Beebe, M. Blurton, and J. Williams. Cited: *Reinf. Plast.*, Vol 40 (No. 10), Oct 1996, p 36-39 [in English]. ISSN 0034-3617. PHOTOCOPY ORDER NUMBER: 199701-D5-0004.

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