In the effort to preserve and maintain the fragile ecology of our planet, these recently selected abstracts are presented 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.

Steel Foundries and the EPA. Steel foundries that produce stainless steels often receive orders for high-nickel exotic alloys, which in terms of production expertise and melting equipment requirements, are essentially extensions of the stainless-steel range. The Environmental Protection Acts requires Part B authorization for both ferrous and nonferrous alloy production in such shops and imposes stricter control of EAF emissions, with which many UK steelmakers are struggling to comply.

M. McBarron. Cited: *Foundry Trade Journal, 167*, (3477), 18 June 1993, 348 [in English]. ISSN: 0015-9042. PHOTOCOPY ORDER NUMBER: 199309-S4-0071.

Coshh Still Not Fully Accepted. An evaluation survey of the Control of Substances Hazardous to Health (Coshh) regulations in the UK has found that 22% of employers sampled needed to make more effort to comply with Coshh, and that 6% had made little or no attempt to comply with Coshh. The major five-year study from the Health and Safety Executive (HSE) also shows that 12% of employers had carried out no assessments at all. The good news was that 74% of employers had done all, or almost all of their Coshh assessments and that 71% of those surveyed had implemented Coshh. The Coshh regulations came into force on 1 October 1989, and they form one of the most significant pieces of health and safety legislation since the Health and Safety at Work Act of 1974. The survey work in 1991-1992 involved visits to 536 establishments to find out how effectively employers were implementing Coshh, how much it was costing them, and what problems and benefits they were finding.

Cited: *Plastics and Rubber Weekly*, (1495), 24 July 1993, 2 [in English]. ISSN: 0032-1168. PHOTOCOPY ORDER NUMBER: 199309-P4-0045.

Regulations Controlling the Use of Nickel Articles Which Contact the Skin. Today, most cases of nickel contact dermatitis occur domestically, arising from contact of the skin with nickel electroplate or nickel alloy used in the production of jewellery, metal articles for clothing, and spectacle frames. The incidence of nickel contact dermatitis is increasing and dermatologists, particularly in Scandinavia, have established a good case for regulating articles containing nickel that contact the skin.

G. Flint. Cited: *Metal Casting and Surface Finishing, 39*(5-6), May-June 1993, 44 [in English]. ISSN: 0008-7521. PHOTOCOPY ORDER NUMBER: 199309-G4-0086.

Metallurgy vs. the Environment: The Case of the Texas Copper Corporation. In March 1992, the Mitsubishi Materials Corporation, the parent of the Texas Copper Corporation, announced the abandonment of a proposed $200M copper smelter in Texas City, Texas. This article discusses the modern metallurgical plant in terms of zero discharge upon environment. Abandonment of the Texas Copper project is apparently irreversible. This is a significant loss in numerous terms, including the effort to renew the competitive position of an important basic industry; the need to create jobs, many of them high paying; the drive to sway trade balance between the US and other countries; and the struggle to find a balance between environment protection and industrial development. If similar losses are to be prevented in the future, a more enlightened approach to the conflicting interests of environmental advocates, industry, and regulatory agencies must be developed.

H.H. Kellogg. Cited: *JOM, 45*(8), Aug 1993, 32-34 [in English]. ISSN: 0148-6608. PHOTOCOPY ORDER NUMBER: 199309-G4-0083.

German State Would Burn Plastics Waste. The German state of Hamburg has submitted to the German Bundesrat (lower house) an amendment to the country's packaging ordinance that would allow states to burn plastics packaging waste and make the export of such waste outside the European Community illegal. The amendment, if approved, could effectively kill recycling operations outside of the EC that rely on such waste. In light of the proposal, a manager at one of Europe's major packaging houses says that within the next 15 months, incineration could well become a major method for disposing of German plastics packaging waste. Not only could non-EC operations lose their supply of plastics packaging waste if the amendment passes, but the legislation could impact heavily on many of the recycling operations inside the Community. With costs for recycling and the resulting recyclate high, burning could present a cheaper alternative.

Modern Plastics, 70(6), June 1993, 13 [in English]. ISSN: 0026-8275. PHOTOCOPY ORDER NUMBER: 199308-P1-0151.

The Environmentalist Assault on Lead and Government/Industry Responses. The argument against the use of lead being continued in the industrial society is that it is consumed in large quantities and is toxic and ubiquitous. Analysis of results on leaching of lead indicates the metal to be stable in a landfill environment. Both the recent and pending legislative and regulatory initiatives on the hazard of lead are highlighted including Reid-Lieberman bill and a draft of OECD document. Current developments in the US recycling policy are reviewed that mainly considers imposing taxes on any lead-bearing articles. Taxation of primary and imported lead (and batteries) is a recurring theme in the US. Evidence suggests a declining level of lead in blood in the US and in Europe. Attacks on the usage of lead may pose a major threat not just to its production, but to a larger sector of the nonferrous mining industry.

R.J. Muth. Cited: Conf. Proc.: Recycling Lead and Zinc: The Challenge of the 1990s, Rome, Italy (11-13 June 1991), International Lead and Zinc Study Group, 1991, 107-176 [in English]. PHOTOCOPY ORDER NUMBER: 199308-G4-0073.

The Greening of Copper. The impact of environmental protection legislation in various countries on the copper industry is discussed. The producers have paid for investment in upgraded plant and sometimes greater operating costs by diverting profits and improving productivity. Meanwhile, environmental laws are becoming more complex and stringent everywhere.

S. Hobson. Cited: Conf. Proc.: Copper 91 (Cobre 91), Vol I, Ottawa, Ontario, Canada (18-21 Aug 1991), Pergamon Press Inc., 1992, 111-119 [in English]. PHOTOCOPY ORDER NUMBER: 199308-G4-0072.

The Intergovernmental Approach to Environmental Issues. An overview covers the worldwide work on environmental issues relating to the regulations affecting production and use of lead and zinc. The various projects include controls on the use of lead in gasoline, regulation on recycling lead from scrap lead-acid batteries, based convention on the control of transboundary movement of hazardous wastes and their disposal, and OECD's initiative to develop measures to reduce health risk against heavy metals, such as mercury, lead and cadmium. The toxicological profiles for zinc and lead are currently being examined.

E. Weghofer. Cited: Conf. Proc.: Recycling Lead and Zinc: The Challenge of the 1990s, Rome, Italy (11-13 June 1991), International Lead and Zinc Study Group, 1991, 189-191 [in English]. PHOTOCOPY ORDER NUMBER: 199308-G4-0067.

Recycling of Copper. The paper examines the copper cycle, technical processes for recycling, and conventional and special scrap. The latter includes cable and electronic scrap. Future prospects for recycling will be

affected by stricter emissions regulations, higher waste disposal costs, and the Basle Convention, part of the United Nations Environment Programme.
K. Gockmann. Cited: Conf. Proc.: Copper 91 (Cobre 91), Vol I, Ottawa, Ontario, Canada (18-21 Aug 1991), Pergamon Press Inc., 1992, 27-43 [in English]. PHOTOCOPY ORDER NUMBER: 199308-G1-0216.

EPA/OSHA Government Regulations Summary for the Finishing Industry. There are a number of regulations promulgated by EPA and OSHA that directly affect the finishing industry. An overview is given of the applicable regulations for electroplating, metal-products-finishing, and paint-spraying facilities. The information that is presented summarizes the major points of each regulation and provides references on where to obtain more detailed information. Numerical data are given on the pollutant limits (metals, organics, cyanides) in effluents from electroplating works.
A.N. Mabbett. Cited: *Products Finishing* (Cincinnati), *57*(1-A), Oct 1992, 281-290, 292-294 [in English]. ISSN: 0032-9940. PHOTOCOPY ORDER NUMBER: 199309-58-1094.

Silver Concentrations in Radiographic Processing Wash Water and Waste Minimization. Federal, state, and local governments are imposing stricter limits on silver in radiographic effluents. Many users are concerned about silver carried out of the fixer tank, within the film, into the wash tank. Some codes require the waste washwater to be contained and then hauled away for treatment. Evidence is presented of the relatively low silver content in the washwater and ways to reduce both silver content and total water volume. There are many factors that affect silver carry-forward. This includes chemical quality, processor quality in squeegee rollers, washwater flow rate, temperature, film feeding practices and the mix of film type, size, and percentage of exposure. To be able to meet regulations in the least expensive manner, it is important to understand the circumstances or levels of compliance and ways to maintain or meet compliance.
W.E.J. McKinney. Cited: *CSNDT Journal*, *13*(4), July-Aug 1992, 27-28, 30-33. ISSN: 0826-8343. PHOTOCOPY ORDER NUMBER: 199309-43-0277.

World Copper Smelter Sulfur Balance—1988. In 1989, the US Bureau of Mines initiated a contract to gather engineering, operating, and environmental cost data for 1988 for 30 major foreign primary copper smelters in market-economy countries. Data were collected for 29 of the designated smelters together with information on applicable environmental regulations. Materials balance data obtained were used with available data for the eight US smelters to determine the approximate extent of copper smelter sulfur emission control in 1988. A broad characterization of the status of sulfur emission control regulation was made. The 37 US and foreign smelters represented roughly 73.2% of world and 89.3% of market economy primary copper production in 1988. The 29 non-US smelters attained 55.3% control of their input sulfur in 1988. Combined with the 90.4% control of US smelters, an aggregate 63.4% sulfur control existed. Roughly 1,951,100 mt of sulfur was emitted from the 37 market economy smelters in 1988. Identifiable SO_2 control regulations covered 72.4% of the 29 foreign smelters, representing 66.5% of smelting capacity. Including US smelters, 78.4% of the major market economy smelters were regulated, representing 73.1% of smelting capacity. Significant changes since 1988 that may increase sulfur emission control are noted.
S.W. Towle. Cited: US Bureau of Mines Information Circular, 1993, 9. PHOTOCOPY ORDER NUMBER: 199309-42-0947.

Host of New Lead-Free Solders Introduced. Copper plumbing systems have traditionally been installed using a 50Cu-50Pb alloy solder, but in 1986 Congress passed the Federal Hazardous Substances Act, which limits the lead content of solder in potable water systems to 0.2% maximum. There are three standard Sn-Ag alloy solders that contain no lead. The high cost of these silver-containing solders has spurred the development of a variety of new alloys by a number of US companies such as Englehard, Harris, Fry Metals, Taracorp, Lukens Metal, and Canfield Metals. There is also a new interest in the use of brazing alloys for these applications.
R. Irving. Cited: *Welding Journal*, *71*(10), Oct 1992, 47-49 [in English]. ISSN: 0043-2296. PHOTOCOPY ORDER NUMBER: 199309-42-0947.

Minerals Industry Flowsheet Development for the Nineties: a Green Perspective. Increasing concern over the environment in which we live, the air quality, water quality, dump sites, and even the aesthetic appearance of industrial processing plants, is having a significant effect on the way in which flowsheets are now designed. The method of disposal of unwanted impurities is important, and in some cases is the most significant factor in the development of new processes or the rehabilitation of older ones. The recent formation of the International Council for Metals and the Environment (ICME) and the number of conferences and workshops devoted to environmental issues point to this increased awareness in the minerals industry. This paper notes some of the more recent and proposed environmental-based legislation and considers the consequences that have to be taken into account when designing modern flowsheets. As an illustration, the presence of arsenic in a refractory gold ore is considered, and the implications its presence has in determining an economic, technically viable, and yet environmentally acceptable process for gold recovery.
G.B. Harris. Cited: Conf. Proc.: Emerging Separation Technologies for Metals and Fuels, Palm Coast, Florida, USA (13-18 Mar 1993), The Minerals, Metals & Materials Society, 1993, 237-247 [in English]. PHOTOCOPY ORDER NUMBER: 199308-42-0873.

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

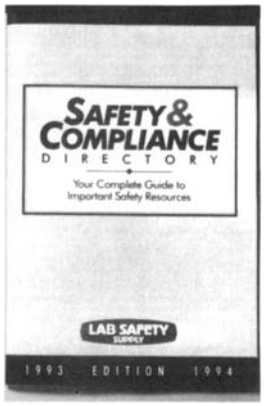
Furthermore...

A new video, *Pollution Prevention: It's Everyone's Job* gives viewers an understanding of pollution prevention problems and what the **U.S. Department of Energy**, Washington, DC, is doing to solve them. The 25-min film shows how employees can reduce pollution risks from toxic chemicals and radiation in the laboratory and also how to follow safer environmental procedures in the office. Copies of the video, along with a poster, are ***available in both audio and close-captioned format.*** Circle 91

The Green Book Report—Midwest Edition, designed to help the environmental industry identify potential jobs, while at the same time help those with environmental problems find cost-effective solutions, was recently launched. The new weekly lists potential local, state, federal, and private contract opportunities in a variety of environmental sectors, including lead paint and asbestos abatement, solid waste recycling and disposal, water and wastewater treatment, soil and groundwater cleanup, and more. Not only are potential contracts described in detail and bid dates listed, but names of prospective bidders are listed as they become known. The Midwest Edition covers activity in Ohio, Indiana, Michigan, Wisconsin, Minnesota, and Illinois and joins other editions available in the Northeast, Mid-Atlantic, Florida, and Southern California. Circle 92

The **Catalytica Studies Division**, Mountain View, California, has published a new environmental report, *Catalysts for the Elimination of Volatile Organic Compounds: Nonhalogenated Compounds*. The report surveys ***commercial and emerging catalytic technology for the control of nonhalogenated VOCs***. It primarily considers compounds containing carbon, hydrogen, and oxygen,

although compounds containing sulfur, nitrogen, and phosphorous are covered in their roles as catalyst poisons. Issues that arise in the catalytic combustion of VOCs, including catalyst deactivation and the effect of VOC mixtures on catalyst performance, are examined. Circle 93



Lab Safety Supply, Inc.

The *1993-94 Safety and Compliance Directory* from **Lab Safety Supply, Inc.**, Janesville, Wisconsin, serves as a comprehensive guide to important safety, health, and environment hotlines. Nearly 200 government agencies, professional societies, and private agencies that provide information on safety policies, practices, and procedures ranging from shipping hazardous materials and chemical handling to disease prevention and first aid are provided. Circle 94

Bailey Engineering Services Co. (Besco), a unit of Bailey Controls, Wickliffe, Ohio, announces the introduction of its EMERALD Product Services providing ***comprehensive technical and project management assistance for the installation of continuous emissions monitoring systems (CEMS)*** and documentation of CEMS compliance with U.S. Environmental Protection Agency (EPA) requirements. The package includes process surveys, bid preparation, equipment vendor selection, mechanical and electrical engineering and construction supervision, installation supervision, system startup and commissioning, performance testing, and performance (EPA) certification. Maintenance contracts, and quarterly verification and yearly recertification system testing services can also be arranged. Circle 95

The Reflectoquant System for ***contamination monitoring and analysis*** has been introduced by **EM Science**, Gibbstown, New Jersey. The system enables the user to obtain test results on the parts-per-million level using a test strip read by a meter, with results available in 60 s. It reads test strips for 30 different analytes, including chromium, nitrate, and peroxide. It is pocket-sized and features programming by the bar code method and result storage. Circle 96

A brochure featuring useful information on innovative technical options for ***reducing NO_x*** emissions without adverse effects on the overall cost-effectiveness, performance, or productivity of natural gas, is available from the **Gas Research Institute (GRI)**, Chicago, Illinois. Approaches being applied to NO_x reduction in GRI-sponsored research are presented: low excess air; staged combustion; flue gas recirculation; oxygen/fuel combustion; natural gas reburning; and surface-stabilized combustion. Circle 97

An award-winning recycling system that ***significantly reduces industrial waste disposal costs*** by cleaning spent acid for reuse is now available to private industry. The U.S. Department of Energy's **Battelle Pacific Northwest Laboratory (PNL)**, Richland, Washington, has licensed the technology to **Viatec Recovery Systems, Inc.**, headquartered in Hastings, Michigan. Viatec's Richland, Washington operation, near PNL, will design and manufacture acid recycling systems for industrial and government operations, on-site. The recycling system uses a combination of advanced materials, distillation, and precipitation to isolate the heavy metals and clean the acid. More than 90% of the spent acid can be purified and reused, while the volume of waste requiring disposal can be minimized or even eliminated. Circle 98

Materials Performance in Waste Incineration Systems has recently been published by the **National Association of Corrosion Engineers (NACE)**, Houston, Texas. It addresses the ***materials concerns and interests of those involved in the waste disposal industry.*** The volume provides designers, engineers, and maintenance personnel of incineration facilities with an understanding of the corrosive behavior of materials in the incineration environment. It is a technical resource for enabling informed materials selection for waste incinerators and air pollution control equipment in an industry seeking ever-higher operating temperatures and is subdivided into four sections: municipal waste incinerators, industrial/hazardous waste incinerators, field and laboratory testing of new alloys, and incinerator air pollution control equipment. Circle 99