Greenville, RI. It's an environmentally safe alternative to acetone, tolulene, xylene, MEK, MIBK, etc., and it meets or exceeds OSHA, EPA, and FDA safety standards.

Circle No. (55) on reader service card.

NUMOR™ Corp., Jackson, MI, announces the introduction of the Model 3000 Coolant Recovery System designed to ***remove solid contaminants and odor-causing bacteria*** from used metalworking coolants. The unit was designed because industrial waste removal costs are increasing, and also, bacteria-caused odor may affect a machine operator's productivity.

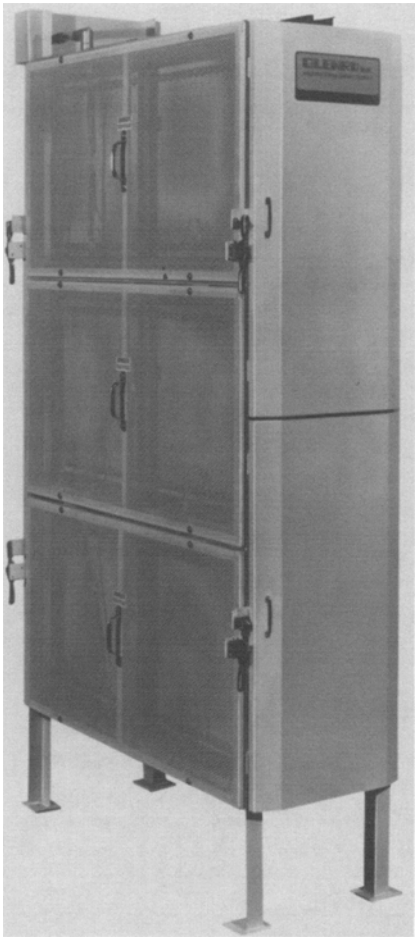
Circle No. (56) on reader service card.

Dry ice blast cleaning of surfaces uses small pellets of solid CO_2 to clean components. Developed by **Alpheus Cleaning Technologies,** Rancho Cucamonga, CA, the process uses environmentally safe CO_2, which starts as a solid and turns to an inert gas after contact with the workpiece. The only clean-up is that of the removed dirt/contaminant.

Circle No. (57) on reader service card.

Heat Treat Hotspot

Glenro, Inc., Paterson, NJ, has released a new ***vertical infrared oven*** in which the company's Radplane® Series 81 electric infrared heaters are mounted face-to-face. The oven can be used for drying, curing, sintering, fusing, and other web heating applications. Dual-sided heating makes the oven especially effective for drying saturated webs and those coated on both sides. Infrared energy is generated by resistive metal ribbon heating elements mounted on high-temperature insulator backboards. The low thermal retentive elements cool within a few seconds of shutdown, preventing product burning from residual heat. The elements face the product directly for efficient heating. There is no ceramic, quartz, or glass face to inhibit the radiant energy or to retain heat on shutdown. The ribbon elements are corrugated to give greater heating surface per unit area of heater face. Low mass heating elements offer a high conversion efficiency of electrical power input to usable radiant energy, saving power costs. The insulation board reduces back losses. Top, bottom, and side reflector panels direct radiant energy toward the web, further improving efficiency.



Glenro

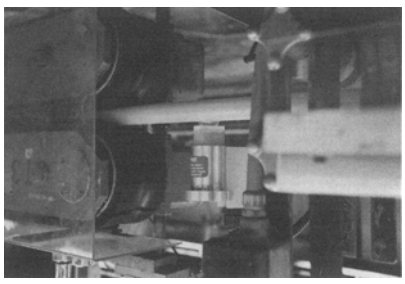
Circle (58) on reader service card

Some new technologies require that experiments be carried out at heating rates of more than 204 K's using high-frequency, plasma, or laser processing. But, because traditional heat treating methods, equipment, and analysis are designed for slow heating of a sample—at about 2-20 k/min.—a researcher may inadvertently miss unknown rapid chemical reactions that occur typically in about one second during rapid intensive heating. Such reactions could result in an explosion. To explain the micro- and macrokinetics of complex materials and anticipate the problems associated with high-heat, quick response processing, **Elsevier Science Publishers,** New York, NY, has published, *"Thermal Decomposition of Materials/Effect of Highly Intensive Heating,"* by O.F. Shlensky, L.N. Aksenov, and A.G. Shashkov.

Of special interest to those dealing with thermodynamics and rate processes, polymer materials, composite materials, chemical kinetics and transfer processes, the book presents physical and mathematical models of thermolysis for reactions that take place in a few seconds to a hundredths of a second.

Circle (59) on reader service card

Extruders and pultruders of three-dimensional pipes, profiles and tubing can improve adhesion of inks, coatings, labels and adhesives with a ***3-D plasma treater*** from **Enercon Industries Corp.,** Menomonee Falls, WI. The easily installed in-line, Dyne-A-Mite™ plasma treater effectively treats even irregularly shaped



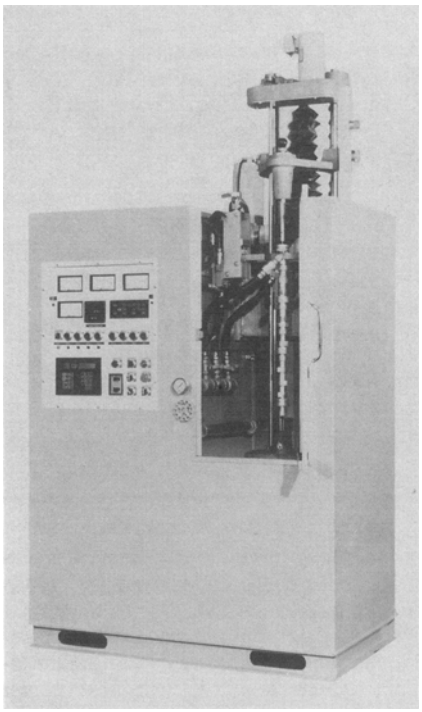
Enercon

surfaces of polyester, polypropylene, vinyl ester, polyethylene ABS, and other engineered plastics.

Available in one-, two- and three-head models, the Dyne-A-Mite™ treater uses an air blown electrical arc to form a treatment plasma, a high-energy ionized gas, without using a grounding element. Increased surface tension of two-and three-dimensional objects results, improving adhesion properties.

Circle (60) on reader service card

New Welduction Corp., Farmington Hills, MI, announces the ***expansion of its induction heating process development laboratory.*** Added equipment includes a 200kW-10kHz solid state inverter, 100kW R.F. generator, Uniscan dual spindle, vertical heat treat system, along with inspection and test equipment including a multiscale digital hardness tester and a 26 in. sample cut-off saw with polishing table.



New Welduction

The new equipment will enable the company to participate more intensively in programs that require simultaneous engineering and process development with capital equipment.

Circle (61) on reader service card

Product quality in gas-fired industrial furnaces depends on proper temperature control. Although temperature uniformity is critical, measuring temperature accurately is difficult in high-temperature industrial processes because of the extreme thermal and chemical conditions involved, as well as the large furnace volumes. To overcome these difficulties, **Acurex Corp.,** Mountain View, CA, is developing a control system for **Gas Research Institute,** Chicago, IL, that can improve temperature uniformity for increased productivity and better product quality.

The system incorporates an innovative temperature measuring technique—a ***sonic pyrometer***—developed by **Scientific Engineering Instruments, Inc.,** Sparks, NV. The innovative pyrometer uses acoustic waves to obtain temperature maps of the gases in the furnace by using the well-established relationship between the speed of sound and temperature. Two-dimensional mapping of gas temperatures then calculates load surface temperatures by computer. Using the output, the control logic system automatically modulates the burner input to obtain desired temperature uniformity.

Circle (62) on reader service card

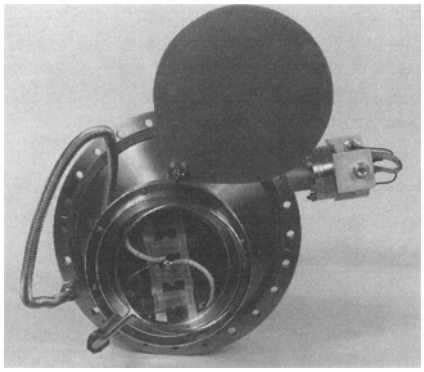
Responding to a continuing industry demand for a comprehensive, practical heat treating training curriculum, the Education Committee of the blue-ribbon **Heat Treat Steering Panel,** chaired by George H. Bodeen, Chairman/Chief Executive Officer, **Lindberg Corp.,** has developed the ***Heat Treating Certificate of Educational Achievement Program***™ (HEAT CAP)™. It is comprised of four achievement levels of specific course material focusing on the training needs of heat treating furnace operators/assistants, shift supervisors, and plant managers. The HEATCAP™ program and coursework will be administered by the Education Department of **ASM International®.**

During development of the program, consideration was given to the needs of heat treating shops involved with hardening, case hardening, solution treating and aging, induction/surface heat treating, and vacuum heat treatment.

To ensure the quality of HEATCAP™, intensive field testing of all course work at the four levels of achievement is being conducted at numerous heat treating facilities across the U.S. and Europe.

Circle (63) on reader service card

Microscience, Inc., Norwell, MA, has introduced a new ***heater for thin film technologists,*** the QH1000 quartz halogen heater. It uses technology similar to that used in Rapid Thermal Processing (RTP) to produce a heater suitable for general vacuum processing of thin films including superconducting films, PECVD processing, sputtering and other processes that require heated substrates in the range 50-1000 °C. The new heater is suitable for use in both UHV and oxygen environments and is available in a variety of configurations to suit almost any vacuum chamber. Options available with the system are: bellows drive, adjustable insertion length, substrate holder with rotation, mounting plates for transparent substrates and integral shutter.



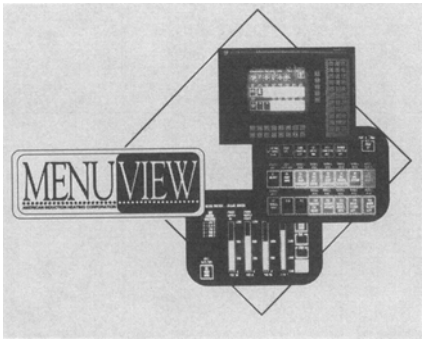
Microscience

Circle (64) on reader service card

Procedures on the application of MARLOTHERM® heat transfer fluids (HTF) used in chemical processing, petroleum refining, textile and plastics processing, are available in two new ***"Intermediates and Specialty Chemicals Technical Information Sheets"*** from **Hüls America, Inc.,** Piscataway, NJ, entitled: "Replacement of Organic Heat Transfer Fluids by MARLOTHERM S or MARLOTHERM L Heat Transfer Fluids" and "Start-up Procedure for MARLOTHERM Heat Transfer Systems."

Circle (65) on reader service card

A new ***induction heating control for cell heat treat systems, "Menuview,"*** has been



American Induction Heat Corp.

developed by **American Induction Heating Corp.,** Fraser, MI. The "Menuview" system allows manufacturers to set up a 'cell' induction heater for various part specifications using prior run process data which includes documentation and verification of inductor tool numbers, part size, power settings, temperatures, heat rates, and other pertinent information. Hardware settings can be automatically initiated by the control system to ensure the operator a proper setup for the heating process.

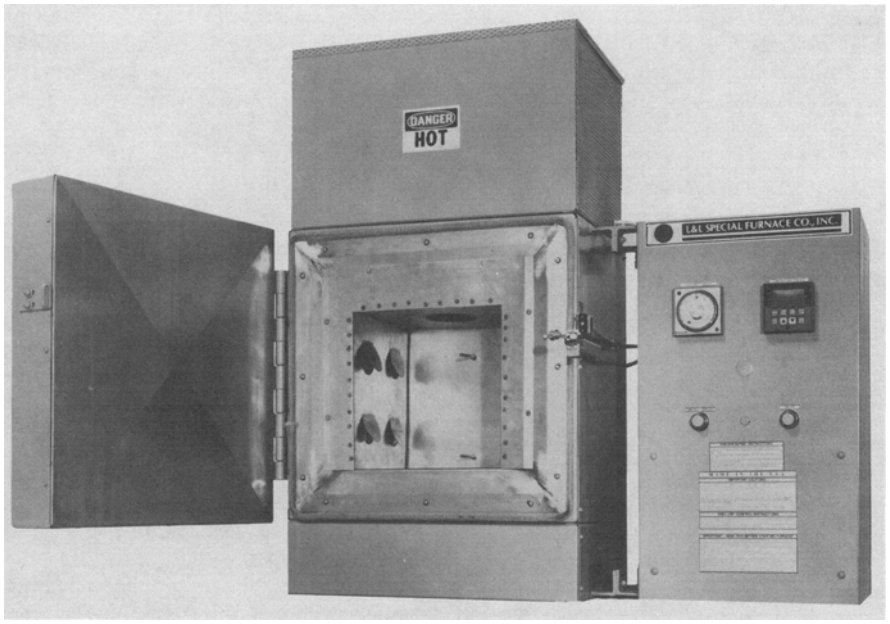
In addition, AIH presents ***"Forgeview,"*** a new ***induction heating control for forging systems.*** A computer terminal and PLC control system provide "real-time" information for both operating and management functions to allow forgers to set up the induction heater with prior run process data. This includes documentation and verification of die numbers, part size, power settings, temperatures, heat rates and other pertinent information. Hardware settings can be automatically initiated by the control system to give the operator a proper setup for the heating process.

Using either system, operating data can be collected and distributed to a host computer or other management functions responsible for product quality and SPC documentation. Both "Menuview" and "Forgeview" provide the ability to schedule maintenance functions based on production run time, as well as a complete diagnostic system for maintenance personnel when such actions are required.

Circle (66) on reader service card

Charles A. Hones, Inc., N. Amityville, NY, presents a line of durable, ***heavy-duty furnaces for the fast melting of various soft metals*** such as lead, zinc, tin, or type metals. These "Buzzer" furnaces do not require a noisy, costly blower; a single gas connection is all that is needed. They are

Charles A. Hones, Inc.



L & L Special Furnace Co., Inc.

thoroughly insulated with block insulation, protected both inside and outside with sheet steel jackets. Melting tanks are made of heavy cast iron with a wide flange to prevent clogging of flues.

Venturi ring burners assure quick and intense heat, plus a wide range of turn-down without flash-back. The burners, equipped with pilots, are easily removed by lifting out and are remounted by setting them back to a specially keyed seat that holds firmly without the use of bolts or screws. The furnaces are available in a range of standard sizes, but may be fabricated to order.

Circle (67) on reader service card

L & L Special Furnace Co., Inc., Aston, PA, introduces its new VB Series of ***stainless steel-lined high uniformity batch-type electric bench ovens.*** They reach 1300 °F and are most often used for metal tempering. They can also be used for a wide range of other processes and come in three standard sizes, all 12 in. wide by 12 in. high, with depths of 12, 24, and 36 in., featuring Honeywell UDC 2000 digital temperature controls. Construction is a heavy-duty metal casing and an internal lining of stainless steel, with a total of 7 in. ceramic fiber and mineral wool insulation. Safety systems to meet NFPA 86A requirements for removal of solvents are available.

Circle (68) on reader service card

Thermal Technology, Santa Rosa, CA, is offering its first ***processing furnace designed for high-fire metallizing, sintering, and co-firing of aluminum nitride (AlN).*** The new high-temperature furnace provides the technology for fully automatic, unattended operation to 2050 °C.

Built with tungsten heating elements and shielding, the hot zone construction meets the requirements for temperatures above 1750 °C. Using a high-density mesh element, the furnace design provides greater strength and resistance to distortion and cracking than a sheet element. Thermal Technology's new dynamic gas flow system introduces wet or dry process gas through evenly spaced tubes, achieving uniform gas distribution. End heating elements are added in order to ensure temperature uniformity in varying gas atmospheres.

Circle (69) on reader service card

A new ***high-temperature, gas-fired heating mantle*** is being field tested for the gas industry. Successful development of an energy-efficient, high-heating rate, gas-fired mantle will offer a cost-effective alternative to electrically heated mantles, which are commonly used for external heating of positive-pressure retort furnaces and reactors in the heat-treating, metal-processing, and inorganic chemical industries. Developed by **Procedyne Corp.,** New Brunswick, NJ, with **Gas Research Institute,** Chicago, IL, the mantle uses a patented design concept called "Slot Jet Assembly" in which the effective heat transfer area is increased by arranging circular ledges between the retort furnace and mantle wall. Hot combustion gases

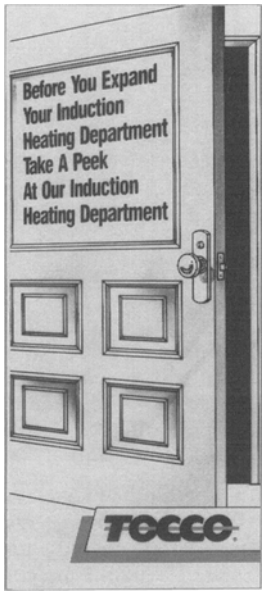
pass through slots on the ledges to create high-velocity, turbulent flows, thus increasing convective heat transfer to the retort and then to the workload. As a result, the mantle quickly achieves an operating temperature of up to 2500 °F.

Circle (70) on reader service card

Tocco, Inc., Madison Hts, MI, has expanded its customer support services by establishing a Commercial Induction Heat Treating Department to handle ***out-of-the-ordinary induction heat treating tasks*** for commercial heat treaters, as well as original equipment manufacturers.

A new, free brochure describes Tocco's ability to handle prototype development, pre-production, new product launches, and low- to mid-volume production. Operations at both its Michigan Technology and its Boaz, AL headquarters are covered.

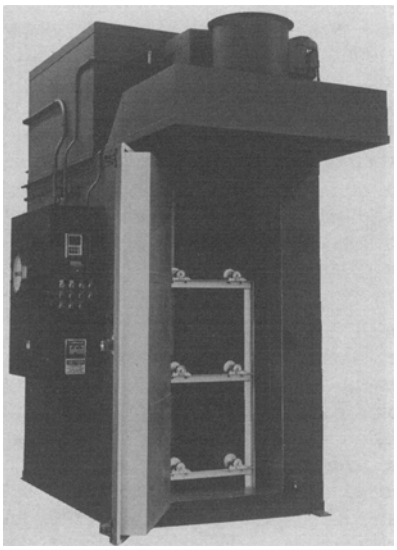
Circle (71) on reader service card



Tocco Inc.

The **Grieve Corp.** No. 696 is a special ***electrically heated walk-in oven*** used for curing Teflon tubes by continuously rotating the parts during processing. The Round Lake, IL, manufacturer reports the oven is equipped with three levels of motorized rollers that are supported by high-temperature metallized graphite bearings within the workspace. Other features include a removable top-mounted heat chamber, an indicating/programming/3-mode current proportioning temperature controller, a temperature recorder, and an SCR power controller.

Special safety features include a manual reset temperature controller, a fused disconnect switch, separate heating element control contactors for the excess temperature controller and recirculating blower air flow safety switch.



Grieve Corp.

Circle (72) on reader service card

A ***natural gas-fired, ion-nitriding vacuum furnace*** is offered by **Abar Ipsen Industries,** Bensalem, PA. Compared to electrically heated furnaces, it reduces energy consumption by 75% while providing superior temperature uniformity, shortened cycle times, and better heat-treating qualities.

Circle No. (73) on reader service card.

Calendar of Events

May 1-2

Pacific Northwest Society for Coatings Technology Annual Symposium, Portland, OR, USA; Contact: John Westendorf, Lipscomb Chemical Co., 2627 NW Nicolai St., Portland, OR 97210, USA; 503/241-3520.

May 3-7

ANTEC: Society of Plastics Engineers 50th Anniversary Annual Technical Conference, Detroit, MI, USA; Contact: SPE, P.O. Box 403, 14 Fairfield Dr., Brookfield Ctr., CT 06805, USA; 203/775-0471.

May 3-7

Society of Tribologists and Lubrication Engineers Annual Conference & Exhibition, Philadelphia, PA, USA; Contact: STLE, 840 Busse Hwy., Park Ridge, IL 60068, USA; 708/825-5536.

May 4-5

2nd Symposium on Advances in Fatigue Lifetime Predictive Techniques, Pittsburgh, PA, USA; Contact: Dorothy Savini, Symposia Operations, ASTM, 1916 Race St., Philadelphia, PA 19103, USA; 215/299-5400.

May 4-5

Seminar: Biomaterials for the '90's: Polyurethanes and Ion Beam Modification Techniques, Boston, MA, USA; Contact: Technomic Publishing Co., Inc., 851 N. Holland Ave., Box 3535, Lancaster, PA 17604, USA; 800/233-9936.