

—Equipment and Products—

SC MAGNET TO PURIFY LAKE WATER

Hitachi Ltd. has developed a lake water purification system which employs a refrigerator-incorporated superconducting magnet which separates plankton. The system can separate plankton with low electric current of one tenth of the conventional level. It employs the magnetite seeding technique.

MAGNETIC FALSE TOOTH FIXTURE

Aichi Steel Co. (Japan) has begun selling a new magnetic false tooth fixing unit. Called Magfit 600S, the product is designed to be 25% lower in height than the company's conventional product and has been made available for front teeth. The attractive force is stronger by 10%. 350 000 units were sold by the end of 1995.

A NEW DRUM FROM ERIEZ MAGNETICS

Eriez Magnetics have introduced a new design of a drum for the rare-earth drum magnetic separator. The separator utilises a bimetal shell wrap that increases magnetic recovery of fine paramagnetic materials. A doubling of the magnetic field gradient on the shell surface is achieved by using the bimetal shell wrap producing magnetic field exceeding 10 kG.

MAGNETIC FLOWMETER

Aichi Clock Electric Co. Ltd. has developed an electromagnetic flowmeter which can measure flowrate with the application of magnetic field. The flowmeter generates a magnetic field with two magnetic poles installed at different positions at the upper side of pipes. It measures the water level as well as the flow rate of water.

NEW ELECTROVISCOSUS FLUID

Nippon Shokubai has developed a new electroviscous fluid which, when exposed to an electric field, greatly changes its viscosity. It consists of an electrically insulating fluid dispersed with fine particles of an organic polymer, highly fluid under normal conditions, but fast solidifying when inserted into an electric field. It changes in three times wider range of viscosity than a conventional fluid. The prospective areas of application are shock absorbers and machine drivers which can be easily controlled by voltage.

NEW HIGH-PERFORMANCE PERMANENT MAGNET

TDK Corp. has developed a new neodymium sintered magnet with the highest level of magnetic characteristics. The magnet has the maximum energy product of 50 MGOe. The mass production of 10 tons per month started at the end of 1995. TDK also succeeded in developing a new ferrite magnet with improved magnetic properties.. The energy product of this new ferrite magnet exceeds 5 MGOe and the remanent magnetisation is equal to 4.6 kG.

A MAGNETIC TYRE MONITORING SYSTEM

Most tyre pressure monitoring systems to date have used small battery-powered radio transmitters linked to pressure monitors fitted inside the wheel or to the tyre valve. Such systems are sources of electromagnetic interference and their performance tends to be insufficient. A new patented system consists of a magnetic assembly generating a predetermined flux pattern is installed in the base of the wheel well, inside the tyre. The wheel arch probe detects the magnet on each revolution of the wheel and operates a flashing green LED. This can be used, if necessary, to calculate the speed of the vehicle. When air pressure is lost, the bottom of the tyre flattens out and, at a given degree of deformation, the magnet in the well prints an alarm message on the "tape" in the tread of the tyre. The tyre continues to revolve, resumes its normal shape, so bringing the alarm message within the detection range of the probe in the mudguard. This triggers off an alarm. An immediate application is envisaged for all types of single-axle trailers.

A MAGNETIC SCREW DEVELOPED

Koyo Kikai Kogyo Co. Ltd. (Japan) has developed a magnetic screw for replacing ball screws. The shaft and nuts move with no contact so that less noise is generated compared with ball screw. The magnetic screw requires no lubrication and can thus be used in a clean room.

HIGH T_c DATABASE ESTABLISHED

The National Institute of Standards and Technology (NIST) (USA) has established a database that contains property data for oxide superconductors, including those derived from Y-Ba-Cu-O. The database provides the user with material properties such as T_c , j_c , H_{c2} , thermal and mechanical properties and crystallography. The cost is US\$265.00. Fax: 301-926-0416, e-mail: srdata@enh.nist.gov.