



Steel Rebar Corrosion Protection

Recent field test results of **Zinc-Hydrogel Anode 4727** from 3M have confirmed its ability to provide long-term electrochemical protection against the steel rebar corrosion that causes deterioration of concrete structures. Independent tests conducted on a Ft. Pierce, Fla. bridge over a 33-month period demonstrated that product performance consistently exceeded standards set by the National Association of Corrosion Engineers.



3M Zinc-Hydrogel Anode 4727 consists of a zinc foil coated with a pressure-sensitive hydrogel adhesive capable of conducting ionic current. After covering the surface of the concrete with the product, installers wire it through the concrete to the rebar grid, allowing passage of electric current from the zinc foil to the steel rebar. Through the transfer of electrons, the zinc acts as a corroding anode, allowing the rebar to function as a cathode, protected from corrosion. The zinc slowly sacrifices itself to maintain the integrity of the rebar and the concrete it supports.

Zinc-Hydrogel Anode 4727 requires no external power source, costly electrical work, or monthly monitoring in order to provide the proper amount of current. The extended life of the product is the result of both the unique hydrogel adhesive, which actually increases in peel strength over time, and the zinc anode's low consumption rate, which decreases substantially during the first year of use.

For more information: 3M Industrial Tape and Specialties Division, tel: 800/567-1369, ext. 8021.

Video Measuring System Offers Advanced Functions

A series of video measuring products designed to offer easier operation, faster throughput rates, advanced functions such as comprehensive 3D surface analysis, and new software to improve workflow is now offered by Nikon. The **NEXIV video measuring system** has an optional through-the-lens (TTL) laser autofocus that

allows 3D surface analysis using Nikon's proprietary Bird's-Eye View software. This program allows scanned data provided by the laser autofocus system to be plotted quickly, accurately, and reliably in a three-dimensional format, then 3D shape analysis and 2D cross-section analysis can be performed.

Intelligent search functions help with alignment to keep fixturing costs low. The auto position search function automatically searches for and identifies key features. The multi-pattern search function automatically corrects for part-to-part variation along with deviations in expected edge or feature locations, and does pattern matching measurements to determine the best coordinates for complex shapes. Other advanced imaging techniques help in image processing and defect review.

For more information: Nikon Inc., Measuring Department, 1300 Walt Whitman Road, Melville, NY 11747; tel: 800/52-NIKON, ext. P0061; web: www.nikonusa.com.

Pocket Size Hardness Tester

A versatile hardness tester that can be used for on-site testing of large bulky parts, incorporation in a production line, or testing assembled components to eliminate costly disassembly has been introduced by Krautkramer. The new **DynaPOCKET** is a compact rebound hardness tester, which conforms to ASTM Standard A956-00. The unit measures 1.5 by 6.7 in. (38 by 170 mm) and weighs 7 oz. (200 g).



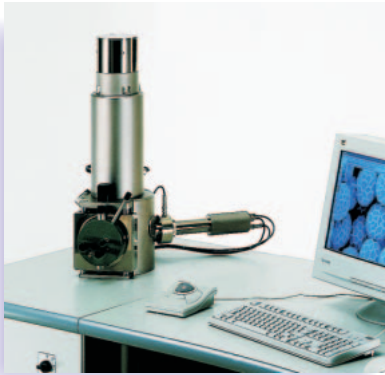
The DynaPOCKET allows the user to select a material from one of nine material groups, convert the measured HL value to a HV, HB, HS, HRB, HRC, and N/mm² scale, and display individual or average values. Its patented signal processing overcomes gravitational effect to provide reliable measurements regardless of testing direction. It is not necessary to manually input the test direction prior to testing or adding a correction factor to the displayed value.



For more information: Krautkramer Branson, Inc.; 50 Industrial Park Road, Lewistown, PA 17044; tel: 717/242-0327; fax: 717/242-2606; e-mail: infolink@krautkramer.com; web: www.krautkramer.com.

Scanning Electron Microscope Offers Unique 4-lens Column

CamScan USA has introduced the VEGA Series Scanning Electron Microscopes (SEM). Offering the latest technology in computer-controlled microscopy, the VEGA has a 4-lens column that provides 3.5 nm resolution plus user-selectable imaging modes: resolution, depth, field, and fish-eye.



Three versions are available: conventional (hi-vac operation), variable pressure (up to 50 Pa), and environmental (up to 500 Pa). The VEGA is priced to appeal to the budget-conscious laboratory.

For more information: CamScan USA, 508 Thomson Park Dr., Cranberry Twp., PA 16066-6425; tel: 724/772-7433; fax: 724/772-7434; e-mail: info@camscan-usa.com; web: www.camscan-usa.com.

Video Probe Features Remote Focus and Four-way Articulation

A new, flexible waterproof video probe, which is the first video probe to feature a remote focus and which also has four-way articulation for maximum performance and control is now available from Lenox Instrument Company. VIEW-A-PIPE AR permits close visual inspection inside pipe, tubing, castings, cylinders, engines, and equipment chambers having an inside diameter as small as 0.500 in. (the probe's outside diameter is 0.433 in.). The flexible, waterproof videoprobe has 150 mm bending radius, and is available in working lengths up to 33 ft. (10 m).

The unique remote focus capability offers a major time-saving advantage for applications that require the inspection of connected pipe and chamber areas having vastly different interior dimensions. The manual focus

can be adjusted anywhere from zero to infinity, assuring the user of crisp, clear images regardless of the probe's distance from the chamber wall.

The videoprobe's standard direct-viewing head provides a 55° field of view. A variety of interchangeable viewing heads are available, including direct wide, direct telephoto, and right angle.

Other features and specifications include CCD chip technology and integrated, fiber-optic, cold-light guide, which enables inspection inside dark interiors of gas and diesel engines, aircraft fuselages, heat exchangers, pumps, valves, and other chambers. A color monitor is included for group viewing of the inspected area. The system also features an advanced video processor, monitor, and light source engineered in a single compact enclosure.

For more information: Lenox Instrument Company, Inc., 265 Andrews Road, Scottsville Industrial Park, Trevoise, PA 19053-3427; tel: 800/356-1104 or 215/322-9990; fax: 215/322-6126.

Impact Testing Series Tests Wide Range of Impact Energies and Velocities

New state-of-the-art impact test systems that provide technologically advanced solutions for testing a wide range of impact energies and velocities have been announced by Instron Corporation's Dynatup instrumental impact testing division. The Dynatup 9250 Series automatically determines and conveniently adjusts the drop height required for the input impact energy or impact velocity.

The Dynatup 9250 Instrumented Impact Test Systems are powerful drop weight systems that perform impact simulation, penetration, Izod, Charpy, and rebound testing for energies up to 1300 joules (960 ft-lbs). Because of an exclusively designed Instron Dynatup crosshead, drop weights are easily changed within minutes without using multiple tools. A spring assist feature allows for higher velocity tests to be performed without increasing instrument height or necessitating air pressure lines. Available for a wide range of testing requirements, the new series has a variety of interchangeable tups, strikers, fixtures, and environmental chambers.

The series features the Windows-based Impulse Data Acquisition and Analysis System. Used for computer control, data acquisition, and analysis of impact tests, this instrumentation package runs on Dynatup and other brands of drop weight and pendulum impact test



Product News

Dynatup 9250 Series *(continued)*

instruments. The software allows for quick graphic display of load, energy, velocity, time, or deflection within seconds of a test.

For more information: Instron Corporation, 100 Royall Street, Canton, MA 02021-1089; tel: 781/575-5000; fax: 781/575-5725; web: www.instron.com.

Universal Microscope Optimized for Metallurgy, Topography, and Materials Microscopy

The Axioplan 2 Imaging universal microscope, introduced by Carl Zeiss, features the patented "Light Trap" system that captures stray light, minimizing interference and improving contrast.



A newly-designed eight-position turret with an unrestricted field of 25 mm saves times during sample screening.

A push-and-click filter changer enables quick filter

selection without tools. The filter sequence can be matched to the sequence of the experiment in seconds, with no need to refocus after a filter change.

The AxiVisionControl software controls all microscope functions. The system is ideal for multi-user environments as each user can save 20 most frequent settings and activate them by pushing a function key.

Axioplan 2 Imaging is offered with the AxiVision software, making it a complete digital microscopy system. The software enables easy digital image acquisition through a variety of cameras, from standard video cameras to high-resolution integrated digital cameras. The digital images can be optimized in contrast, brightness, and color. Text and graphics can be added. The images and microscope parameters are managed in an image archive and are always available for further processing or communication through modern media. Software packages are offered for grain-size analysis in metals, purity assessment, analysis of cast iron, particle-size analysis in powdered materials, and many more such applications.

For more information: Carl Zeiss, Inc., Microscopy and Imaging Systems, One Zeiss Drive, Thornwood, NY 10594; tel: 800/233-2343, ext. 7859; e-mail: micro@zeiss.com; web: www.zeiss.com/micro.

Case Study - Explosion of the Terra Ammonium Nitrate Plant, Port, Neal, Iowa

(continued from page 24)



Full scale neutralizer tank test with ammonium nitrate

without substantial shrapnel damage; detonation in the RDT occurred at almost the same time as the neutralizer and blew that portion of the RDT wall away before neutralizer shrapnel arrived. The large draft tube fragment size indicates that the liquid AN surrounding most of the draft tube elevation in the neutralizer did not detonate. The splash dome, which was in foam at the time of detonation, was also fragmented extensively.

- AN decomposition was accelerated by low pH, high temp-

erature, chlorides, chromium, and stagnant conditions. The Port Neal neutralizer AN was heated to high temperatures, at low pH caused when the nitric acid line was blown out into the neutralizer without subsequent neutralizing with ammonia, and held in a stagnant condition for an extended time period. Excessive chloride content was found in several of the plant product streams. Because the AN solution at Port Neal was contaminated with chloride and had low pH, decomposition occurred with much less heating.