

Battelle Says Defense Spending Will Dominate R&D in 2005

Total research and development funding in the U.S. will increase this year by approximately 3.6 percent to \$312 billion over the \$301 billion estimated for 2004, according to Battelle's *R&D Magazine* annual funding forecast.

The principal driving force will be the expenditures by the federal government, estimated to increase by almost six percent to \$98 billion over the \$92 billion in 2004. The increase is primarily influenced by increases in spending by the Department of Defense (DOD). Although other federal sectors show greater percentages in increased funding, the sheer magnitude of the DOD budget will dominate the 2004-05 shift, the report said.

Private industry will continue to be the principal supporter of R&D, as it has been for the past 25 years. But, the increase for 2005 is expected to be a little less than two percent, representing basically no change in real dollar outlay. Private industry is expected to fund \$191 billion in R&D over the \$187 billion estimated for 2004, continuing a trend of flat funding that has been in effect for about the past four years.

The academic and other non-profit sectors taken together will see increases of approximately 8.6 percent in total funding from the \$21 billion funded in 2004 to the nearly \$23 billion expected this year.

The 2005 forecast marks the 42nd year that Battelle has issued one. According to the predictions, major R&D opportunities on the horizon are:

- **Materials technology:** The development of new classes of materials that can survive in hostile environments (such as medical implants; deep sea; and ultra-high temperature, high radiation or highly corrosive situations) as well as being higher strength-to-weight replacements, as in energy saving applications.
- **Medical diagnostic imaging:** The expansion of techniques for rapid and less expensive, non-invasive medical diagnostics methods, with emphasis on obtaining and interpreting images.
- **Information mining and assessment:** The development and expansion of tech-

Test Your Plating I.Q. #404

By Dr. James H. Lindsay, AESF Fellow

Alloy Plating

1. Zinc-nickel alloy has been used in electrogalvanizing applications. Name three other plated zinc alloys that have seen significant use.
2. When cyanide chemistries for the alloying metals were in widespread use, tin alloys with those metals were plated rather easily. Why?
3. Two conditions are essential for the codeposition of two metals as an alloy. What are they?
4. Plated white brass saw major interest rise during the Korean War and decline rapidly thereafter. Why? What is the composition of white brass?
5. What is the general effect of increasing the current density in an alloy plating bath?

Answers on page 45

niques for the gathering and mining of information in a wide range of topics, and the capacity to rapidly analyze content.

- **Environment:** the management of the environment, including, but not limited to, the reduction of factors that contribute to global warming.
- **Energy production and distribution:** Renewable and/or low-waste production, including nuclear options, bioenergy, hydrogen and fuel cells.
- **Medical technology:** Emphasis on the development and deployment of methods for diagnostics and therapeutics and including devices, feedback systems, early-warning systems, and emergency response equipment.
- **Anti-terrorism technologies:** Identification, isolation and deactivation of materials, systems, devices and the like that can produce physical, economic and psychological disruption. Also, the development and deployment of a wider array of hardening devices or approaches so as to minimize the impact of adverse activities.

The full report appears in the January issue of *R&D Magazine*.

European Coatings Show Set for April 26-28

The European Coatings Show and Congress 2005 will be held April 26-28 at the Exhibition Centre, Nuremberg, Germany. The last time the event was held in 2003, the event attracted 650 exhibitors from 35 countries, and 16,000 visitors.

Products and services for the production of coatings, paints, sealants, construction chemicals and adhesives will be on display. In addition, a complete technical program and supporting events are scheduled in conjunction with the exhibit.

For more information on the congress contact: Vincentz Network, Events Division (+49(0) 5 11.99 10-2 76; events@coatings.de).

For information on the exhibition, contact: NürnbergMesse GmbH, visitor information (+49 (0) 9 11.86 06-49 00; besucherinfo@nuernbergmesse.de).

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Company News

❑ In what could be a sign of increased activity in the semiconductor industry, ECI Technology, Inc., East Rutherford, NJ, says it has seen an increase in demand for its proprietary chemical monitoring system for electroless bath control. The company says increase orders have come from Asia, but also noted new interest from domestic U.S. chip manufacturers and some in Europe.

ECI Technology is a supplier of chemical monitoring systems for control of electroplating and electroless deposition solutions.

❑ Kolene Corporation, Detroit, MI, has announced that EIC Group USA, Lewisville, TX, will sell and distribute its low-temperature proprietary product for removing paint and other coatings. The product is used for cleaning ferrous and non-ferrous substrates.

❑ FKI Logistex has opened a new regional office in Mexico City, Mexico. The facility will provide service and support to the company's customers throughout Mexico and Latin America. FKI Logistex is a supplier of automated material handling systems for industry and other applications.

Answers to I.Q. Quiz #404

1. Zinc-iron, tin-zinc and brass. Others with limited use or slow acceptance are white brass and zinc-cobalt.
2. It can be traced to the ease with which alkaline stannate solutions can be mixed with solutions of the cyanide complexes of the other metals, including zinc, copper, silver and gold.
3. (A) One of the metals must be capable of being deposited alone. (B) Their deposition potentials must be reasonably close together.
4. It was a viable substitute for nickel during the days of heavy demand for decorative copper-nickel-chromium automotive finishes. White brass is nominally 28%Cu/72% Zn.
5. The composition of the less noble metal (*i.e.*, more active) metal will increase. For example, the zinc composition would be expected to increase in brass.

In Memoriam

AESF was saddened to learn of the death of Dr. Tadoa Hayashi of Japan. He died January 13, 2005, at his home in Nara City. Dr. Hayashi was Professor Emeritus at Osaka Prefecture University.

PUBLIC AUCTION

THURSDAY

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10:30 AM

By Order of Board of Directors

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PLATING LINES - #7 Napco 140-Station Carousel Rack Dip Type; (NEW-Never Used) Lefort 27-Station Hoist Type; #6 Hanson Van Winkle 56-Station Electroless Pre-Plate Carousel Rack Dip Type; #3 Hanson Van Winkle 44-Station Hyd. Pre-Plate Electroless Carousel Rack Type; #5 M&T 70-Station Hyd. Carousel Rack Type; #1 Hanson Van Winkle 78-Station Rack Type; **WASTE WATER TREATMENT SYSTEM** - **LASERS** - (2001) GSI Lumonics 1400 w/Seiko D-Tran Robotic Loader; (2002) Robotic 12-Station Loading & Unloading; (1997) GSI Lumonics Hm1400; Hi-Mark Laser; GSI HM400; (2) Lumonics HM1400; Hi-Mark Laser On Mill Base; **PAINT SPRAY LINE** - (26) **POLISHERS** - Packer & Acme 96"-24" Rotary; (27) **INJECTION MOLDERS** - 80-500 Ton; **AIR COMPRESSORS & BOILER** - **FORKLIFTS & ROLLING STOCK** - **MACHINE SHOP**

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