Heavy metals are present naturally in relatively low amounts in the earth's crust. Through food, drinking water and the air, humans absorb trace amounts of these elements. Trace amounts of some heavy metals, such as selenium, zinc, and copper, are key to maintaining the metabolism of the human body. At high concentrations usually found in contaminated environments, such as industrial waste areas and contaminated water, heavy metals can cause poisonings resulting in impaired mental and central nervous function, as well as damage to vital organs. Long-term exposure may result in slowly progressing physical, muscular, and neurological degenerative conditions including cancer.

Arsenic, cadmium, mercury, lead and inorganic tin account for a majority of heavy metal poisoning cases involving food products. Levels of arsenic are naturally high in fish and seafood. Found in soil due to the presence of insecticides, fungicides, sludge and commercial fertilizers, cadmium can contaminate agricultural food products. Mercury is an industrial pollutant as well as a by-product of volcanic emissions. In recent years, a number of products, ranging from protein shakes to baby formula to fresh produce, have been linked to heavy metal contamination. Spurred by consumer calls for safer products, regulatory agencies around the globe are taking steps to detect and minimize the presence of hazardous heavy metals in food.

The European Union has established maximum allowable concentrations for heavy metals in foodstuffs. The Food and Drug Administration (FDA) enforces action levels for poisonous or deleterious substances in human food and animal feed, including cadmium, lead, mercury, and others. Earlier this year, two U.S. congressional members forwarded a letter to the FDA calling upon the agency to establish maximum allowable levels of heavy metals, including arsenic, in food and beverages.

At present, arsenic in apple juice may best capture growing concerns over the prevalence of heavy metal contamination throughout the food chain. Arsenic is present in the environment in two general forms, organic and inorganic. Because organic arsenic passes through the body quickly, the FDA states it is essentially harmless. However, inorganic arsenic, which is usually found in pesticides, can be toxic and pose health risks if consumed at high levels over an extended period. The agency currently uses 23 ppb as a guide to determine whether apple juice is contaminated. However, a number of consumer groups believe the agency's level is too high and criticizes the FDA for not stringently enforcing the 23 ppb level.

In response to increasing concerns, the development and refinement of analytical methods have made possible the detection of heavy metals at extremely low levels in foods. Silliker now offers testing for inorganic and...
Coca-Cola System Announces New $3 Billion Investment in India

Coca-Cola India announced that the Coca-Cola system will invest an additional $3 billion in India through 2020 to further capture growth opportunities in the country’s fast-growing non-alcohol ready-to-drink (NARTD) beverage market. With the new investment, the Coca-Cola system now plans to invest $5 billion in India through 2020, the company noted.

“Achieving continued sustainable, responsible growth in India is core to achieving our 2020 vision of doubling system revenues this decade,” said Muhtar Kent, chairman and chief executive officer of The Coca-Cola Co., Atlanta, in a released statement. “Our ongoing investment in India is focused on delivering innovation, partnerships and a portfolio that enhances the consumer experience, ensures product affordability and builds brand loyalty to deliver long-term growth.”

The Coca-Cola Co. and its bottling partners have robust plans to capture growth in India with investments in innovation, expansion of distribution network, cold drink equipment placement and augmentation of manufacturing capacity, according to the company.

The announcement brings the company’s total investment to $7 billion since it re-entered the country in 1993. The Coca-Cola India system currently directly employs more than 25,000 people and is estimated to have created indirect employment for more than 150,000 people in related industries through its vast procurement, supply chain and distribution system.

Source: www.beverageindustry.com

Silliker Exhibits “Best of Both Worlds” at 2012 Annual Meeting of the Institute of Food Technologists in Las Vegas, NV

Silliker, Inc., the leading provider of food safety and quality services, highlighted its expanded chemistry and sensory evaluation capabilities at the 2012 IFT Annual Meeting and Food Expo, June 25-28, in Las Vegas, NV.

“With the opening of our Sensory Technical Center in April and the completion of the Silliker Solution Center next month, this has been an exciting period of renewal and growth,” said Johannes Burlin, Silliker NA President. “We are making significant investments to further solidify our position as the food safety and quality partner of choice for companies throughout the global supply chain.”

As part of a Silliker “Best of Both Worlds” theme at this year’s show, attendees gained an insightful look at the company’s newest chemistry and sensory offerings.

The Silliker Solution Center, built on 11-acres in suburban Chicago, will be the largest Silliker food testing laboratory in the world. At over 71,000 square-feet, this state-of-the-art center will facilitate the expansion of the company’s chemistry capabilities, particularly instrumental analysis of contaminants.

**A special grand opening celebration for the Silliker Solution Center will be held on September 19, 2012.**

Located in Bentonville, AR, the Sensory Technical Center provides descriptive analysis and consumer research studies employing current methodologies, trained panelists, test controls and statistical interpretation. The redesigned facility features enhanced sample storage and preparation areas, soundproof booths with sliding door pass-throughs, positive airflow, and a panelist training room. A dedicated laboratory for physical testing is also housed in the 11,800 square-foot operation.

**Silliker “Final” Clue...**

**In Sharper Focus:** The Silliker Solution Center, located at in Crete, IL, will be the largest analytical and R&D facility in the company’s international network of laboratories when it opens in August.
Canada Issues Sodium Reduction Guidelines
The majority of Canadians exceed the dietary recommendations for sodium, and over 75% of sodium consumed by Canadians is derived from commercially processed foods, according to Health Canada. Addressing public health concerns associated with excessive sodium, Health Canada recently released a guidance document to drive food industry efforts to reduce sodium in processed foods to achieve an intake goal of 2,300 mg per day by 2016.

Canadian food manufacturers are advised to reformulate foods containing added sodium using Health Canada’s Guiding Benchmark Sodium Reduction Levels for Process Foods, which were developed in consultation with the industry. Health Canada’s guidance suggests specific sodium target levels for all processed food categories intended for consumers, other manufacturers, food service and restaurants. If food manufacturers prefer to gradually reduce sodium levels in processed foods, the guidance provides recommendations for the multi-stage reduction of sodium to meet the target goal. Canadian food manufacturers are urged to reduce sodium to the lowest level possible with proper consideration for ensuring microbial safety, quality and consumer acceptance.

Safe Food for Canadians Act
Legislation recently introduced in Canada seeks to streamline food regulations and strengthen oversight of all regulated food commodities, both domestic and imported. To achieve these goals, the Safe Food for Canadians Act (Bill S-11) will consolidate the authorities of several Canadian food statutes, excluding the Food and Drugs Act, which will permit a more consistent approach to food safety. While details of the regulatory provisions are under development, additional major elements of the legislation include:

- Farm to fork’ traceability system;
- Standardize inspections across all food commodities;
- Expand federal authority to recall food products;
- Increase maximum penalties for food safety violations to $5 million; and
- Improve import controls, including the authority to register or license importers

The Canadian government suggested the law would align federal food regulations “more closely with those of our trading partners, such as with the Food Safety Modernization Act in the United States.” As FSMA required years to navigate the U.S. legislative process, the Canadian Act is now beginning its journey through the legislative process.

Molecular Serotyping Method for Salmonella
USDA Food Safety and Inspection Service (FSIS) labs will begin using the Centers for Disease Control and Prevention (CDC) molecular serotyping method for the detection of selected Salmonella serotypes. The molecular method is presented as a rapid and accurate alternative to traditional serotyping. In cases of discrepant results or the detection of serotypes not listed within the FSIS MLG method, traditional serotyping would be employed. As expected, Salmonella serotypes to be reported using the CDC molecular method were responsible for foodborne illness outbreaks in recent years involving meat and/or poultry products, including the antibiotic-resistant Salmonella Heidelberg, Newport and Hadar.

The non-therapeutic use of antibiotics in food producing animals has become a contentious issue for industry, consumers and government.

FDA to Reconsider Antibiotics in Feed
Scientific evidence suggests the overuse of medically important antibiotics in food producing animals has led to the emergence of antibiotic-resistant bacteria and jeopardized the effectiveness of antibiotics for humans. In recent years, the non-therapeutic use of antibiotics in food producing animals has become a contentious issue for industry, consumers and government. To resolve the debate and alleviate public health concerns, the USDA issued guidance last year advising the industry to voluntarily discontinue the use of antibiotics for non-therapeutic uses within three years and to implement “judicial use” principles for antibiotics. Despite the new voluntary policy for antibiotic use, a federal judge recently ordered the FDA to re-evaluate the safety risks of the petitioned antibiotic drugs for animals, and to issue final decisions regarding the safety of specific antibiotics. The federal court ruling was in response to legal petitions filed in 1999 and 2005 by advocacy groups seeking an end to all non-therapeutic uses of medically important antibiotics in food producing animals. The FDA is expected to appeal this ruling.

Earlier this year, U.S. Rep. Louise Slaughter (D-N.Y.) challenged more than 60 food companies to disclose their policies on antibiotic use in meat and poultry production. She previously introduced the Preservation of Antibiotics for Medical Treatment Act to Congress in an effort to prohibit the use of antibiotics as growth promoters in healthy animals and to permit the FDA to withdraw animal drugs associated with public health issues.

Heavy Metal Contamination
Continued from page 1

organic arsenic in fruit juices, as well as a number of other food product matrices, employing HPLC interfaced with ICP-MS for the separation and detection of different arsenic compounds. The detection limit in liquids is 1 ppb for each species, whereas solids is 5 ppb.

Heavy metals are a leading health concern and companies, particularly exporters, should implement comprehensive testing programs to assure product safety.

Sources:
1. www.lef.org/protocols/health_concerns/heavy_metal_toxicity_01.htm
2. www.fda.gov/Food/FoodSafety/FoodContaminantsAdulteration/Metals/ucm280755.htm
COMPANY PROFILES

Walter Brandl, BSc.
Chemistry Operations Manager, Silliker Canada Co.

Walter Brandl has two decades of industry experience as an analytical chemist, quality assurance officer, training professional and laboratory manager. During his career, he has managed testing facilities throughout Canada and possesses extensive expertise in laboratory quality systems. He has served on the BC Laboratory Quality Assurance Technical Subcommittee and as a Lead Assessor for the Canadian Association of Environmental Analytical Laboratories. Prior to joining Silliker in Burnaby, BC, Walt served as Environmental Chemistry Manager at Cantest Laboratories, Operations Manager at Norwest Bodycote Surrey Laboratory and Operation Manager for the Canadian Food Inspection Agency. A highly respected lecturer on food safety and chemistry methods, Walt holds a BSc. degree from Simon Fraser University.

Question: Will we see a day when there will be internationally recognized maximum limits for heavy metals in food products? Walt: I think we are well on our way to regulated Maximum Residue Limits for metals in virtually all food products. Metals are a little different form other contaminants in that they are naturally occurring so can show up in unexpected sources.

Question: Are there any emerging heavy metals of note that are gaining attention in the food industry? Walt: Arsenic seems to be the latest concern as it naturally occurs in very common food sources such as rice and seafood.

Question: How many elements from the Periodic Table should a good chemist be able to cite from memory? Walt: It depends on the chemist's area of expertise. Organic chemists may only memorize 25% of the elements, while an inorganic or trace metals chemist may know symbols and atomic masses for almost the entire table.

Silliker Calendar

IAFP Annual Meeting
July 22
Join Silliker team at booth (#608) at the 2012 Annual Meeting of the International Association for Food Protection. The meeting provides attendees with information on current and emerging food safety issues, innovative solutions to new and recurring problems, and networking opportunities with food safety professionals from around the globe. Visit the Silliker booth to learn more about our testing, R&D, consulting, auditing, and sensory evaluation capabilities.

Implementing SQF Systems Training - Edition 7
July 26
This two-day course will help attendees gain a thorough understanding of SQF concepts, principles and application requirements. This offering provides participants with a solid foundation enabling the implementation of an effective Food Safety and Quality Management System meeting SQF requirements. Silliker, Inc. is a licensed Safe Quality Food Institute Training Center. Log on to www.silliker.com to obtain more information and register.

Webcheck: Our new NA Chemistry Capabilities Catalog is now available. To request an in-person consultation on our expanded chemistry services and receive a free catalog, go to http://info.silliker.com/industryinsights/.

- Chemistry Catalog Consultation
- Education Catalog
- Sensory Evaluation Service Sheet

Insight End Point: “A man with a new idea is a crank until he succeeds.” – Mark Twain