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CIAC Biomonitoring Position Statement

Introduction

Scientists have long understood that our bodies can absorb substances from the environment. Today, because of advances in analytical chemistry, researchers are able to measure extraordinarily low levels of natural and man-made substances in human fluids and tissues (such as blood, breast milk, urine and hair) – often as little as one part per billion (the equivalent of a single drop in an Olympic-sized swimming pool).

Biomonitoring studies use tissue and fluid analyses to assess participants' exposures to natural and man-made substances from the environment, the magnitude of those exposures, and – if the studies are repeated over time – how exposures may have changed over the years. As biomonitoring technology advances, more information is available to help public and private sector scientists, medical professionals and policy-makers to enhance public health, community well-being and worker health and safety.

Like all potentially useful tools, biomonitoring has limitations. Trace levels of natural or man-made substances may enter our bodies through a variety of routes, including eating, breathing, drinking, and contact with our surroundings. They may also be generated internally through natural processes such as metabolism. Biomonitoring provides a snapshot of those substances present in the body at a single point in time, but it does not tell us where a detected substance came from, when the exposure occurred, or whether there will be any health effects. Biomonitoring can, however, help improve public health decisions when it is part of an integrated strategy that not only identifies exposure to a substance, but also assesses the potential health risk involved.

For these reasons, biomonitoring data must be understood and presented in context. As the U.S. Centers for Disease Control and Prevention has emphasized: "The presence of an environmental chemical in people's blood or urine does not mean that it will cause effects or disease. The toxicity of a chemical is related to its dose or concentration in addition to a person's individual susceptibility. Small amounts may be of no health consequence, whereas larger amounts may cause adverse health effects." ¹

The Chemistry Industry Association of Canada (CIAC) supports the development of exposure information that enables risks to be assessed and managed.

CIAC supports the use of biomonitoring studies as a way of obtaining exposure information that can be used, in combination with other approaches and methodologies, to provide meaningful risk information and to advance public health. CIAC and its member-companies have long worked to responsibly assess and reduce risk – by initiating programs that promote worker and consumer health and safety, by taking action to reduce emissions, and by participating in collaborative research.

¹ Centers for Disease Control and Prevention. Executive Summary, *Fourth National Report on Human Exposure to Environmental Chemicals*. CDC; 2009.(p.2.)

http://www.cdc.gov/exposurereport/pdf/FourthReport_ExecutiveSummary.pdf

The Chemistry Industry Association of Canada supports science-based biomonitoring programs.

As scientific endeavours, biomonitoring programs should always be grounded in sound scientific and public health principles. The purpose of collecting biomonitoring information should be clearly stated, and the process for selecting substances should be based on accepted, scientific, public health criteria, and involve appropriate experts. Whether a biomonitoring program is focused on a broad population, or a targeted one, the program design, conduct and results should be science-based, transparent and communicated fully and in context.

CIAC supports government biomonitoring programs such as the Canadian Health Measures Survey, the design and conduct of which are subject to public review by expert scientists, and which rely on validated analytical methods performed by laboratories that adhere to robust quality assurance and control procedures. These programs also provide clear information to the participants to aid their understanding of the results in a health context.

The Chemistry Industry Association of Canada supports the responsible and appropriate use of biomonitoring information in risk assessment and in creating public policy.

Biomonitoring information can be useful in helping to define areas for further research and – when studies are repeated – in identifying exposure trends over time. However, a biomonitoring study only provides information on the level of a substance in the sample at a specific point in time, which, by itself, cannot answer questions about risk or the safety of that substance (or its alternatives). Therefore, biomonitoring programs provide an insufficient basis for taking regulatory action or for making decisions to ban a product or recommend a substitution. There must be a risk-based process for interpreting biomonitoring results, or for using this data for regulatory or other decision-making processes.

To better understand how biomonitoring survey results can be used in population health surveillance, Health Canada and the U.S. Environmental Protection Agency are supporting studies to establish biomonitoring equivalents – the blood or urine levels of chemicals, or their metabolites, that correspond to “exposure guidance values” of a substance (estimates of chemical exposure that are believed to be without appreciable human health risk). While establishing these equivalents would allow environmental health professionals to assess population-level biomonitoring data for potential public health risks, biomonitoring equivalents are not intended to be used to evaluate individual biomonitoring results, nor should they be used for diagnostic purposes.

The Chemistry Industry Association of Canada supports the appropriate interpretation and communication of biomonitoring information to promote risk-based decision making.

The simple presence of trace levels of a chemical in the body could mistakenly be interpreted as creating a health risk, leading to unwarranted alarm. For that reason, CIAC believes it is incumbent upon government agencies conducting biomonitoring studies to responsibly interpret the biomonitoring information that they develop, and to disseminate and communicate it in a public health context. The Chemistry Industry Association of Canada encourages collaborative efforts among government and private entities, professional associations, and medical and scientific experts, in order to achieve this objective.

Finally, CIAC encourages industry members whose products are, or may be, included in a reliable human biomonitoring program to develop and disseminate information about those chemicals, in order to promote both informed public health decision-making, and effective, risk-based communication of the meaning of biomonitoring findings to the public.