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Makers of OilSorb™ and Other State-of-the-Art Filtration Media

Technical Advisory #31

Endocrine Disrupting Compounds (EDC's) reduction with sorbents

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George Alther, President

Biomin Inc. www.Biomininc.com Ferndale, MI, U.S.A.

Eliminating EDC's with sorbents

The rule of thumb to use is that for EDC's with solubilities lower than benzene, organoclay should be used as a pre-polisher. Solubilities higher than benzene require activated carbon. In most cases, pre-polishing with organoclays such as Biomin OILSORB or straight organoclay is appropriate to save the customer cost on activated carbon. Solubilities close to water, such as the light alcohols (isopropyl alcohol, methanol) require an oxidizer such as hydrogen peroxide or ozone.

Background on EDC's

Endocrine disrupting compounds (EDC's) are defined as any chemical that when absorbed into the body either mimics or blocks hormones and disrupts the body's normal functions. This disruption can happen through altering normal hormone levels, halting or stimulating the production of hormones, or changing the way hormones travel through the body.

EDC's have been of scientific interest for over 50 years in terms of human and environmental health. The potential public health significance of EDC's in drinking water and wastewater has increased emphasis on trying to understand the sources, occurrence, and probability of exposure to levels of toxicological concern. Protecting humans and the environment with sorbents is the RIGHT thing to do.

EDC's are suspected to cause atypical changes in human and animals' normal developmental processes such as decreased fertility and hermaphroditic fish. These abnormal findings are all suspected to stem from increased hormone-like compounds in surface, drinking, and groundwater. Studies today are finding common substances such as pesticides, laundry detergents, pharmaceuticals and plastics are the cause for these unwanted developments. These chemicals are now being linked to drastic abnormalities found in fish and other animals. Because our endocrine system is the target of these hormone mimicking compounds, effects range from simple reproduction problems to fish and alligators morphing into the opposite sex. The endocrine system works by sending out hormones to various areas of the body, which then attach to receptors triggering the desired result. These hormones are in charge of growth, development, maturation, as well as the way various organs operate.

These deleterious chemicals enter the water in various ways. Some of the more obvious are herbicides and pesticides that are generally applied outdoors. After application, excess can run-off and find its way into surface and groundwater. Because many of these compounds are relatively insoluble, they will attach to various soils or rocks and be able to stay in contact with water for extended periods of time. Hormones and hormone-like compounds have biological activity at extremely low concentrations.

Other exposures are through human waste and landfills. When women consume synthetic estrogens, approximately 50% is actually used up in the body, the remaining amount is excreted and enters water systems through sewage. Landfills also break down many plastics that contain harmful compounds such as Bisphenol A. Many EDC's appear only after breaking down from the parent compounds such as Nonylphenol after its parent ethoxylate has been broken down and degraded. We are still learning details, but we know enough to initiate personal protections.

To see the table associated with this report see The link located at <http://www.biomininc.com/tech31table.pdf>

Recommended Reading

A recommended book on EDC's is Our Stolen Future: Are We Threatening our Fertility, Intelligence and Survival? By Theo Colborn, Diane Dumanoski, and John Peterson Myers.

Need more information

If you need more information contact George Alther at Biomin by E-mail: Biomin@aol.com. If you need a table of the most prevalent endocrine disruption compounds, go to [our website](#), Technical Bulletins #31. George Alther will provide a 3-hour workshop in conjunction with the 20th International Activated Carbon Conference (IACC-20) and courses program. For your convenience a [Registration Form](#) for the workshop on October 19, 2007 near Pittsburgh PA is provided.

George Alther, President of Biomin Inc. will provide workshops on organoclays at the 2007 [International Activated Carbon Conference](#) in Pittsburgh, PA October 14-21, 2007.

Please visit <http://biomininc.com> for additional technical information.

To order OILSORB contact Biomin at Biomin@aol.com

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