

Risk Assessment Counts!

3 Important Things to Know About Assessing Chemicals for Endocrine Risks

The Endocrine Policy Forum (EPF) brings balanced, risk-based analysis to scientists and regulatory decision-makers to ensure chemicals are properly screened, tested and regulated for endocrine activity and the potential to cause adverse health effects.

ENDOCRINE ACTIVITY DOES NOT EQUAL ENDOCRINE DISRUPTION

Some chemicals (natural and manmade) are **endocrine active** – they can interact with the endocrine system. But, interacting with the endocrine system does not necessarily result in adverse health effects. If there are no adverse health effects then the substances are not endocrine disrupting chemicals, a label frequently misused by the media and others.

The vast majority of endocrine active substances produce effects that are either **neutral** or **positive** in nature. The number of substances that have been linked to negative effects – “endocrine disruptors” – are far fewer in number than those which are endocrine active.

Lumping together all substances that can interact with the endocrine system under one label – “endocrine disrupting chemicals” – with no consideration for whether the outcome is positive, negative or neutral, isn't just a **misnomer**; it misrepresents the science.

HAZARD + EXPOSURE TOGETHER DETERMINE REAL-WORLD RISK

At sufficiently high doses and exposures, every substance – even water or caffeine – can cause harm. To understand the actual risk of harm, scientists must consider the **real-world scenarios** in which people interact with these substances.

- **Hazard** refers to the qualitative properties of a substance that make it capable of causing harm under some, but not all, conditions.
- **Exposure** describes the amount of, and the frequency with which, a substance comes into contact with people or the environment.
- **A safe exposure level** refers to the amount and time a person can be exposed to a potential hazard without negative health effects.

In evaluating and regulating substances for safety, scientists must consider whether, when, how and at what levels humans or the environment may actually be exposed. Hazard and exposure *together* determine the actual risk that is posed by the substance. Assessments and conclusions based on hazard characteristics alone are incomplete and not trustworthy.

SOUND DECISIONS ARE BASED ON THE WEIGHT-OF-THE-EVIDENCE

In chemical risk assessment, scientists who follow a **weight-of-the-evidence** (WoE) approach evaluate the totality of scientific evidence to assess if the science supports a given conclusion.

People use WoE when making big life decisions. We consider all the information we can find (**for** and **against**) and apply the best and most consistent information to make our decision.

In science, this approach ensures that the most credible, reliable studies have the greatest influence; acknowledges that some tests and endpoints are more predictive than others; and allows researchers to assess data consistency so outlier studies do not skew conclusions.

This is in stark contrast to a “strength of evidence” evaluation, which considers only a subset of the evidence, such as focusing only on studies which have found a positive link between exposure to a chemical and a disease or adverse condition.