

Hazard Banding and Occupational Exposure Limits



Our Experience & Expertise

Cardno ChemRisk has an extensive and robust OEL and hazard banding program that can provide a systematic, customizable, evidence-integrated approach that is based on the latest knowledge and research in the field. Our team has:

- > Derived hundreds of OELs for many clients from diverse sectors.
- > Served directly on work groups developing the OEL derivation and hazard banding methods.
- > Established dermal hazard banding schemes and OELs for a diverse array of chemicals.
- > Set OELs for chemicals that elicit sensory irritation, systemic effects, or that present unique challenges, such as allergens and enzymes.
- > Applied state of the science modelling for control banding decision making.

These and other related methods (**Figure 1**) can be leveraged for several purposes, including to **(1)** support a company's product stewardship program, **(2)** facilitate the development and implementation of a comprehensive approach to risk management, and **(3)** assist in maintaining regulatory compliance.

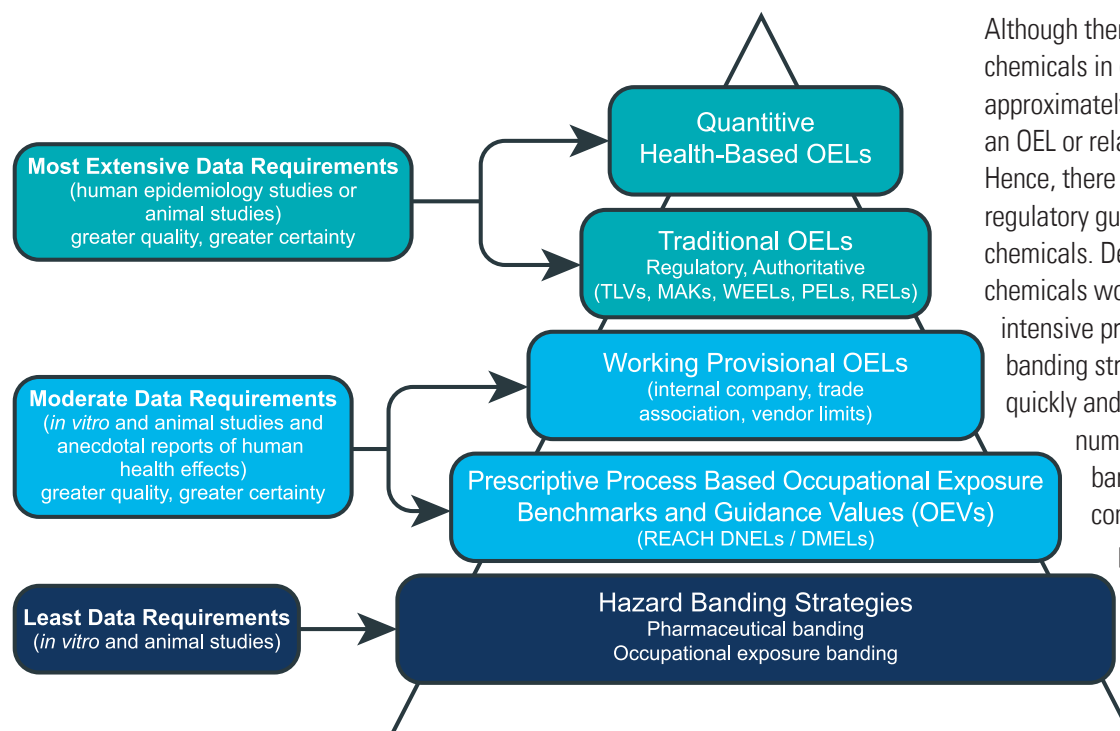


Figure 1: The Hierarchy of OELs. Adapted from: [Laszcz-Davis et al. 2014; Deveau et al. 2015] <https://www.cdc.gov/niosh/topics/oeb/purpose.html>

OELs

The landscape of published OELs is complex, in part, because they are derived by multiple regulatory agencies, research groups, and trade groups/associations, often using different methods. Furthermore, OELs can exist in the form of working provisional OELs, regulatory OELs, or recommended health-based OELs as illustrated by the hierarchy of OELs. Given the complexity surrounding established OELs, it is imperative that companies implement a strategic approach for the prioritization and selection of OELs.

Hazard Banding

Although there are an estimated 600,000+ chemicals in global commerce today, only approximately 5,000 of these chemicals have an OEL or related published exposure limit. Hence, there is a lack of chemical-specific regulatory guidance for the vast majority of chemicals. Developing OELs for all of these chemicals would be a time- and resource-intensive process. For this reason, hazard banding strategies can be used to more quickly and systematically assign a large number of chemicals to "exposure bands" that correlate with specific concentration ranges intended to protect worker health.

What makes us different?

Our evidence-integrated approach to protect worker health is based in state-of-the-art health risk sciences. Cardno ChemRisk has customized and modified exposure assessments, developed automated hazard and risk screening tools, control banding, and OEL derivation tools across various sectors, including

- > Exposure assessment, hazard assessment, and prioritization of chemicals and complex mixtures
- > Selection, validation, and verification of OELs
- > Implementation of hazard banding strategies for chemicals without existing OELs to aid in risk management decision making

Cardno ChemRisk has customized and modified exposure assessments, developed automated hazard and risk screening tools, control banding, and OEL derivation tools across various sectors, including:

FOOD AND BEVERAGES



PHARMACEUTICALS



ANTIMICROBIAL AGENTS



SPECIALTY CHEMICALS



AUTOMOTIVE MANUFACTURING



RETAIL



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Our team of industrial hygienists, epidemiologists, engineers, toxicologists, and health scientists have extensive experience establishing, tailoring, and optimizing hazard banding schemes and OELs across a wide range of industries, including the private sector, trade associations, and to U.S. and international governmental organizations.

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