Development of an Internal Risk Assessment Tool for Chemical Manufacturers & Users

Client
SI Group, headquartered in Schenectady, NY, is a leading developer and manufacturer of chemical intermediates, manufacturing a broad range of products for use by industrial customers. SI Group requested NYSP2I’s assistance in the development of a risk assessment tool specifically focused on evaluating the environmental footprint of their chemical products. SI Group is interested in identifying and prioritizing products according to their environmental health risk to guide decision making to improve the sustainability of its product portfolio.

Opportunity Area
Environmental and risk assessment tools typically consider the resource usage; environmental, safety, and health hazards of the materials used and the product itself; and the end of life of the product. Many existing tools do not consider those aspects of business risk which also affect the risk of a chemical. Incorporating business risk into the risk assessment framework allows a more comprehensive and realistic risk profile of a chemical to be developed. The resulting risk profile is actionable, as companies can use it as an internal tool to aid in decision making.

Objectives
NYSP2I was tasked to develop a tool to be used internally by SI Group to inform the business of current and potential risks of products in the marketplace. The tool will focus on risk of market or regulatory driven product deselection, risk of regulatory scrutiny, and voluntary programs promoting greener products.

Work Performed
NYSP2I benchmarked the use of risk assessment as it pertains to evaluating chemistries and chemicals throughout the chemical industry. Using the results of the benchmarking study and the materials provided by SI Group, NYSP2I developed a set of potential attributes to be included in the risk assessment tool along with a scoring and prioritization scheme.

Results
A Chemical Product Risk Prioritization Framework was developed by NYSP2I and SI Group to systematically evaluate twelve components of intrinsic environmental health and safety hazard, precautionary risk, and strategic risk associated with chemical substances. The Framework:

- Provides a method to quantify intrinsic, precautionary, and strategic risks of a chemical and identify if the risk is currently or expected to decrease, increase, or stay the same;
- Provides a method for chemical manufacturers to identify high risk substances and prioritize them for action; and
- Incorporates ease of substitution of a chemical, as it is critical to understand how easily product chemical can be substituted with a less risky counterpart.

The Framework ensures companies are spending their time and resources on those chemicals which contribute the most risk and targets those for replacement or reduction first. The Framework can also be used to support chemical product design in the chemical industry as well as other industries which use chemical products.