It is commonly accepted that:

\[ \text{Risk} = \text{hazard} \times \text{exposure} \]

This is a simple way of saying that the degree of risk depends on both the nature of the hazard and the nature of the exposure. A material with a low hazard can pose a high risk if exposure is high. A material with a high hazard can pose less risk if exposure is low.

**Controlling hazards by reducing risk**

Consider the following example:

“Not Too Safe” is used as a rust inhibitor on metal piping. An ingredient of “Not Too Safe” can cause cancer if inhaled. This is the hazard of “Not Too Safe”.

Company K8 has carefully evaluated various types of rust inhibitors and has determined that to get the performance they require, “Not Too Safe” is the best product. The supplier sells “Not Too Safe” in an aerosol container or as a liquid in a can, with brush application. The job can be done more quickly with aerosol application.

**Should Company K8 buy this material as an aerosol or as a liquid?**

This material should be purchased as a liquid. Spray application of the aerosol will result in more airborne exposure. With brush application, inhalation exposure will be reduced or eliminated. The company should also consider implementing engineering controls (e.g. ventilation) and providing respiratory protection for workers depending on how much and how frequently “Not Too Safe” is used.

If the company controls inhalation exposure to this material, they will minimize risk.

K8 should also continue to evaluate alternatives to “Not Too Safe” – with the ultimate goal of purchasing a less hazardous product.

Many chemicals have hazardous properties. A risk assessment considers the hazards, use and potential exposure to the product. Appropriate workplace controls can reduce or eliminate risk by reducing or eliminating exposure.