

**Inherently Safer is Inherently Cleaner:  
A Comprehensive Design Approach**

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**ABSTRACT**

Environmental and safety actions are often at odds with each other. For example, a seemingly benign charcc canister installed to control or prevent flammable emissions may become the source of a fire or explosion. There are many other examples of conflicts that occur when environmental and/or safety standards require retrofitting an existing plant or process. A fragmented approach to design through add-on technology do successfully balance productivity and profits with worker safety and environmental protection.

On the other hand, a comprehensive approach to design, which takes into account these three sometimes-competing factors, yields the best results. For example, inherently safer technologies implemented in the design phase do not create environmental problems, and inherently cleaner technologies do not create safety problems.