

3.5: Conclusions and Review Questions

Conclusions

The opportunity to apply green chemistry to reducing the toxicity in industrial processes is of paramount importance for a sustainable future. In this chapter, we investigated the concept of hazards from the perspective of their meaning, nature, implications, control, and ultimate reengineering. Green chemical principles hold the key to ensuring that society provides a viable channel for all of our physical needs and maintains the environment.

Review Questions

1. Think about the additive impact of hazards from a LD50 perspective. Why would materials with different values not be additive in their cumulative effects on lethality? Can you think of two chemicals, however, whose lethality may be more than the sum of their individual values?
2. Would phosgene be more or less reactive as a function of relative humidity? Why or why not? In a wartime situation, for example, would an opposing army to whom phosgene is being directed favor a low humidity?
3. Can phosgene be reacted with sodium azide in a 1:2 molar ratio? If so, what would be the reaction and product? If not, why not?
4. What do these GHS labels tell us about ammonia? (See Figure 3.5.1)

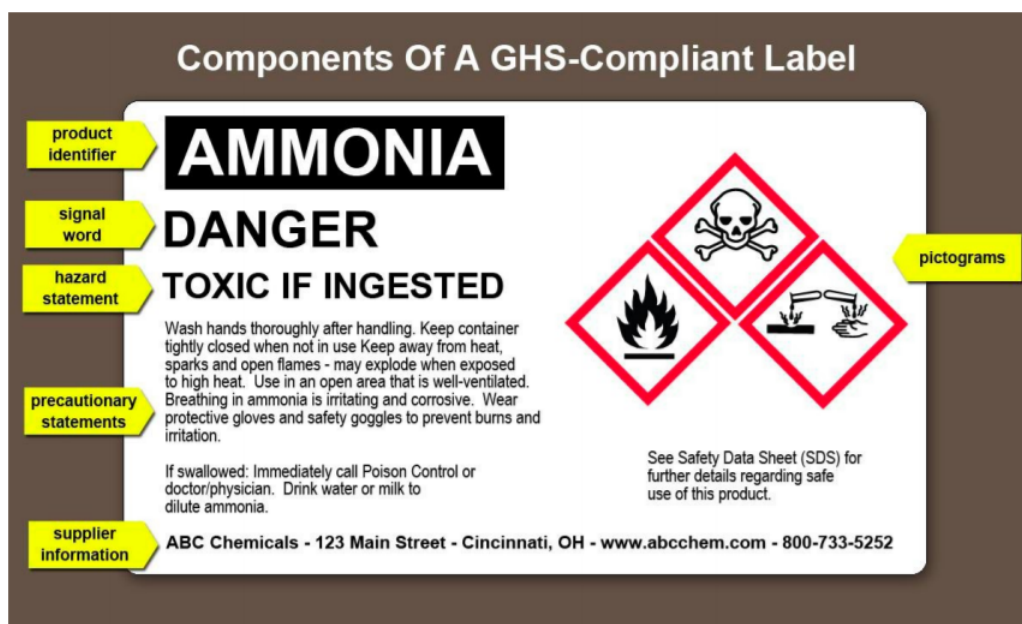


Figure 3.5.1: A label for Ammonia <https://www.general-data.com/about/blog/ghs-compliant-labels-what-are-essential-components>

Further Reading

- blogs.ei.columbia.edu/2014/12...try-theanswer/
- https://play.google.com/books/reader...ec=frontcover&output=reader&hl=en_US&pg=GBS.PP1 (Bretherick's Handbook of Reactive Chemical Hazards: Edition 4, L. Bretherick, October 22, 2013, Elsevier)
- <http://ccc.chem.pitt.edu/wipf/Web/HCH.pdf> (Hazardous Chemicals Handbook)

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