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Simply Mixing Chemicals...

Here's What Happened:



Photo source: Navy Safety Center web site

This picture shows what can happen if the hazards of reactive chemistry are not recognized. A worker was preparing a solution for use and accidentally mixed two incompatible chemicals in a small bucket. A violent exothermic chemical reaction began immediately and generated enough *heat* to boil the material. The hot mixture spewed out of the bucket and splashed on the worker causing serious burns to several parts of his body.

...can be Hazardous to your Health

In the case described above, the worker was the only one injured, but if a similar uncontrolled reaction had taken place in a vessel, what would the result have been?



Reactive Chemistry: What You Can Do to be Safe

(Sources: *CCPS Safety Alert, Reactive Material Hazards* and, *Essential Practices for Managing Chemical Reactivity Hazards*)

- ✓ If unsure—**DON'T mix!** Get confirmation.
- ✓ Always get changes approved before making them.
- ✓ Read the *current* MSDS for all new chemicals and review the process safety information for consequences of inadvertent mixing.
- ✓ When mixing chemicals, make certain that you are mixing the chemicals intended. Check and recheck the labels and warnings.
- ✓ When mixing chemicals in an open container, make sure that you are wearing the right PPE.
- ✓ If your area has a chemical interaction matrix, make sure you read and understand it.
- ✓ Read the CCPS publication, *Reactive Material Hazards* (<http://www.aiche.org/ccps/safetyalerts.htm>)



PSID Members—look in Free Search—Key word: "Reactive"

Why did this Happen?

The incident investigation revealed that:

- The worker had no idea that mixing these two chemicals would result in such a violent reaction.
- A general understanding of the possible consequences was not present.
- Appropriate hazard controls and procedures were not fully implemented.

Be Aware!!! Many materials react with each other—and sometimes very violently! By-products of these reactions may include heat (sometimes enough to cause rapid violent boiling) and the formation of other materials that might be very corrosive or toxic.

Mixing Chemicals can have unexpected consequences. Caution, Caution, Caution!