



Anatomy of an Incident



Injuries - Accidents or Incidents?

There are still many in the workplace today that consider injuries as accidents and not incidents. That somehow the injury was unavoidable or unforeseen. The truth is that a vast majority of workplace injuries are incidents resulting from personal decisions. While the incidents we will discuss in this series are documented injuries and fatalities found on OSHA's web site, much of the background and personal choices were omitted by OSHA. Our goal is to consider possible decision paths that could have led to each tragedy and challenge our current decision processes in hopes of avoiding similar incidents in our work areas.

Flash Fire

OSHA Incident Summary

"Employee #1 had just finished using xylene, a flammable liquid, to clean a paint spray unit. The chemical was stored in a room that contained several baking ovens. After returning the xylene, Employee #1 opened the door of oven #431 to see if any motors were being baked out. Not seeing any, he closed the door and turned to leave the room. As he did so, the xylene vapors that had been pulled into the oven by its ventilation system ignited. The ensuing flash fire and explosion blew out the oven doors and the fire spread out into the room, igniting Employee #1's clothing. He sustained first-, second-, and third-degree burns to his face, ears, neck, and both arms."

Fire requires three elements: Fuel, Air and Heat. In the case of xylene, a common cleaning solvent, temperatures above 70-80F will result in flammable fumes. These fumes are heavier than air, are extremely flammable and not very good for you either. Use and handling recommendations for this chemical can be found on the MSDS and include good non spark generating ventilation.

What caused the flash fire and explosion?

Sufficient quantities of xylene vapor heated and introduced to a spark.



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Where did the xylene vapors come from?

A nearby storage and cleaning area. After cleaning a part, the employee opened an oven door allowing xylene vapors to enter the oven and get pulled into its ventilation system.

Why did the fire spread outside the oven?

Because the flammable vapors were strong enough outside the oven to support combustion.

Why were the vapors strong enough?

There was not sufficient ventilation for the cleaning station. It was also imprudent to store and use xylene so close to a heat and ignition source.

What are some other situations where we may find similar flammable hazards?

- Using flammable solvents around boilers or other hot equipment.
- Bringing a welding machine, grinder or torch into a paint station or cleaning booth to make a quick repair.
- Using a non-stick cooking spray on a hot running grill.

What should we learn from this? Know the chemicals you use and follow the use and handling instructions. Keep flammable materials away from heat and ignition sources. Wash thoroughly after using solvents.

A safe day doesn't happen by accident—Plan to work safe today.

Review the job plan, hazards, required tools, procedures and PPE before you begin the work. Do this each time you start a new job or when the job scope changes.

Leave all of your distractions off the job site. Focus on the task at hand.

Don't be tempted to rush a job or roll the dice and risk your safety. Know the hazards and prepare to meet them head on, safely.

Safety Meeting Attendance

Subject: Flash Fire

Date: _____

Instructor: _____

Instruction Notes: Get a few of your cleaning solvents and read the MSDS instructions for use. Make sure everyone remembers to keep fumes away from heat and ignition sources. Investigate the use of non-flammable solvents/cleaners.

Follow-up Action Items: _____

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| 1. _____ | 13. _____ |
| 2. _____ | 14. _____ |
| 3. _____ | 15. _____ |
| 4. _____ | 16. _____ |
| 5. _____ | 17. _____ |
| 6. _____ | 18. _____ |
| 7. _____ | 19. _____ |
| 8. _____ | 20. _____ |
| 9. _____ | 21. _____ |
| 10. _____ | 22. _____ |
| 11. _____ | 23. _____ |
| 12. _____ | 24. _____ |

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