Working Safely with Solvent Stills

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Outline

• Emergency Equipment
• Emergency Situations-Fire, flood etc.
• Personal Protective Equipment (PPE)
• Equipment
• Preventive Measures
• Storage and Use
• Conclusion
Emergency Equipment
Emergency Equipment

- Presence of appropriate fire extinguisher
- Knowledge to use it, if required
- Location of spill kit along with adequate training
- First aid kit
- Emergency eye wash station
- Emergency shower
Fire Extinguishers

[Images of fire extinguishers]

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Fire

- Notify personnel in the immediate area
- Vacate the lab but remain available
- Active the manual fire alarm
- Call Protection Services at 5411 if fire alarm was not pulled
- Inform your Principal Investigator
- Inform the Health, Safety and Risk Manager or her Assistant
- Fill the incident report (online)
Flood

- Notify personnel in the immediate area
- Stop the source if possible without putting yourself in danger
- Vacate the lab, if required
- Call Protection Services at 5411
- Inform your Principal Investigator
- Inform the Health, Safety and Risk Manager or her Assistant
- Fill the incident report (online)
Solvent Stills
Solvent Stills

- Work in a functional fume hood
- Store flammables in a flammable solvent cabinet
- Use minimal volumes
- Label clearly and use full form
  Tetrahydrofuran instead of THF
- Mandatory training must be completed before you start working
Personal Protective Equipment

- Safety glasses or goggles or face shield
- Lab coat (button it please)
- Appropriate chemical resistant and heat resistant gloves
- Closed shoes (front and back)
- Long hair must be tied
- Avoid lose clothing and jewelry
Equipment
Equipment

- Maintain sash at the ‘marked’ height
- Equipment generating heat must be equipped with shut-off device
- Clamps must be secured properly
- Use plastic clamps instead of metal twisters
- Do not let the solvent stills run unattended
- No over-night set-ups are allowed
Preventive Measures

- Check mantles
- Check fabric
- Check cables
- Check glassware for defects
- Remove air and water sensitive agents
- Do not allow solid material to accumulate in the round bottom flasks
Preventive Measures

- Deactivate still under inert atmosphere (argon, nitrogen)
- Do not dismantle while the still is hot
- Never add fresh solvent, drying agent/indicator when the still is hot
- Do not leave the set-up unattended
- Overheating can result in an explosion
- Flood may be caused (water supply problem)
Storage and Use

• Keep in mind that potassium is much more reactive than sodium
• Take extra precaution
  – while quenching
  – if set-up was left for a prolonged period
• Ethers (tetrahydrofuran, ether) can form explosive peroxides when exposed to air or when stored for an extended period of time
Conclusion

• Completion of training is mandatory
• Seek permission from Department Chair or Health, Safety and Risk Manager
• Safety is everyone’s responsibility
Contact Information

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