

Safety Minutes: A Consistent Way to Promote and Sustain the Commitment to Research Safety

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ACS Fall 2019 National Meeting & Exposition
August 28, 2019 – San Diego, CA

Research Safety Student Initiative (RSSI)

Student-led safety organization at Northwestern University
Representing 4 Departments



Bottom-up safety movements are the best way to improve safety culture

Our Mission

Promote a stronger **culture of safety**

Increase **awareness** of hazards

Shift toward a **positive mindset** regarding safety

Provide **education**, resources, and training

Offer **leadership** opportunities for those passionate about safety

Strengthen **relationships** between labs and Research Safety administration



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Student Initiative: Safety Minutes

- **What is a Safety Minute?**

- Short (<1 min.) safety presentations prior to team meetings
- Can cover a range of topics
 - Safety reminders
 - Recent incidents and near misses
 - Administrative policies (waste labeling, etc.)
- Help remind people that safety always matters



Positive and frequent safety-related communication essential to improve safety culture

Hill Jr., R. H.; Finster, D. C. *JCHAS*, 2013, 20, 27-34.

Safety Minute Challenges

- Consistent formatting
- Length of presentation
- Conflicting information from different sources
- Streamlining topics
- Generating content
- Who should present?

Safety Minute Library

People like consistency

- Slide template
 - RSSI logo
 - Consistent title and text size
 - Mix of pictures and text
- Same length for every presentation
 - 1-2 slides max.
 - Avoid information overload
- Make slides available online

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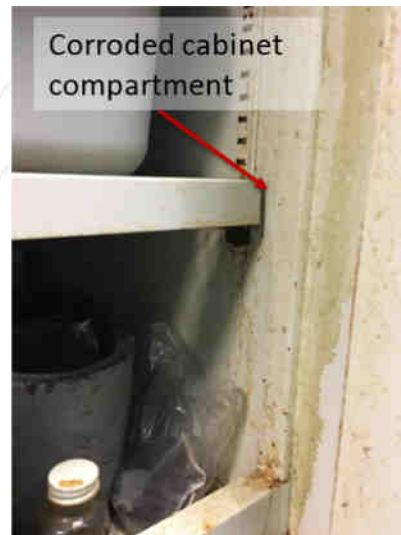
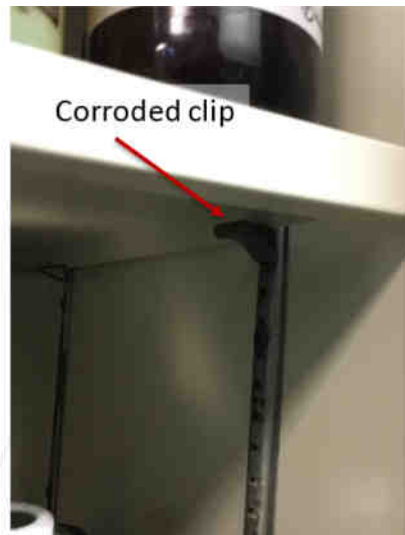
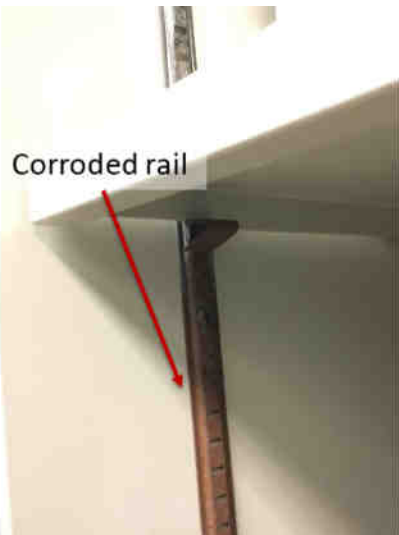


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Lab Hazards: Shelf Overcrowding and Failures



Avoiding the Dangers of Liquid Oxygen

Oxygen has a higher boiling point (-183°C) than nitrogen (-196°C)

It is dangerous because

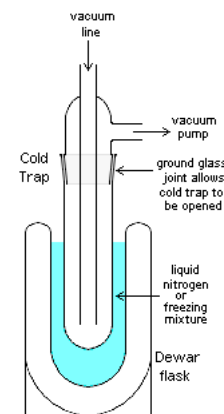
- Is an strong oxidizer
- Contains 4000 times more oxygen by volume than normal air
- May react explosively with oxidizable material

How it is produced

- If we cool air below 90K, liquid oxygen starts to condensate.
- By opening a cold trap immersed in liquid nitrogen to the atmosphere
- Using of open vessels cooled by liquid nitrogen
- Liquid oxygen will accumulate if the liquid nitrogen is constantly replenished

If liquid oxygen is produced

- Alert others to the danger
- Place a blast shield around the recipient
- Remove any possible chemical that may react
- **Remove the dewar and vent the system as quick as possible**
- Put a sign and leave the vicinity
- Beware of peroxides



<http://rubingroup.org/home/safety/>

Limiting Chemical Exposure

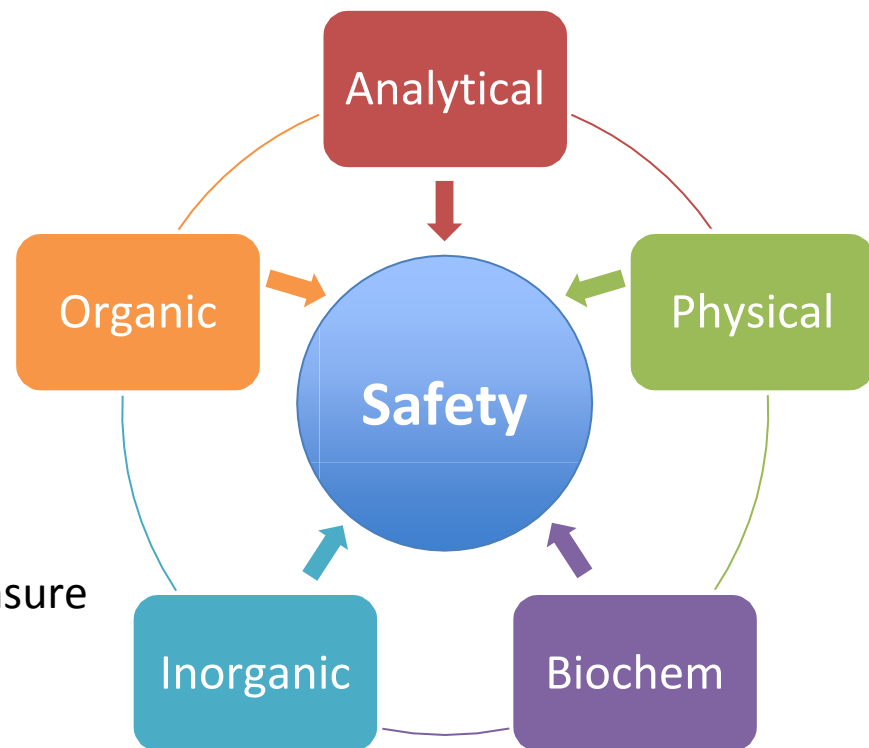
- Consider all necessary PPE
- Do not touch doorknobs, cell phones, etc. without removing gloves
- Check air-flow of fume hoods and use proper set-up techniques
- Weigh toxic chemicals inside a fume hood
- Cap waste containers



Generating Content

Choosing topics for new slides

- Topics must be relevant to audience
 - Include all areas of chemistry
 - Not always emergency scenarios
 - Variety will keep people engaged
- Crowd sourcing ideas is great
 - Talk to friends
 - Suggestion box
 - Listen to others' struggles
 - Pay attention to recent incidents
- Clear titles and organization is key
- Work with Research Safety officials to ensure that new content agrees with policies



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Implementing Safety Minutes

Presenting Safety Minutes

- Frequency is essential
 - Weekly group meeting
 - Department Colloquium
 - Make it a normal occurrence
- Work to get faculty/administrators onboard
- Who should present?
 - Volunteers (can be challenging early on)
 - Friends
 - Group meeting presenter
 - Safety minute organizer
- Keep it short!



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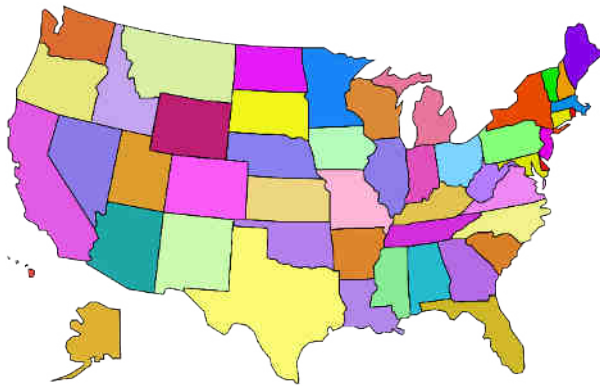
Spread the Message

Start safety minutes in your own group meetings

Talk with people in other departments

Get friends involved

Share your experiences with other universities



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Acknowledgements

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On Twitter @NU_RSSI



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Research Safety
Dr. Michael Blayney