Safety Goggles Aren’t Just for Nerds

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UMSL

Louis the Triton

- 17,000 students
- Awarded over 100,000 degrees since founding in 1963
- Urban university with diverse student body
  - High school: Advanced credit and STARS program (Students and Teachers as Research Scientists)
  - Undergrads, grad students and post-graduate
  - Non-traditional learners and veterans – average age 28
Louis the Triton

- Son of Poseidon, Greek god of the sea.
- Largest moon of the planet Neptune, discovered in 1846 by a British astronomer 17 days after Neptune itself was discovered by German astronomers.
- Only large moon in our solar system with a retrograde orbit, i.e., in the opposite direction to its planet’s rotation.
The Department of Chemistry and Biochemistry has grown over the past 50 years.

• Benton Hall was opened in 1966.
• In 1987 we completed the Research wing of the science complex.
• In 2001 we awarded our 100th Ph.D degree.
• In 2004 we awarded our 200th M.S. degree.
• In 2004 we introduced B.S. and M.S. degrees in Biochemistry and Biotechnology in coordination with the Department of Biology.
• In 2006 we awarded our 1000th baccalaureate degree.
• In 2016 the new Science Learning Building opened with new teaching labs.

The field of chemistry is ever changing, and UMSL has embraced our role in preparing the next generation of chemists.
Safety in the Academic Lab

- Key office on campus: Environmental Health & Safety.
- Data indicates researchers are more likely to get hurt in an academic lab than in an industry lab.
- OSHA, Lab Safety Institute, Chemical Safety Board all show examples of serious injury from lab incidents.
- UMSL realized our teaching labs in Benton Hall were outdated and did not provide the safe environment we value.
• Benton Hall opened in 1966.
• Housed chemistry teaching labs.

• Old labs did not meet our safety standards.
• Benton Hall renovation began 2016.
• UMSL secured funding to build new teaching labs.
• Science Learning Building held first classes in summer 2016.
• State of the art teaching labs.
• Labs designed for Chemistry, Biology and Physics.
Truths we must accept

• We can’t teach chemistry without chemicals.
• We cannot eliminate all hazards in the lab.
• Students must experience how chemicals react.
• Experimentation stimulates curiosity and lets students apply learning to everyday life.
So, what do we do?

• We minimize hazards.
• We communicate and train on the hazards still present in the lab.
• We provide the right resources and facilities.
• We make safety a team effort.
• We train.
• We check our progress with routine audits.
• Developed Lab Safety Plan using OSHA Chemical Hygiene Plan as a model.
• Plan was a joint effort between Environmental Health & Safety with the science departments.
• Plan has full support of campus leadership.
Teaching labs provided with lab specific safety manual -- quick reference for lab instructors and students. Example:

Lab Safety Information

SLB 416

Contents

- Lab Safety Plan
- EHS/Emergency Contact Information
- Lab Safety Inspection Reports
- Chemical Inventory
- Unwanted Material Pickup Request Forms
- Secondary Container Label Template
- Safety Data Sheets
- Standard Operating Procedures
- Spill Response/Incident Reporting Forms
- Peroxide Forming Chemical Label Template/Testing Sheet
- Unwanted Material Management Guidance
- EHS Published Safety Procedures/Guidance
• New teaching labs provide modern lab environment.
• Conducive to learning in a safe environment.
• Prep rooms let us minimize chemical storage in the lab.
Research labs may have more activity, but are expected to still follow standard safety practices.
• Signs posted on doors for special hazards.
  • Magnetic fields
  • X-ray or laser use
  • Biohazard
  • Radioactive Materials
• And of course, no eating or drinking in the lab.
And we train.......
• STARS are high school students working with faculty on research projects at UMSL, Washington University, St. Louis University and the Danforth Plant Science Center.
• Receive safety training before entering a lab.
• Mentors provide lab specific safety training.
Online training offered for undergraduates before starting a class, which sets standards and expectations for how students act in the lab.
• Graduate student training is more focused on specific hazards.
• First-time TA receive safety training before leading a lab section.
• Faculty and graduate students are required to attend safety training annually and experience inspections semi-annually
How Are We Doing?

• It’s easy to put up signs and train.
• We need to see if our efforts are paying off.
• We use the iAuditor app for iPad.
  ➢ The checklist is modified to meet our specific need and types of labs.
• iAuditor app generates a report for each inspection
• Color coded for quick visual check
  ✓ Green is all good.
  ✓ Yellow alerts us to monitor an item.
  ✓ Red means we still have work to do.
• iAuditor lets us add photos to the report.
• Each lab is inspected twice a year.
• Our inspector is a full-time Laboratory Safety Coordinator who tracks and helps correct our deficiencies.
• It’s à propos that the solar eclipse is happening today.
• Lab personnel have to know their risk and how to protect themselves.
• The same principle goes for viewing the solar eclipse.
• Eye protection is important in the lab and if you’re looking at the eclipse.
How to Tell If Your Eclipse Glasses or Handheld Solar Viewers Are Safe

Short Answer
Look for evidence that they're certified to meet the ISO 12312-2 international standard for safe direct viewing of the Sun.

Look to make sure your eye protection meets the standards.
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