



Learning by Accident

Learning by Accident is an ongoing Crucible feature, in which real-life lab accidents or incidents are recounted and explained. The goal is to highlight the consequence of ignoring safety rules so that science educators will be further encouraged to become knowledgeable, and to take appropriate action, in areas of safety that affect their daily activities in the science classroom. Submissions are encouraged. If requested, anonymity will be guaranteed. Please send written descriptions to Ian Mackellar, STAO Safety Committee Past-Chair, Box 191, MAITLAND, ON K0E 1P0

A Shocking Experience!!

A physics teacher had just finished giving the pre-lab talk for an experiment which involved the construction of an electrical circuit. Tools for building the circuit had been laid out on the students' workbenches, and the teacher was erasing the chalkboard when he heard a muffled explosion behind him and the room lights went out.

While his back was turned to the class, one of the students had used the tools to remove the coverplate from the electric receptacle on the workbench and shorted the terminals with needlenose pliers. "I didn't expect him to do that," the teacher said, "he's one of my best students!" Fortunately, there were no injuries.

Comments from the STAO Safety Committee

The student was very lucky not to have been electrocuted. This is a very serious mishap, luckily with no serious or fatal result, for which the teacher might have been considered liable.

All students should be instructed in the hazards of 110 V AC supply as a part of all science courses. It is important to ensure that students are properly supervised during the class. The student's natural curiosity and the temptation presented by the tools in front of him led him to explore more than was anticipated. It would have been better for the tools to be distributed after the pre-lab presen-

« « « Submitted by a STAO member.

tation when the teacher would be in a position to monitor more closely the activities of the students. All labs should have a master cutoff switch and all appropriate staff should know its location. In this case the circuit breakers functioned properly but you cannot always assume this will be the case and serious injury or death to the student and anyone coming in contact while attempting to assist him could have been the result.

See the STAO publication *Stay Safe* for further guidance in electrical hazards in the classroom.

An Explosive Occurrence!

Submitted by a STAO member, Region 5.

A laboratory drying oven was completely destroyed by a solvent

explosion. A spark in the thermostat ignited the vapour produced by the evaporation of the final traces of solvent from some crystals. Fortunately, no one was in the immediate area at the time so there were no injuries sustained.

Comments from the STAO Safety Committee

Several instances are known of similar explosions occurring when flammable solvents have been placed in non-spark-proof domestic ovens, with bare elements. Domestic ovens usually do not have spark-free lights and switches. All electrical equipment, including refrigerators, which may come into contact with flammable vapours, must be spark proof.

The recommended procedure to evaporate flammable solvents is to use a hot water bath, after turning off the source of heat, and in a spark-proof fume-hood.



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