安全警示

SAFETY ALERT

5月
第8期
27日

实验室用电安全

2025年上半年发生的两起实验室用电安全事件，时刻在提醒大家用电安全不容忽视!

事件描述:

事件1:

第三方误接火线与零线致短路

施工方误将配电箱内火线和零线接错，导致火线对零线短路，电路跳闸。事件发生在周末，幸无人员财产损失。

根本原因: 第三方施工人员误操作将火线与零线接反

建议: 加强第三方用电安全资质审核；加强非工作时间第三方安全作业管理；加强用电安全培训。

事件2:

设备带电火线（380V）裸露导致跳闸

设备使用过程中，移动测试线时，牵引到裸露悬挂的火线（380V），该火线端子触碰铁架，出现火花，而后设备跳闸，电源空开跳闸。

根本原因:

- 设备厂家未正确安装，带电线路裸露
- 带电部件与易触及的金属部件或易触及表面之间未用双重绝缘或加强绝缘隔层。

建议:

1. 从源头把控设备线路安全；禁止设备裸露火线及其他电线!
2. 加强设备验收时电气线路安全检查，规范设备安全接线；
3. 加强设备绝缘及外围防护；
4. 加强线路安全标识，如危险线路、带电端子应有标识；
5. 加强人员用电安全培训。

实验室其他常见用电安全隐患

线路裸露

接线板串接、置于地面

10A转16A存在风险

温馨提示: 建议实验室用户可委托 LSD 进行用电设备的接电改造，即使设备供应商提供该服务，也需要进行现场的验收和准用。用电设备或电气线路改造可向LSD申请协助验收，检验合格后才能送电使用，这样会更安全、更安心!

参考资料:

《国家电气设备安全技术规范》（GB19517-2023）

《测量、控制和实验室用电气设备安全技术规范》（GB 4793-2024）

SAFETY ALERT 安全警示

MAY 27
NO. 008

Laboratory Electrical Safety

Two laboratory electrical safety incidents in the first half of 2025 serve as a critical reminder of the importance of laboratory electrical safety.

Incident Description

Incident 1: Short Circuit Caused by Third-Party Misconnection of Live and Neutral Wires

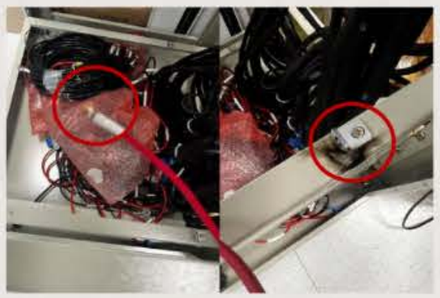
A third-party contractor incorrectly connected live and neutral wires in the breaker box, resulting in a short circuit between the live and neutral wires, which tripped the circuit. The incident occurred over the weekend, but fortunately, there were no personnel injuries or property damage.

Root Causes:

Live and neutral wires were improperly connected due to third-party operational error.

Recommendations:

Strengthen qualification reviews for third-party electrical safety practices.Enhance management of third-party safety protocols during non-working hours.Improve electrical safety training programs.



Incident 2: Exposed Live Wire (380V) Causes Tripping during Equipment Use

During equipment operation, movement of test cables dislodged an exposed hanging live wire (380V). The terminal of this live wire came into contact with an iron frame, causing sparks and subsequent tripping of both the equipment's power supply and circuit breaker.

Root Causes:

- Exposed energized wiring on equipment due to error during installation by manufacturer.
- Lack of double insulation or reinforced insulation barriers between live parts and accessible metal components/surfaces.

Recommendations:

Strengthen safety controls for equipment wiring design at the source. NO exposed live wires or other uninsulated wires! Tighten electrical line inspections during equipment acceptance; standardize safe wiring practices. Enhance insulation reinforcement & peripheral protection measures. Improve labeling for hazardous circuits/live terminals (e.g., warning signs). Expand staff training on electrical hazards.

Other Common Electrical Hazards

Exposed wiring

Daisy-chained power strips placed on floors

Improper use of 10A-to-16A adapters

Friendly Reminder: Laboratory users are advised to commission LSD for electrical connection modifications of equipment and inspections. Even when the service is provided by equipment suppliers, on-site inspection and approval procedures must be conducted. Power supply should only be activated after passing safety inspections - this ensures safer operations with more reliable outcomes!

References:

• National Technical Specification for the Safety of Electrical Equipment (GB19517–2023)

• Safety Technical Specification for Electrical Equipment for Measurement, Control & Laboratory Use (GB4793–2024).