
ELECTRICAL SAFETY

Within the Industrial Gases industry we are very familiar with the hazards of gases including pressure and the physical state. Whilst it is understood that we need electricity to enable the industrial gases industry to function, the potential hazards of electricity may be less well understood. The purpose of this safety information is to highlight the hazards and to give guidance on how those in the gases industry should approach electricity.

This guidance is intended to be applicable to all electrical installations ranging from offices to high voltage installations on air separation units.

Hazards

The main hazards associated with electricity are:

- contact with live parts causing shock and burns (current from normal mains voltage, 230 volts AC, or less can kill. Current from direct current (DC) voltages can also kill);
- faults which could cause fire or explosion, where electricity could be the source of ignition in a potentially flammable or explosive atmosphere, for example: in a flammable gases filling plant.

Any of these can lead to injury or death, and just because electricity is used in an environment that we are very familiar with such as an office, does not mean that a faulty item of equipment could not lead to a serious injury or worse.

What is the guidance when working with electricity?

As a minimum, EIGA's guidance when working with electricity or where electrical cables or equipment could be present is the following:

- Only personnel that have been trained and are qualified in electrical installation and maintenance shall be permitted to work on any item of electrical equipment. Under **no circumstances** shall a person who does not meet these requirements work on an electrical installation.
- Prior to any excavation work, a site survey shall be carried out to identify the location of any underground power lines. These should be marked to identify their location. Care should be taken in referring to as-built drawings to ensure that they are up to date.
- Prior to any site work using cranes, a site survey shall be carried out to identify the location of any overhead power lines or exposed power conductors and their location advised to those responsible for operation of the cranes. Electrocutation can occur even if there is no direct contact (e.g. arcing).
- Prior to carrying out any building work, the location of cables within the building shall be identified and isolated as required for the building work.
- Routine maintenance tasks shall be carried out following procedures that have included the conclusions of a risk assessment to identify precautions to be taken.

- Prior to carrying out non routine work on an electrical installation a risk assessment shall be carried out which shall include identification of personal protective equipment (PPE) that personnel shall use for the task they are undertaking.
- Work on an electrical installation shall be subject to control under a work permit system including effective isolation (e.g. lock out/tag out) to ensure all measures identified by the Risk Assessment are followed (see EIGA Doc 40).
- Where any changes are made to an electrical installation, a Management of Change procedure, (see EIGA Doc 51) shall be followed and documented where required. e.g. single line diagrams revised to show the “as-built” situation.
- All electrical equipment shall be subject to a planned maintenance regime.
- Any damaged or faulty electrical equipment shall be immediately isolated and removed from service, e.g. tagged and/or locked out.
- All electrical equipment and installations shall be in compliance with all the applicable regulatory requirements for the country of the installation including specific requirements for hazardous atmospheres (see EIGA Doc 134 Potentially Explosive Atmospheres), including location and type of suitable fire suppression systems. Where there are no local regulatory requirements, installations shall meet European or equivalent electrical installation standards.
- All personnel shall be trained in electrical hazards, including those who work in offices. The purpose is to ensure all are aware of the hazards of electricity in their working environment.
- Electrical equipment shall only be placed in service by personnel who are qualified for this activity.

IF IN DOUBT ASK

DISCLAIMER

All technical publications of EIGA or under EIGA's name, including Codes of practice, Safety procedures and any other technical information contained in such publications were obtained from sources believed to be reliable and are based on technical information and experience currently available from members of EIGA and others at the date of their issuance.

While EIGA recommends reference to or use of its publications by its members, such reference to or use of EIGA's publications by its members or third parties are purely voluntary and not binding. Therefore, EIGA or its members make no guarantee of the results and assume no liability or responsibility in connection with the reference to or use of information or suggestions contained in EIGA's publications.

EIGA has no control whatsoever as regards, performance or non performance, misinterpretation, proper or improper use of any information or suggestions contained in EIGA's publications by any person or entity (including EIGA members) and EIGA expressly disclaims any liability in connection thereto.

EIGA's publications are subject to periodic review and users are cautioned to obtain the latest edition.

© EIGA grants permission to reproduce this publication provided the Association is acknowledged as the source