



2600SEG248 INTRINSIC PROTECTION STANDARD

1.0 PURPOSE

The purpose of this standard is to establish uniform safety practices, measures, and requirements to reduce the possibility of fire or explosion hazard when using electronic equipment in spaces or areas with explosive or flammable atmospheres.

2.0 BACKGROUND

There is no background on standardized procedures for the use of intrinsically safe equipment.

3.0 SCOPE

This standard shall apply to all Panama Canal Authority (ACP) employees, contractors, and third parties in facilities, industrial shops, floating equipment, ships in transit, and areas under ACP responsibility.

4.0 LEGAL BASIS

This standard is based on Agreement No. 12 of the ACP Board of Directors, Safety and Occupational Health Regulations, Chapter I, Article 8, and Chapter II, Article 11.

5.0 DEFINITIONS

The following definitions are established for the purposes of this standard:

5.1 Hazardous Area: A ship deck with hazardous cargo, confined spaces with explosive or flammable atmosphere, painting facilities, fuel bunkering stations, bunker barges, or any other area designated by ACP as such, where the use of unapproved electric or electronic equipment may be risky or poses an ignition or explosion hazard.

5.2 Explosive or Flammable Atmosphere: Atmosphere where flammable fumes are present in concentrations of 10% or more than the lower flammable or explosive limit, or with oxygen content over 22% (20.9% concentration of oxygen in the air).

5.3 Intrinsically Safe: Equipment and wiring without the ability to release enough electric and thermal energy to cause the ignition of a specific atmospheric mix (air / gas, fumes, dust, or fibers) in a flammable concentration.

5.4 Confined Space: An enclosed area with the following features: It does not have natural ventilation; it is sufficiently large and configured so that an employee may introduce his body and perform the work assigned to him; it has limited or restricted means to enter or exit from it, which would make it difficult in the event of an emergency; its design does not allow employees to occupy it continuously; and it has or is known to have the potential of containing a hazardous atmosphere (toxic, explosive, or oxygen deficient).

6.0 GENERAL

6.1 GENERAL REQUIREMENTS

6.1.1 The use of any electronic equipment (portable CD units, radio receivers, MP-3 units, cellular phones, radio cassettes, tape recorders, pagers, photographic cameras, calculators), the use of which is not approved for hazardous areas (see 5.1), is prohibited. This restriction also applies to fuel offloading operations on floating equipment and painting operations in confined spaces with flammable or explosive atmospheres, and painting facilities.



6.1.2 Wireless radios used by ACP personnel in operations requiring communications during transits, lockages, maneuvers, and work in confined spaces in hazardous areas or in painting facilities must be authorized by the Telecommunications Unit (FAIT) and tagged.

6.1.3 Wireless radios with any type of damage shall be sent for repair to the FAIT Unit through the established procedures.

6.2 WORK PROCEDURES

6.2.1 Ship transit assistance (deck personnel):

Any electronic equipment that has not been approved for hazardous areas shall be kept deactivated or turned off, because it may be remotely activated and generate a dangerous situation when its alert, call, or vibration mechanism operates.

6.2.2 The following precautions shall be taken when electrical equipment is used in confined spaces where the atmosphere contains fumes, emissions, fog, or dust; where flammable paint or solvents are used and concentration is equal to or more than 10% of the lower flammable or explosive limit:

- Ventilation fans and sprinkler equipment shall have insulation and be grounded to control the accumulation and discharge of electricity.
- All motors and equipment used to ventilate these atmospheres shall be of the appropriate type, intrinsically safe, or explosion-proof.
- Fan blades shall be made of spark-proof material.
- Portable air ducts shall also be of non-ferrous materials.
- All tools, buckets, and other equipment shall be spark-proof.
- Lighting used within the space shall be explosion-proof.

6.3 TRAINING

6.3.1 Supervisors shall provide training to employees working in hazardous areas and using electrical and electronic communications equipment in areas, atmospheres, and confined spaces with a potential for fire and explosion, and shall coordinate this training with the area Hygienist.

7.0 RESPONSIBILITIES

7.1 EMPLOYEE RESPONSIBILITIES

7.1.1 Be knowledgeable and comply with all elements of ACP safety and health regulations and procedures.

7.1.2 Follow the established (oral and written) safety instructions, practices, and procedures.

7.1.3 Inform supervisors in a timely, discreet, and respectful manner, about the need for corrective action of known and confirmed unsafe practices.



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7.2 RESPONSIBILITIES OF CONTRACTORS AND THIRD PARTIES

7.2.1 Prior to the beginning of contract work, contractors and third parties who must use wireless radios shall submit a list of their equipment and their intrinsically safe certificates to the Telecommunications Unit (FAIT) for approval.

8.0 INQUIRIES

Any information or clarification of the content or application of this standard may be requested in writing to RSHS.

9.0 EXCEPTIONS

Any deviations or temporary exceptions to compliance with this standard may be requested in writing to RSHS.

10.0 TERM

This standard shall remain in force until revised or amended.

11.0 REFERENCES

- 11.1** ACP Safety and Occupational Health Handbook.
- 11.2** ACP Safe Confined Space Practices Manual.
- 11.3** International Safety Guide for Oil Tankers & Terminals (ISGOTT).