



**2600SEG228**  
**MERCURY SAFETY STANDARD**

**1.0 PURPOSE**

The purpose of this standard is to establish uniform health and safety requirements to protect employees from mercury exposure hazards. A repeated environmental exposure to mercury affects the nervous system. Mercury is a highly toxic metal capable of causing damage before any symptoms are evident.

**2.0 BACKGROUND**

This Standard supersedes the safety policy and procedures in Appendix T, Chapter 790, of the former Panama Canal Commission Personnel Manual (PCPM)

**3.0 SCOPE**

This Standard applies to all Panama Canal Authority personnel, contractors, and third parties in facilities, industrial shops, and areas under ACP responsibility

**4.0 LEGAL FOUNDATION**

This Standard is established pursuant to Agreement No. 12 of the Board of Directors of the Panama Canal Authority (ACP), Safety and Occupational Health Regulations, Chapter I, Articles 8 and 16.

**5.0 DEFINITIONS**

For the purposes of this Standard, the following definitions shall apply:

**5.1 Mercury:** A highly toxic, heavy metal in liquid form.

**5.2 Permissible Exposure Limits (PELs):** Airborne mercury concentration levels to which a worker without respiratory protection may be exposed over eight working hours without sustaining damage to his/her health over the short or long term. ACP shall adopt the levels published annually by the American Conference of Governmental Industrial Hygienists (ACGIH).

**6.0 GENERAL**

**6.1 GENERAL REQUIREMENTS**

**6.1.1** No mercury or mercury product may be brought into the working environment without the prior authorization, in writing, of the Safety and Industrial Health Unit (RHSI) Supervisor.

**6.1.2** Management shall do everything in its power to obtain products that are adequate substitutes for mercury or mercury-containing items and equipment such as thermometers and flowmeters, with the exception of fluorescent lamps. To the extent that management can ascertain that appropriate substitutes without mercury can replace the items and equipment being used, these shall be removed and prepared for final disposal.

**6.1.3** Any purchase of fluorescent lamp crushers must be previously approved by RHSI.

**6.1.4** Management shall be responsible for planning for contingencies such as spills, providing the adequate personal protection equipment and clothing, keeping materials and equipment readily available for spill incident response and cleanup, and training employees to handle emergencies.

**6.2 OPERATING PROCEDURES**



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**6.2.1** Users of instruments that contain mercury shall store them properly to prevent them from breaking, keep them separate, and label them as mercury-containing instruments.

**6.2.2** Polyethylene bags labeled “**mercury contaminated**” shall be used to dispose of contaminated materials or residues. In turn, these bags shall be placed in oversized drums and stored in areas restricted to unauthorized personnel prior to their transfer to a sanitary landfill.

**6.2.3** Manufacturer instructions shall be followed strictly for the safe handling of fluorescent lamp crushers. Any change to such instructions shall be coordinated with RSHS.

**6.3 PERSONAL PROTECTION MEASURES**

**6.3.1** Whenever there is the risk of exposure or direct contact with mercury or products containing mercury, the following measures shall be taken to keep exposure below permissible limits.

**6.3.1.1** Impervious disposable clothing that can be taped around the neck, wrists, and ankles shall be provided and worn.

**6.3.1.2** Safety goggles and large, chemical-resistant shields that cover the entire face and neck must be worn.

**6.3.1.3** Disposable nitrile or polyethylene gloves and boots, coveralls, and shoe covers shall always be kept available for emergency spill cleanup operations, and shall be properly disposed after cleanup operations are completed.

**6.3.1.4** Respiratory protection shall always be provided when pouring, collecting, and working with mercury, as well as the proper ventilation to keep mercury fumes under control.

**6.3.1.5** Respiratory protection for spill control operations shall consist of full-face, negative pressure respirators, belt-mounted and approved for mercury. (The cartridges for these respirators are visible, making it easier to detect any color changes in them.) All spent cartridges shall be disposed of as mercury-contaminated material.

**6.3.1.6** Full face respirators used for protection against mercury exposure are not kept as standard items by the Warehousing Section (FAAL). Therefore, respirator fit tests shall be conducted on all exposed employees or those who may be involved in any emergency cleanup.

**6.3.1.7** Eating or smoking in areas where mercury is handled, processed, or stored shall not be allowed.

**6.3.1.8** Skin contact with mercury shall be avoided. Any workers exposed to skin contact with liquid mercury shall use the personal protection equipment required by regulations and, upon completing their work, shall wash with soap and water all body parts that may have come into contact with mercury.

**6.4 CLEANUP METHODS**

Spill areas shall be restricted with barricade tape and warning signs throughout the cleanup process and access shall be allowed only to essential authorized personnel.



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**6.4.1** In the case of mercury leaks from thermometers and other similar small equipment, mercury spill control powder (of the brand Mercury Absorb Powder or similar) shall be dusted over the area, according to the manufacturer's instructions. After the mercury has amalgamated, it must be picked up with a prescribed vacuum cleaner and disposed of as described in 6.2.2.

**6.4.2** To collect and contain liquid mercury spills, only specially designed vacuum cleaners such as Nilfisk Maxi-Merc may be used with filters to absorb mercury and a collecting device.

**6.4.3** To ensure an immediate response capability, mercury spill emergency kit bags shall be kept in all areas containing liquid mercury, including personal protection equipment for at least two persons in charge of the cleanup. This equipment may contain respirators, coveralls, plastic gloves and mercury absorbent powder.

**6.4.4** Spill cleanup and decontamination training may be obtained from the Water Quality Unit (EACG-CA) or Protection and Emergency Response Division (OPP) spill control personnel by means of a request to them. Contractor shall provide training for their own employees.

**6.5 METHOD OF DISPOSAL**

**6.5.1** Never pour mercury down a drain, or on trash or garbage.

**6.5.2** Disposal of clothing, gloves, rags and other materials that must be discarded after a mercury cleanup shall be coordinated with RSHS.

**6.5.3** After prior coordination with the Sanitation, Control of Vectors and Vegetation Unit (OPEM-S), crushed mercury vapor and fluorescent lamp material shall be placed in polyethylene bags for its final disposal at the sanitary landfill.

**6.5.4** Residues containing mercury concentrations over 0.2 ppm shall be considered highly contaminated waste and shall be treated to the extent possible with a mercury amalgamator in order to reduce mercury levels. RSHS shall inspect the waste to determine whether it is highly contaminated. The Sales and Disposal of Excess Goods Unit (FAAD) shall coordinate the possible sale of recyclable mercury.

**6.6 EXPOSURE MONITORING**

**6.6.1** RSHS shall measure environmental mercury concentrations and monitor any personal mercury exposure. Whenever an exposure to mercury exceeds permissible limits, the Supervisor RSHS shall inform the Health, Wellness and Labor Welfare Unit (RHSS) and employees in writing.

**6.7 MEDICAL EVALUATION**

**6.7.1** Workers exposed to mercury beyond permissible limit shall be evaluated by RHSS.

**6.8 TRAINING**

**6.8.1** Employees exposed to mercury shall be trained on the hazards of this material, respiratory protection, and personal hygiene by industrial hygienists or other competent health staff. Supervisors may request this training by contacting the Supervisor RSHS.

**6.9 RECORDKEEPING AND ACCESS TO DATA**



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**6.9.1** Testing and analysis records shall be kept by the Health, Wellness and Labor Welfare Unit (RHSS).

**6.9.2** Units shall keep a record of the training provided to their employees.

**6.9.3** Mercury level monitoring records shall be kept by RSHS.

**6.9.4** These records shall be kept available to employees, according to ACP regulations.

**7.0 RESPONSIBILITIES**

The responsibilities for ensuring compliance with this Standard are described in the Occupational Health and Safety Management Standard 2600SEG101.

**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 amended or revised.

**11.0 REFERENCES**

**11.1** Record Retention Tables, Records Management Section, ACP.

**11.2** STANDARD 2600SEG201 HAZARDOUS MATERIAL INFORMATION.

**11.3** STANDARD 2600SEG205 RESPIRATORY PROTECTION.