

Mercury Sources and Alternatives in Health Care
 SOURCE: Adapted from “Mercury reduction in the health care section”

The list contains some common sources of mercury in health care and general information about alternatives. More detailed information on select alternative products can be found in the alternative product section.

Equipment and Devices

Product	Location/Use	Available Alternatives	Remarks
Amalgam	Dentistry	Gold, ceramics, porcelain, polymers	
Batteries (Mercury oxide)	Oxygen monitors, ECG monitors, personnel pagers, defibrillators, hearing aids, pacemaker, fetal monitors, etc	Lithium, Zinc air, alkaline batteries	Alternatives contain some mercury
Cantor tube	Gastrointestinal device	Anderson tube	Device not widely used
Colormetric chloride analysis	Chemistry	Ion-selective electrode method	
Weighed esophageal dilator (Maloney or Hurst bougie)	Operating Room	Mercury-free versions are now available with Tungsten or stainless steel as a weight	
Weighted feeding tubes (old)	Patient Care	Virtually all new weighted feeding tubes use Tungsten, instead of mercury, as a weight	
Nursing Incubator thermostat	Nursery	Virtually all new nursing incubator thermostats now contain alcohol, rather than mercury	
Lamps: Fluorescent Germicidal metal halide High-Pressure Sodium Ultraviolet Mercury Vapor High Intensity Discharge	Variety of Areas	Use the most long-lasting, energy-efficient lights available for your intended use	The amount of mercury in fluorescent lamps has decreased significantly in the past decade
Microwave oven (old)	Various areas	Use new models	Heat is generated through mercury vapor bulb
Miller-Abbott tube	Gastrointestinal device	Tungsten tubing as a weight	Device not widely used
Otoscope (old)	Emergency Room	New models do not contain mercury switches	
Sequential Multiple Analyser (SMAC)	Chemistry	Ion selective electrode	SMAC not widely used
Sphygmomanometer	Patient Care, measure blood pressure	Aneroid Electronic	

Mercury switches and switches	Various Areas	Bi-metallic strips or electronic strips	Switches contain trace amounts of mercury
Thermometer	Patient Care, Emergency Room	Electronic (Thermistor) <ul style="list-style-type: none"> • Oval • Rectal • Ancillary Electronic (IR) <ul style="list-style-type: none"> • Tympanic Glass Tube (non mercury)	
Thermometer	Laboratories (water baths, lab ovens, refrigerators, incubators)	Alcohol Electronic	
Vacuum systems (may use mercury-containing manometers)	Maintenance	Eliminate where possible, protect from breakage and spills	

Chemicals

Product	Location/Use	Available Alternatives	Remarks
B5	Cytopathology, Histology fixative	Zinc formalin such as Z-Fix	After using B5, all Solutions (Such as rinsate, alcohols, etc.) can be contaminated with mercury. Proper disposal methods must be practiced
Carbol-fuchin	Microbiology, Histology stain	See Remarks	The commonly used preparations of Carbol- fuchin do not contain mercury
Iodine solution	Microbiology, Histology stain solution	See Remarks	While an iodine solution itself does not contain mercury, trace amounts may be present as a result of its use after Zenker's or B5 Solution was used or the presence of a preservative
Hematoxylin	Microbiology, Histology stain solution	Sodium Iodate Gill's Hematoxylin Mercury-free Hematoxylin (mercuric oxide-free)	Mercuric oxide is used in the preparation of some types of hematoxylin staining solutions

Immune saline	Blood bank saline	Thimerosal-free immune saline	Some immune salines contain the preservative thimerosal
Mercuric chloride	Microbiology test reagent	Nitric acid	Product not currently widely used independently, is the main ingredient in the histological fixative B5
Mercuric iodide	Histology stain	Phenate method	
Mercuric nitrate	Chemistry, method used for the determination of chlorides in blood	See Remarks	Product not currently widely used
Mercuric oxide	Chemistry, used in Kjeldahl reactions in the determination of nitrogen-containing compounds	Use of copper sulfate or potassium sulfate as catalysts in Kjeldahl reactions, or the use of the Biuret method (where a copper sulfate solution is used)	Kjeldahl reactions are not widely used in hospital settings
Mercurochrome	Patient Care, used for the treatment of cuts	Neosporin Mycin	Some antiseptic creams contains the thimerosal (see below)
Mercury (II) sulfate	Chemistry	Potassium sulfate Silver nitrate Chromium-(III)sulfate	Product not widely used, replaced with the use of antibodies
Phenolic Mercuric Acetate	Chemistry	Ion selective electrode	Reagent not widely used
Thimerosal (common name) or Merthiolate	Various Areas	Thimerosal-free products, where available	As a preservative, thimerosal is often found in pharmaceuticals and optical solutions. As well, thimerosal can be used as a bactericide
Zenker's solution/Lilly's buffered (contains Mercuric chloride)	Pathology, Histology, Necroscopy	Zinc formalin	After using Zenker's, all solutions are contaminated with mercury (such as rinsate and alcohols). Proper disposal methods must be practiced.