

TRANSPORTATION OF COBALT-60 SOURCES

GIPA FACT SHEET

INTRODUCTION

Cobalt-60 provides the ionizing energy that is used primarily to sterilize many different types of single-use medical products (gloves, gowns, surgical drapes, catheters, syringes, etc.) as well as a vast array of consumer products, spices and certain foods. Cobalt-60 sources are also used for cancer treatment. Over 800 million curies of cobalt have been safely shipped to customers around the world over the past fifty years.

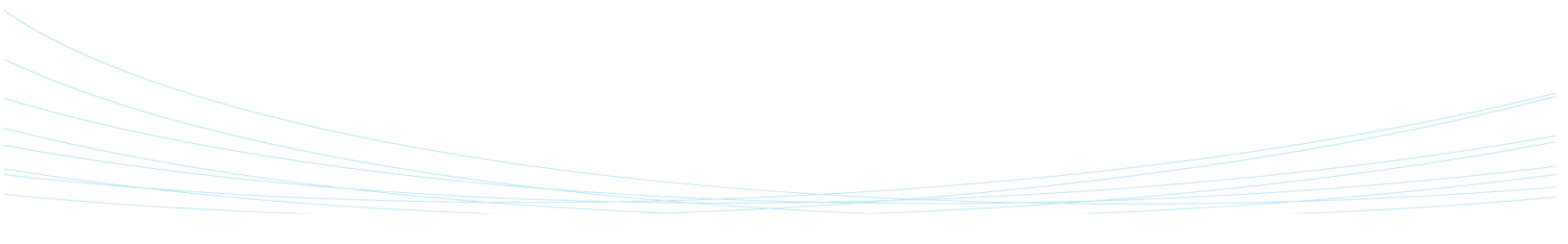
TRANSPORT PACKAGES FOR COBALT-60

Cobalt-60 sources are shipped in large lead and steel reinforced containers called transport packages, which meet stringent regulatory requirements. A typical cobalt-60 transport container, licensed internationally to carry up to 200,000 curies of cobalt, is approximately five feet tall, four feet in diameter and weighs many tonnes. These loaded containers are shipped by road and sea. Containers for cancer therapy sources may also be shipped by air.

LICENSING OF TRANSPORT PACKAGES

All containers used to transport cobalt-60 must be licensed to current regulations established at the International Atomic Energy Agency (IAEA) and national (i.e. USDOT, CNSC & equivalent) regulators. These regulations are routinely updated, ensuring all containers in transit always meet stringent and current security and safety requirements. National authorities (e.g. USNRC, US DOT, CNSC & equivalent) are responsible for assessing the container design against the regulations and for issuing certificates once compliance has been demonstrated.

To obtain approval for a container design, the manufacturer typically manufactures a prototype. This prototype is then subjected to destructive tests designed to simulate a worst-case accident scenario. These tests include a 9 meter (~30 foot) drop onto an unyielding surface; a 1.2 meter (40 inch) drop onto a 6 inch diameter steel pin secured to the unyielding surface; and, after these tests have been completed, a fire test where the same container is placed in a 800°C (1475°F) fire for thirty minutes. The test data forms part of a Safety Analysis Report submitted to the regulatory authority. Once the container design is approved, manufacture of containers is completed in accordance with an internationally recognized and regulator approved quality assurance program.



TRANSPORTATION LOGISTICS

Only companies licensed by the regulatory authority to haul radioactive materials are allowed to transport cobalt-60. This requires compliance with specific training, security and safety requirements at their facilities and for all staff who are involved in the preparation for transportation, and transportation process. Only drivers licensed for radioactive material carriage, and equipment capable of safely hauling up to four containers (i.e. ~25 tons) at a time are utilized. When shipping by sea, the containers (2 or 3 depending upon the size of the sea freight outer cargo container) are loaded and secured at either the supplier's site or at a warehouse specializing in such preparation.

SECURITY OF TRANSPORT

The systems established for the safe transport of cobalt-60 have proven themselves over more than five decades. Security of cobalt-60 transportation, to minimize theft, loss of control or misuse of product, has received particular attention by international and national regulators around the world to address potential terrorist threats. Each shipment is tightly controlled and monitored from the supplier site until installed at the irradiator (and vice versa for the return).

Multiple controls exist to monitor and manage shipments of cobalt-60 into and through the United States. Co-ordination of the shipment of a highway route controlled quantity (>27KCi) of cobalt-60 begins weeks before the actual shipping date with initial confidential notification to regulators and State agencies. In addition, notifications just prior to, during and upon completion of the shipment occur. Drivers must be qualified, trained and tested, and must regularly communicate with required organizations and agencies during the transit process. Vehicles transporting the cobalt-60 are subject to defined inspections and are tracked throughout the shipment.

Concerns about the security of radiation-related industries rose sharply following the destruction of the World Trade Center towers on September 11, 2001. The design of industrial irradiation facilities, stringent control over the shipping of sources in massive containers, and the detailed safety and security plans irradiator owners have implemented ensure gamma irradiation continues to be safe and effective and make cobalt-60 virtually useless as a tool of terrorism. In addition to the inherent safety of gamma technology, the industry has consistently regarded security as a top priority throughout its 50-year history, and has fulfilled that priority with regulatory rigor. Regulators and industry continue to work closely and collaboratively to ensure the ongoing security of cobalt-60 shipments and the safety of gamma irradiation around the world.

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