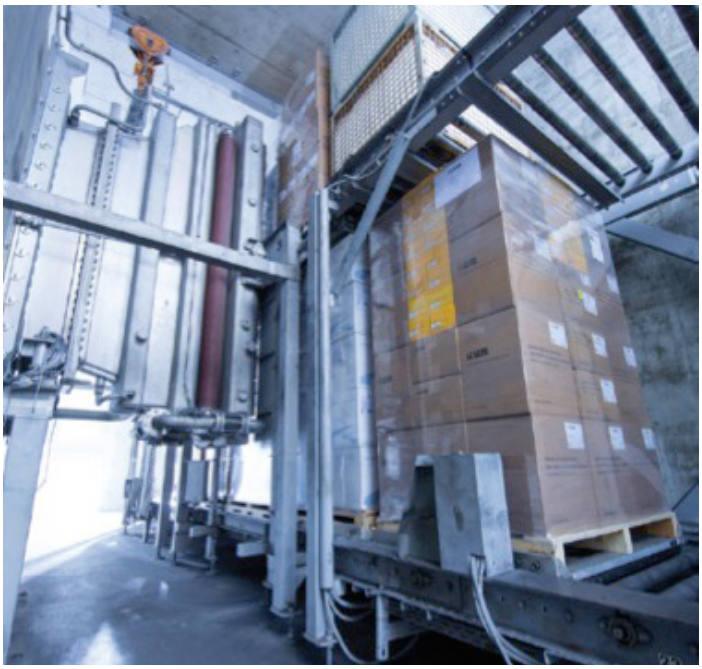
X-RAY IRRADIATION

What is X-ray?

X-ray starts as an electron beam where electrons are generated and accelerated to gain energy. Electrons are generated in equipment with an energy typically between 5-7 MeV (million electron volts) and at a high power in the hundreds of kW (kilowatts). The electrons are then focused on a specific metal target of high atomic number. The X-ray radiation is generated through a process called Bremsstrahlung to create electromagnetic energy (photons) with a wavelength in the same range as gamma.

(X-ray scan horn)



Benefits of X-ray Irradiation

The combination of shorter exposure time and improved dose uniformity ratio (DUR) make X-ray sterilization a viable processing option for a variety of products. Similar to electron beam, X-ray processing is powered by electricity. Benefits of X-ray include:

- Excellent penetration ability of photon energy similar to gamma
- Fast and efficient targeted processing that facilitates scale from carton to full pallets of product
- Flexibility - ability to mix different products with different dose requirements in the same irradiation cycle is possible, since the solution is based on an incremental dose concept.
- Reduced material degradation with reduced processing times
- With improved DUR comes the ability to process to tight dose specifications
- Customized processing capability (low dose to high dose applications)

A wide variety of products utilize X-ray technology, including:

- Medical devices
- Pharmaceutical products
- Packaging materials
- Raw materials
- Cosmetics
- Polymer modification

FOR MORE INFORMATION

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