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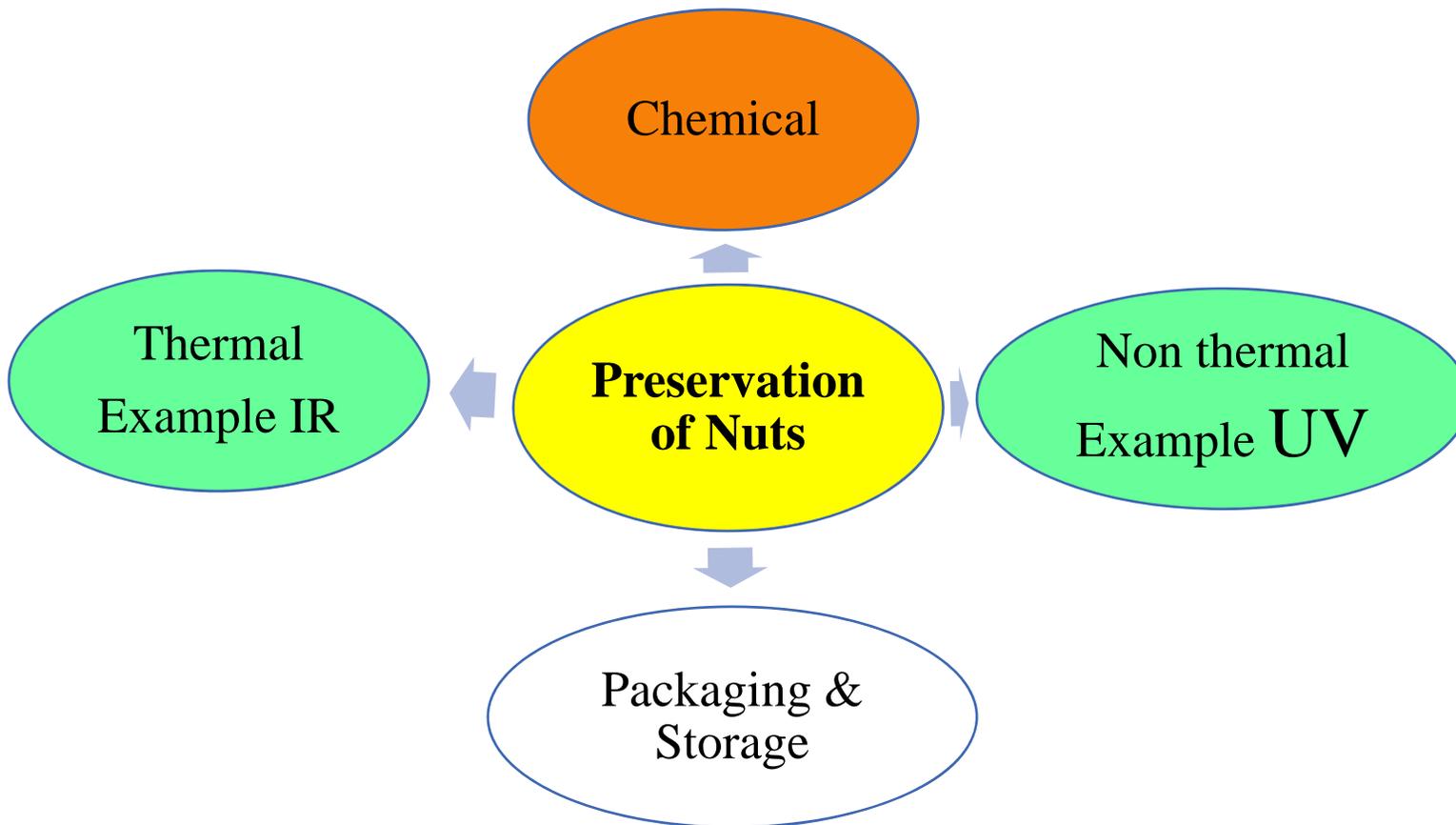


**PRESERVATION OF NUTS & SEEDS
WITH INNOVATIVE CONVEYORIZED INFRA-RED & ULTRA-VOILET
LIGHT**

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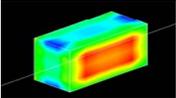
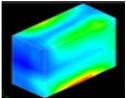


Methods of preservation



INFRARED LIGHT FOR HOT PASTEURIZATION



- Infrared radiation (15-1000 um wave length) is part of SUN`s electromagnetic spectrum & the most recent tool for Direct disinfection and dis-infestation. It kills pathogens like Salmonella in almonds, cashews and dry foods & is very effective in killing insects, their eggs and larva.
- Infrared waves has an affinity for water. Insects, eggs and larvae and microorganisms have higher moisture content than the grains or Nuts and the infrared radiant energy targets the water in these vectors. Rapidly absorbed radiant energy heats up the live contaminants killing them in seconds.
- Infrared energy is a type of pure radiation which is absorbed by objects without any physical contact with the source of heat or with the air within the objects and the source. Nutrients retained during quick heating unlike convection heating that takes long time.
- By heating with Short wave IR - - Edge and internal heating 
- By heating with medium wave IR - - Surface heating 
- Smart Combination of Heating Modules for Improved Quality, Speed and Safety of Food Processing. Solar Energy on the Earth-Surface $1.36\text{kW}/\text{m}^2$ whereas power of IR Heating used by us is around $9\text{kW}/\text{m}^2$, i.e nearly 7 times of the solar radiation



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ULTRA VIOLET LIGHT FOR COLD PASTEURIZATION



- UV forms part of SUN`s the electromagnetic spectrum and the UV wavelength range is from about 10 to 400 nm.



HOW UV KILLS MICROORGANISMS

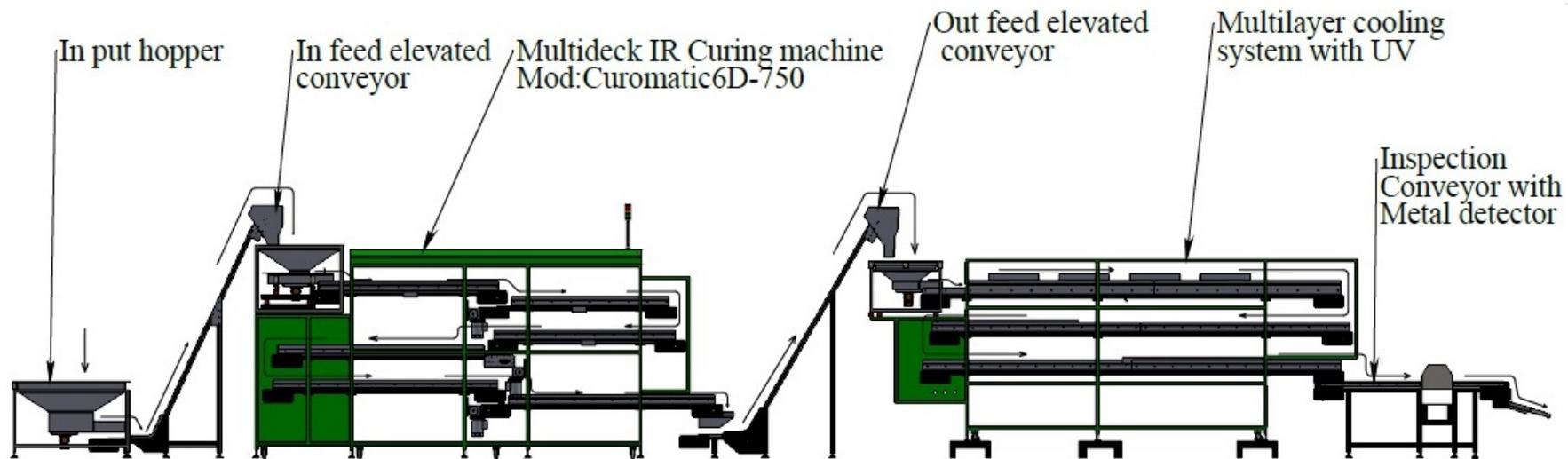
- *UV light sterilization* is an environmentally friendly method of killing bacteria, mold, fungi, and viruses without the use of harmful chemicals and does not produce residues, corrosive materials or disinfection by-products (DBPs).
- The sterilization effect is not achieved by using chemicals or steam but through UVC radiation. The sterility of the products prevents epidemics and also increases storage life.
- Previously, herbs and seeds were either not sterilized at all or were sterilized with complicated processes like Borma, Steam, Chemicals etc with subsequent problem that valuable contents and essential oils and nutrients were lost during the sterilization process.
- Furthermore, UV light sterilization effectively purifies the air without the use of hazardous chemicals that maybe CARCINOGENIC.



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Combination technology - most efficient means to kill Infestation & bacteria



- TMPL's modular IR+UV Disinfestation, pasteurization line integrates validated kill-step into your production environment. Modules can be added or removed during upgrades in future.
- In cooperation with certified independent third party NABL accredited laboratory we assist our customer with pasteurization validation of the equipment's supplied for greater than 4 log reduction.
- Currently only documented process can withstand the legal challenge that the nuts processing industry and retail business is faced with today.



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TRUSTED NANO CONCEPT & IN LINE TECHNOLOGIES

(...NO AUTOMATION ...NO OPERATION)

Thank You !!!

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