**INDUSTRIAL APPLICATION OF CHEMISTRY**

1. Radioisotope Production and Radiation Technology

The programme on Radioisotope Production and Radiation Technology responds to Member State requests for radiopharmaceuticals, radioanalytical services, industrial and environmental applications. Use of radioisotopes and radiation technology remain among the best technologies available and an economically attractive option in many applications for sustainable development. The title of the programme has been changed from 'Physical and Chemical Applications' to 'Radioisotope Production and Radiation Technology' to reflect better the new content.

1. Trends in Radiation Sterilization of Health Care Products

Radiation processing has become significant in many industries worldwide. Sterilization, polymer cross-linking and the irradiation of certain food items for hygienization, for example, are well established technologies. Either gamma radiation from isotopic sources or high energy electrons from accelerators are being applied in these processes.

1. Radiation processing of natural polymers

Radiation processing offers a clean and additive-free method for preparation of value-added novel materials based on renewable, non-toxic, and biodegradable natural polymers. Crosslinked natural polymers can be used as hydrogel wound dressings, face cleaning cosmetic masks, adsorbents of toxins, and non-bedsore mats; while low molecular weight products show antibiotic, antioxidant, and plant-growth promoting properties.

1. Fused Salt Chemistry of Industrial Application

The electrode furnace generates direct heat in salt by using its resistance to current passage.Salts, while insulators in the solid state, are excellent high-resistance conductors in the moltenstate. Potential is applied to the molten salt by use of heavy electrode bars. These are connectedto the secondary of special multiple voltage air cooled transformers. Electrodes are located in arecessed area of the bath and cause salt circulation by electromagnetic forces when energized. Astrong magnetic field is created between electrodes when located close together.

1. Industrial Dyes

Dyes - originally obtained exclusively from natural sources - are today also produced synthetically on a large scale and represent one of the very mature and traditional sectors of the chemical industry.

**CHEMISTRY INVOLVE in**

1. Pharmacy
* Chemical composition of drugs - There are so many drugs that do the same thing that pharmacist really have to know the chemical composition to really know which one would work best for the patient.
* Pharmacist have to know chemistry to know which drugs open which channels in the body. Like for example we prescribe Lithium carbonate for bipolar disorder patients. So the pharmacist have to know it effects the body. Life is basically chemistry. There would not be life without chemical reactions taking place everywhere.
1. Biotechnology
* Spilled oil Waste disposal - The chemistry would involve learning how to stabilize the enzyme to function outside the body in such a harsh environment as an oil spill.
1. Agriculture
* Formulation of fertilizer. Proper amount of fertilizer will determine your optimum yield in crops which in turn gives you more profit.
* Application of pesticides. Knowledge in chemistry will help you determine the right dosage, right chemicals to apply in controlling pest in your crops, thus minimizing the loss in your profit.
* Formulation of vitamins, feeds ratio and vaccines for animals needs at least basic knowledge in chemistry.
* Understanding the biological and physiological process of all domesticated livestocks and plants are all based on the basic knowledge in biology and chemistry.
1. Physics and Engineering
* Chemical engineering basically is applied in chemistry. It is concerned with the design, construction, and operation of machines and plants that perform chemical reactions to solve practical problems or make useful products.
* Designing new rubber for cold weather use.
* Developing pharmaceuticals.
* Researching ways to keep lipstick on lips longer.