

itself, thus preserving loss of the basic property of the product.

*Issue-3: PVC uses many heavy metals as stabilizers - which are hazardous:*

Yes, one of the earliest and most efficient stabilizers for PVC was Lead and its salts. However, the development of newest stabilizers/additives have already started replacing many controversial stabilizers' cost. For food contact applications safe additives/stabilizers are already being used.

In India, Bureau of Indian Standard (BIS) have laid down these limits and any PVC product bearing 'ISI' mark comply with these.

*Issue-4: PVC evolves Dioxin during incineration:*

The American Society of Mechanical Engineers (ASME) has concluded in a recent study that there is no correlation between the amount and type of chlorine in the waste stream and the amount of Dioxin emitted by waste incinerators.

It is now widely believed that, incinerator design and operating conditions are the keys to control Dioxin.

As per the draft report of US EPA, Dioxin in the atmosphere in 2000 has reduced by 1/3rd as compared to that in the seventies, whereas the production of plastics raw materials has tripled during the same time.

This proves that Dioxin and plastics are not correlated.

*Issue-5: Fire situation in building emit toxic gases due to burning of PVC items:*

PVC is generally fire resistant. It does not catch fire by itself. Moreover in fire situation the types of gases emitted from other building materials cause same or a more severe type of hazardous situation as done by PVC. PVC cannot be singled out as the only reason for fatal injury to human lives during fire situation.

PVC does not have any additional toxicity risks under fire situation. During fire situation, PVC, like all organic materials, releases gases which are toxic. Hydrochloric acid, a product released during PVC fire, is not a killer gas in the amounts normally released. A study report shows that it would require about 30 minutes exposure to hydrogen chloride released from the PVC present in a typical room fire to inhale a lethal dose. Long before that, a person trapped in a room fire would have died from the carbon monoxide released by all other organic materials (wood, clothes, etc.) in the room, or from heat and flame exposure. While hydrogen chloride has a characteristic pungent odour to give signals of danger to the people, carbon monoxide, being odourless, does not give any indication of the impending danger.

## **WATER AND SOIL POLLUTION**

Plastics do not pollute water. In fact most plastics materials may be used in contact with food products. Potable water is stored and delivered through plastics. Plastics processing industries do not generally have scope of releasing any effluent except water itself which is used as cooling agent.

## **DISPOSAL**

There are options for disposal of plastics items. These are - Reuse, Recycle, Disintegration through incineration and Land filling.

Biodegradable and Photodegradable plastics also have been developed.

In any of these options, plastics by themselves do not pose any problem. Civic awareness and strict control of methods of disposal are the keys to the treatment of plastic wastes required.

There is a general concern that plastic carry bags often choke the municipal drainage system. Here, it may

be mentioned that, there are many other things which may choke the drainage system. There should be a social awareness that plastics items (any item for that matter) should be disposed off in a correct manner. If we want to live in the comfort of an urban life style and if we want to take advantage of technological developments in our lives, we must behave ourselves.

## **USAGE/REUSAGE**

Plastics are used in:

- Packaging
- Buildings including furniture
- Pipes
- Cables
- Electronics & Electricals
- Automobiles and Aviations
- Medical including population control systems
- Agriculture and water management
- Appliances and household products
- Many other applications

In all the above cases plastics always preserve the natural resources/energy and help to keep the environment clean. In some cases plastics are the only material for use.

Reuse/Recycle of plastics is very much possible for which detailed procedures are well developed.

## **GLOBAL WARMING**

Global warming-up is a major concern today. Temperature on earth is increasing. However, plastics cannot be considered as the cause of global warming.

