

The focus of Environmental Information, Awareness, Capacity Building & Livelihood Programme (EIACP) scheme is to disseminate environmental information to decision makers, policy planners, scientists and researchers across the world.

CERC-EIACP, Programme Centre - Resource Partner to MoEF&CC works on the thematic mandate of 'Environment Literacy - Eco-labelling & Eco-friendly Products'. This bi-monthly e-bulletin features latest of Environment, developments and innovations.

Biodegradable product

In India, there is a growing interest in Sustainable products, and a number of companies have emerged as Disposable Products Manufacturers. These products are made from materials that can be broken down naturally by bacteria or other living organisms. Therefore they do not cause harm to the environment. These products are often made from plant-based materials which includes cornstarch, sugarcane fiber, and bamboo. It can be used for a variety of purposes such as food packaging, utensils, and even clothing. Various companies produce a range of products such as plates, bowls, cups, and clamshells, all the materials are made from plant-based materials. These products are not only environmentally friendly, but also durable and affordable.

Source: <https://www.freshtableware.in/about>



Thermocol Pollution

Green Issue

Thermocol is the commercial name for the expanded polystyrene (EPS). It is one of the highest consumed polymers produced due to its versatile applications in packaging. Thermocol is a byproduct of polythene and contains an important thermoplastic compound called polystyrene which is obtained by the polymerization of styrene. 15 million metric tons of Thermocol are produced annually worldwide and almost 95% of it reaches landfill and catches fire easily. As a result of its widespread use and poor rate of recycling, polystyrene is viewed as a major post-customer waste product. It is widely used in the packaging of industrial products, electronic components, electrical consumer goods, food, toys, books, etc.

Is Thermocol recyclable? Technically the answer is "yes", but in reality, it is rarely recycled. Thermocol is only actually recyclable if it is clean, un-dyed, and uncontaminated. But because it often holds food, it seldom meets those conditions. Even if it is clean when it goes to dustbin, it might not be clean when it comes out. Other dirty materials present in the dustbin can leave Thermocol contaminated and unsuitable for recycling. Thermocol is non-biodegradable because it is photolysis resistant, and it reportedly takes 500 years to 1 million years to degrade.

Incidentally Thermocol remains the most preferred raw material for school projects. It is mostly lack of expertise and awareness that lead teachers and parents to opt for Thermocol in most cases, as they help their wards with school projects. Ninety per cent of projects are Thermocol-based. A ban would be successful only when students switch to eco-friendly ways. A good substitute is cardboard. This can be encouraged by conducting training sessions.



Properties of Thermocol:

- It is clear, hard, and rather brittle.
- It is poor barrier to oxygen and water vapor and has a relatively low melting point.
- It is a solid state at room temperature, but flows if heated above 100 degree Celsius. It becomes rigid again when cooled.
- It is extremely light and can be molded into any desired shape.
- It is sufficiently rigid to absorb shocks and physical impact.
- It has closed cell structure and supports low thermal conductivity.
- It is very slow to degrade.

Environmental impacts of Thermocol:

- The light-weighted nature of Thermocol causes them to float, resulting in huge quantities of Thermocol accumulating along coasts and waterways around the world, forming part of what is called "marine debris". It reduces the aesthetic and recreational values of beaches and marine resources.
- As Thermocol accumulates on beaches, and submerged benthic habitats, habitat structure may be modified light levels may be reduced in underlying waters, and oxygen levels may be depleted. These changes can undermine the ability of open water and benthic habitats to support marine life.
- Concerns are commonly expressed about economic losses, health issues and harm to local biota.
- Thermocol foam and plastic food packaging are one of the biggest culprits in clogging municipal storm drains.
- Thermocol is manufactured by using many chemicals like bromine and HFCs, which have negative environmental effects and impacts on the ozone layer, cause global warming.
- Thermocol breaks down small pieces that marine animals easily mistake for food. At least 162 marine species worldwide have been reported to have consumed Thermocol and other litter. These wildlife suffer from loss of appetite, reduced nutrient absorption, and starvation.
- Thermocol is a major component of plastic debris in the ocean, where it could lead to transfer toxic chemicals to the food chain.
- National Toxicology Program, 2011 reported that presence of styrene monomer in Thermocol (from which Thermocol polymer is made) is a cancer suspect agent. This is commonly used in containers for food and drinks.
- Research work also reported that the instant food packed in the Thermocol may increase thyroid hormone levels.
- Burning of Thermocol releases toxic gas called styrene which can readily be absorbed through the skin and lungs. It can also damage the eyes and mucous membranes.
- Thermocol pollution also increases the risk of heart diseases, asthma, causes rashes, headache, damages in the nervous system, kidney or liver, etc.



Image source: <https://www.anandabazar.com/topic/picnic-party>

Source: <https://www.freshtableware.in/about>, <https://environmentaldefence.ca/2018/10/19/banthe foam/>

<https://www.thegoan.net/letters-to-the-editor/thermocol-pollution-as-bad-as-plastic-pollution/100878.html>

P. R. Pawar, S. S. Shirgaonkar, R. F. Inamdar, and R. B. Patil (2016). Impacts of Themocol waste on marine life: A Review, International Multidisciplinary research Journal, 3(1), 60-68.

Eco-Tips

Think Globally, ACT Locally

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