The Federal Polytechnic Ilaro
2nd International Conference

Styrofoam Food Packs: The Controversy Between Being a Daily Necessity and an Environmental Hazard.

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INTRODUCTION

- Nigeria is considered to be the most populated country on the African continent and one of the bona fide United Nations members (Kehinde et al., 2018), producing over 34 million tons of waste each year, of which only 20-30 per cent are collected (Bakare, 2020), leaving more than 60 percent unattended. Lagos, one of the fastest growing economy in Africa in the world produces about a 20 thousand tons daily. A massive 80 percent of its waste are Plastic Waste, having Styrofoam food packs Waste consisting of more than 50 percent (Olanrewaju, 2019).

INTRODUCTION CONT.

- Styrofoam food packs popularly call “Take Away Packs” are food packs made from Styrofoam; they are technically known as “polystyrene foamed”.

- Polystyrene is an odorless, tasteless, rigid thermoplastic, they are used in packing electronics, used as disposable cups and also used as food packs in selling meals. Take away packs as fondly called are being seen by food vendors as the best method of packaging their road side meals on the streets of Lagos.

INTRODUCTION CONT.

- After being used by their end users, these packs end up on the streets, roads, drainages and if lucky in the waste bin. Furthermore, other environmental factors responsible for littering plays her role.
- Having followed by a heavy downpour over a weekend, an entire neighborhood in Lagos Nigeria will then be rendered completely overwhelmed with mountains of Styrofoam food packs (Take Away packs). Pictures are showed in the next slide.

INTRODUCTION CONT.

A street covered with Styrofoam's

Takeaway packs

INTRODUCTION CONT.

Affecting Streets

Affecting Aquatic Life

INTRODUCTION CONT.

- In recent years global understanding of the environment and climate change has started to increase (Setyowati, 2014),
- however, in reducing these wastes, a balance has to be placed between having the use of the Polystyrene materials as a necessity and see them as a danger to our environment.

STYROFOAM FOOD PACK AS EPS FOAMS

- Expanded polystyrene (EPS) is widely used in packaging industries, thanks largely to its outstanding impact strength, acoustic insulation, Lightness, and quick handling (Samper, Garcia-Sanoguera, Parres, & López, 2010). EPS
- EPS is heat resistant
- EPS is lightweight and sturdy: can carry food and oil without fear of leak and tear.
- EPS is inert and stable. EPS is neither chemically reactive nor conducive to bacterial development. These attributes make it safe and more hygienic for food service.
- EPS can be produced at a low cost.

Advantages of EPS Foams

- Mechanical strength – strength can be adjusted
- Dimensional Stability - virtually unaffected within a wide range of ambient factors.
- Electrical Properties - The dielectric strength of EPS is approximately 2KV/mm.
- Water Absorption - Even when immersed in water it absorbs only a small amount of water.

Advantages of EPS Foams cont

- Chemical Resistance – Water and aqueous solutions of salts and alkalis do not affect expanded polystyrene. However, EPS is readily attacked by organic solvents.
- Weathering and Aging Resistance
- Fire Resistance

Disadvantages of EPS Foams

- Environmental Effect of EPS Foams (Takeaway packs)
- Effects on Human life of EPS Foams (Takeaway packs)
- Effects on animals (Aquatic and Land)

THE CONTROVERSY OVER STYROFOAM FOOD PACKS AND EPS FOAMS

EPS FOAMS AS A DAILY NECESSITY.

- **Appliances and Electronics:** Refrigerators, air conditioners, ovens, microwaves, vacuum cleaners
- **Automotive:** EPS foam contributes considerably to allowing modern cars to be lighter, fuel efficient, safer and trendy enough to rely on new purchasers than older model models. Saving cost.
- **Food Service and Food Packaging**
- **Medical:** EPS is inert and non-toxic. It does not leach any substances into the ground water. It aids energy savings as it is an effecting thermal insulation material which helps reduced CO2 emissions. They can be sterilized with ethylene oxide, and very stable to gamma radiation due to its high aromatic content. Due to its clarity, low cost, and excellent processability general purpose polystyrene is used in labware for diagnosis and analysis and medical packaging (Sastri, 2010).
- **Construction**

THE CONTROVERSY OVER STYROFOAM FOOD PACKS AND EPS FOAMS CONT.

THE BAN

The controversy over whether EPS foam products are environmentally friendly has led some cities, such as New York, to ban the use of EPS foam

The idea is that banning such products will reduce littering and protect some of the animals that mistake EPS waste for food or nesting material.

Opponents of EPS bans, however, argue that banning EPS foam isn't the answer because it only leads to the use of alternative products that cause even more environmental problems than EPS foam itself.

Despite the ban in some cities, EPS foam products remain a common staple in the food service and packaging industry (Barroso 2020).

THE CONTROVERSY OVER STYROFOAM FOOD PACKS AND EPS FOAMS CONT.

RECYCLING

EPS food packaging is typically not “clean” enough to be recycled.

EPS has a very low recycling rate. According to a 2004 study by the California Integrated Waste Management Board, of the 377,580 tons of polystyrene produced in the state, only 0.8% is recycled of that, only 0.2% (310 tons) of polystyrene food service packaging is recycled.

Conclusions

In conclusion, EPS food packs are difficult to recycle, and Banning of EPS foam might have an economic impact, a regulation of EPS foam should be adopted.

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THANK YOU!