ISSN No:-2456-2165

Sustainability of Flexible Packaging Industry across the Globe through the Eyes of Green/Sustainable Chemistry

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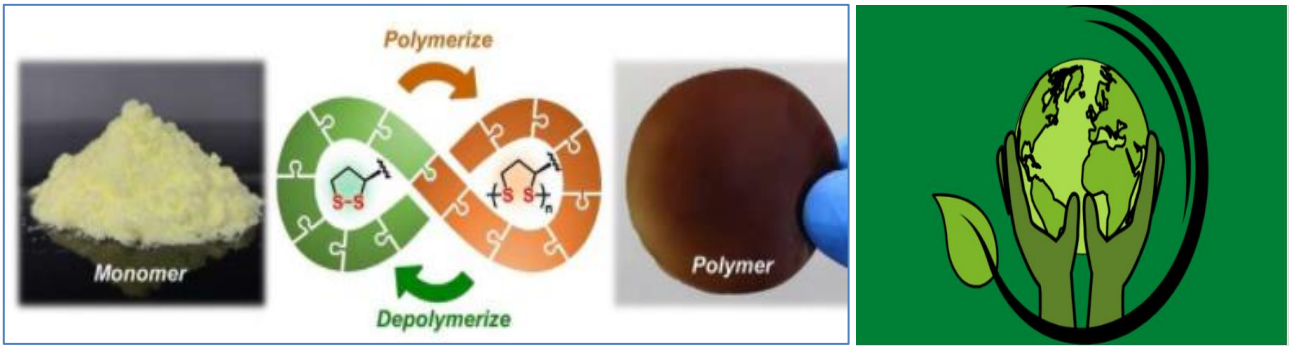

Abstract/Theme: -
Linking the changing world with Chemistry/Green Chemistry/Sustainable Chemistry, integrating the below two fundamentals of Flexible Packaging:

Sustainable Path for the Flexible Packaging Industry/Material Sectors and Connect with Global Community of modification in Green / Sustainable Chemistry Education.

Highlight: Sustainability is the "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

I. INTRODUCTION

This is concerning Flexible Packaging industries across the country as well as Globe. Here produced Polyethylene (PE) by Extrusion (Tubes blow & cast films…). PE is then processed for lamination over the printed films like PET, MPET or BOPP. These Films are printed earlier as per customer's demand. This is how the Packaging materials are made. Also, "The supply chain and packaging requirements we use noware 10 times more important than they were 40 years ago. But we expect it to be the same as it was 40 years ago!But consumers don't see it that way. They proceed, 'I want this, and I want that, and I don't want plastic'. Realistically, without plastic, we haven't got a product. "Same declaration has been announced in 2025 Plastic pledge,"problematic or unnecessary" plastics should be removed and only "easily and safely" recyclable ones are welcomed.

II. BACKGROUND

Packaging provides a means to preserve, transport, store, distribute and merchandise of a product. Product. Packaging plays a vital role to reach the product to its consumer safely without compromising its quality; packaging has a significant role in sustainability nowadays as it reduces food loss, keeps food quality better for a long period and reduces wasteful consumption and use of products. In developed and developing countries, concern about packaging design and wastes that are generating from it. Poor packaging design and disposal of packaging wastes are creating frequent environmental problems. Packaging wastes are becoming a significant portion in the municipal solid wastes too. So packaging design, production, transportation, use and final disposal of packaging wastes need proper environmental consideration. A proper management system at the end of life of packaging can play an important role in reducing environmental burden.

III. INITIATION OF THE WORK/COINCIDENCE:

Flexible Packaging's can be used sustainably. Most importantly, 4 Goals (Out of United Nations announced 17 Sustainable Development Goals) are directly playing a crucial role as per following:

ISSN No:-2456-2165

Goal serial	Goal Name	Goal description	Flexipack relevant
Goal 9	Industry, Innovation and Infrastructure	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	*Sustainable industrialization*
Goal 12	Responsible Consumption and Production	Ensure sustainable consumption and production pattern.	*Sustainable production*
Goal 13	Climate Action	Take urgent action to combat climate change and its impacts.	*Climate change sustainably*
Goal 15	Life on Land	Protect, restore and promote sustainable use of terrestrial ecosystems, manage forests, combat desertification and biodiversity loss and halt and reverse land degradation.	*Land degradation sustainably*

Table 1

IV. METHODS AND METHODOLOGY/ MECHANISTIC INTERPRETATION

Furthermore, LCA (Life Cycle Assessment) can be used in analyzing the overall environmental burden measuring the greenhouse gas emission, total energy consumption, raw material used, hazardous substances like CO2, Sox, Nox emissions throughout a product's life cycle. This study will check the present status of flexible packaging and recommend the ways to go for more 'green' packaging system to contribute for achieving the sustainable development goals. Details are as follows:

Primary life cycle inventory data will be collected from major packaging industries in Bangladesh through a questionnaire survey. Simultaneously, secondary data will be collected from the database, websites of packaging companies and industries, scientific journals, articles, report and daily newspaper etc.

- A convenient functional unit can be chosen depending on production on the basis of which
- results will be calculated and compared later.
- System boundary of the study will be determined on the basis of availability of data, time and cost.
- Inventory data, collected from industries and secondary database, can be analyzed by software.
- Eco invent database can be used, the ecoinvent database supports environmental assessments of products and processes worldwide
- ReCiPe midpoint (H) method can be used for analyzing the overall impact through different impact categories arising from packaging system.

V. OPTIMIZATION/SCOPE OF THE WORK/ EXPERIMENT SET UP

Below steps can be initiated to achieve process improvement and maximize to eliminate flexible packaging wastages through the usage of existing scopes in future:

- Develop an effective life cycle inventory for flexible packaging in Bangladesh.
- Calculation of Environmental footprints of packaging
- To identify the 'hotspots' and recommend the ways of recovery.
- Include as part of annual performance goals

VI. CONCLUSION

Overall, various impact categories will be shown for flexible packaging system on the basis of which the most energyconsuming sector(s) in the production system would be identified and suggestions would be provided to deal with those sector(s) accordingly.

- **Time frame:**From questionnaire survey to data analysis, it would require about four to six months.

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- **Acknowledgement (Author):** I would like to thank and immense gratitude to all of my friends and family members for unconditional, unequivocal and loving support without which I couldn't be able to complete this Nice Article "Linking the world through Chemistry". This will obviously help in my future Researchwork that was my dream indeed.

REFERENCES

[1.] Edjabou, M.E., Jensen, M.B., Götze, R., Pivnenko, K., Petersen, C., Scheutz, C., Astrup, T.F., 2015. Municipal solid waste composition: sampling methodology, statistical analyses, and case study evaluation. Waste Manag. 36, 12–23. https://doi.org/10.1016/j.wasman.2014.11.009

[2.] Almeida, C.M.V.., Rodrigues, A.J.M., Bonilla, S.H., 2010. Emergy as a tool for Ecodesign: evaluating materials selection for beverage packages in Brazil. J. Clean. Prod. 18, 32–43. https://doi.org/10.1016/j.jclepro.2009.03.019

[3.] Raheem, D., 2013. Application of Plastics and Paper as Food Packaging Materials - An Overview Emir. J. Food Agric. 177–188. https://doi.org/10.9755/ejfa.v25i3.11509

[4.] Goggle source.