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Assessing the Sustainability Benefits: Flexible Stand-Up Bags for Cat Litter — A LCA Case Study

A flexible stand-up bag has a number of significant environmental benefits over a rigid pail and barrier carton, even when taking the current recycling rate of the rigid pail into consideration

***A*nnapolis, MD: April 24, 2019** – The Flexible Packaging Association's (FPA) report, *A Holistic View of the Role of Flexible Packaging in a Sustainable World*, highlights the sustainability benefits of flexible packaging. FPA commissioned PTIS, LLC to provide a holistic view on the sustainability benefits that flexible packaging offers; provide foresight into future sustainability implications for flexible packaging; and develop six Life Cycle Assessment (LCA) case studies comparing flexible packaging to other packaging formats across a range of products.

The LCA case studies were developed using the EcoImpact-COMPASS® LCA software, which allows for quick life cycle comparisons between different packaging formats. The results from the case studies show that flexible packaging has more favorable environmental attributes for carbon impact, fossil fuel usage, water usage, product-to-package ratio, as well as the amount of packaging material going to the landfill when compared to other packaging formats for the same products.

Cat litter is a necessity for all cat owners and is a heavy, moisture-sensitive product that requires a strong package with a moisture barrier. Three common packaging formats for cat litter were evaluated for this LCA study: a flexible stand-up bag, a paperboard barrier carton, and a rigid plastic pail with handle. All formats meet the criteria for strength and moisture protection.

Paper manufacturing requires significant amounts of water in the paper forming process. Similarly, water is used to cool the molds during the production of rigid plastic pails. This gives the flexible stand-up bag a significant advantage in water consumption compared to the barrier carton or rigid pail. The barrier carton has a water consumption impact 3,573% more than that of the flexible stand-up bag. The rigid pail has a water footprint 1,370% higher than the flexible stand-up bag.

The flexible stand-up bag consists of considerably less material by weight than the rigid pail or barrier carton, which makes the stand-up bag preferable in terms of greenhouse gas emissions. Additionally, the injection molding process required to make the rigid pail uses more energy than the film lamination process used for the flexible stand-up bag. Compared to the flexible stand-up bag's greenhouse gas emissions, the barrier carton produces 331% more while the rigid pail emits 996% more emissions.

Due to its lightweight advantages, the flexible stand-up bag comes out ahead of the other packaging types in fossil fuel consumption. The weight of the barrier carton and energy needed in the papermaking process leads to 69.6% more fossil fuel used in manufacturing than the flexible stand-up bag. The rigid pail requires 11X as much material as the flexible stand-up bag and uses 1,429% more fossil fuel in manufacturing than the flexible stand-up bag.

None of the package formats are recycled in any significant amount today. The barrier carton is not typically recycled because of the film laminated to the paperboard, which is needed to provide the appropriate moisture barrier. Based on this, the flexible stand-up bag results in approximately 9X less material ending up in municipal solid waste than the barrier carton, and around 12X less material by weight ending up in municipal solid waste than the rigid pail, even considering the recycling rate of the pail. The rigid pail and lid recycling rate would need to increase from 11.1% to 90% to have the same weight of material ending up in municipal solid waste as the flexible stand-up bag.

The results of the data when comparing different cat litter packaging options shows that the flexible stand-up bag has a number of significant benefits (fossil fuel usage, carbon impact, water consumption, and municipal solid waste) over the rigid pail and barrier carton, even when taking the current recycling rate of the rigid pail into consideration.

The case study can be downloaded by clicking here.

For more information on the case study and the sustainability benefits of flexible packaging, visit www.flexpack.org, or contact FPA at fpa@flexpack.org or 410-694-0800.

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About the Flexible Packaging Association (FPA)
The Flexible Packaging Association is the voice of the U.S. manufacturers of flexible packaging and their suppliers. The association's mission is connecting, advancing, and leading the flexible packaging industry. Flexible packaging represents over $31 billion in annual sales in the U.S. and is the second largest, and one of the fastest growing segments of the packaging industry. Flexible packaging is produced from paper, plastic, film, aluminum foil, or any combination of those materials, and includes bags, pouches, labels, liners, wraps, rollstock, and other flexible products.