



THE BENEFITS *of* INCLUDING PAPER *in* COMPOSTING

Most paper products may be safely and beneficially used as a composting feedstock where markets for traditional paper recycling are not presently available or where recycling is not economically or technically feasible. Inclusion of non-recyclable and soiled paper products in collection for composting provides economic, processing and product benefits that are supported by research from North America and Europe. Paper products contain very low levels of contaminants, in most cases below those found in yard waste. No significant problems from including paper in composting have been reported.

- > **Composting economics and diversion from disposal are improved by including non-recyclable and soiled paper in** the collection with other compostable materials. By adding composting (including yard waste, food waste and soiled or non-recyclable paper) to aggressive recycling programs, 50 to 70 percent of municipal waste can be recovered. This is particularly the case for rich sources of organics such as residences, retail groceries, restaurant, hotel and foodservice operations, where paper comprises about one-half of the compostable materials remaining in the waste stream after recycling. (1-10, 12, 15, 17, 19, 26)
- > **Paper absorbs free water** from wet compostable feedstocks. This minimizes odors in collection bins and vehicles and helps to prevent leaks onto the ground and pavement. (1, 8, 9, 26)
- > **Paper provides a source of carbon to balance the initial carbon/nitrogen ratio**, a critical parameter for successful composting. Paper has also been shown to be successful as a bulking agent when co-composted with biosolids, grocery organics and yard waste. (1, 3, 7-9, 18, 19, 21, 26)
- > **All paper categories have extremely low levels of potential compost chemical contaminants.** Comprehensive waste characterizations which include chemical testing of waste categories show that in most cases paper contamination is lower than yard waste and 1 to 2 orders of magnitude lower than US EPA requirements for use of biosolids. (1, 9-11, 16, 18-20, 27)
- > **Compost made from feedstocks with paper is as low or lower in contaminants than compost made with no paper in the feedstock.** Source-separated compost made from feedstock that includes paper easily meets US EPA requirements for use of biosolids. Compost screening/refining processes readily remove incidental non-compostable materials inadvertently included with source-separated organics and increase facility yield; potential physical contaminants such as polyethylene from multi-layer paper products like diapers and milk cartons are also easily removed during refining. (1, 3, 4, 7, 9-11, 14-21, 26, 27)

- > **The market quality of compost made with paper in the feedstock is improved** over those made from only yard waste and traditional European biowaste (food and yard only) – adding paper improves both density and organic matter, while reducing salinity versus biowaste only. Agricultural testing in Florida and California suggests that compost made from feedstock that includes paper reduces irrigation requirements and nutrient leaching by providing a wicking and binding effect to hold the water and nutrients in the plant root zone. (1, 9, 12, 13, 20, 28)
- > Paper is made primarily from plants – **inclusion in compost feedstock returns paper to its source** where it can help to restore organic matter to depleted soils. (1, 7, 12, 13)
- > **Households participate more in curbside recycling when food and food-soiled paper are collected together** for composting. When asked to separate all food waste including food-soiled paper, 60% of households participated; when asked to separate vegetable food waste only, 48% of households participated. In another study, adding paper increased the participation rate 22%. (24, 28)
- > **The extensive research documenting these benefits included a wide variety of paper products in the composting feedstock – food soiled paper** such as pizza boxes, coffee filters, napkins and plates; **coated paper** such as waxed paper, shipping containers and cartons for milk and other products; **sanitary products** such as paper tissues, towels, diapers and feminine hygiene products; **paperboard packaging** such as cereal, detergent, and gift boxes; and **paper sludges** generated as a by-product from both virgin and recycled paper mills. **Newspapers, magazines, office paper and cardboard** have shown similar benefits for compost production and use in cases where markets for traditional paper recycling are not presently available or where recycling is not economically feasible. (1, 3-5, 7-9, 11-23, 25, 28, 27)

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