

## REDUCE YOUR CAT LITTER CARBON “PAWPRINT” FACT SHEET

Carbon footprint is generally defined as the total greenhouse gases (GHG) released into the environment directly (fossil fuel combustion) or indirectly over the lifecycle of a product, often expressed as tons of carbon emitted on an annual basis.

Litter Type	Coconut Husk (Coir) - Kitty’s Crumble	Wood-based (pine, paper, pulp)	Grain-based (corn, wheat, alfalfa)	Clay- and Silica-based
<b>Raw Material</b>	Coconuts	Trees	Agricultural crops	Minerals
<b>Generation Process</b>	<ul style="list-style-type: none"> <li>• Coconuts fall from trees and are collected by hand</li> <li>• They are grown without fertilizer, pesticides or herbicides</li> <li>• Centuries-old coconut groves only require natural rainfall</li> <li>• Coconut trees sequester GHG</li> </ul>	<ul style="list-style-type: none"> <li>• Trees harvested using fuel combustion heavy equipment</li> <li>• Deforestation is significant GHG contributor</li> </ul>	<ul style="list-style-type: none"> <li>• Crops harvested using fuel combustion heavy equipment</li> <li>• Fertilizers, pesticides, herbicides are significant GHG contributors</li> <li>• Tilling releases carbon stored by soil</li> <li>• Deforestation to create space for crops</li> </ul>	<ul style="list-style-type: none"> <li>• Mined from the earth using fuel combustion heavy equipment</li> <li>• Soil disturbance releases carbon</li> </ul>
<b>Disposal/ Recycle</b>	<ul style="list-style-type: none"> <li>• Kitty’s Crumble is biodegradable</li> <li>• Kitty’s Crumble has the physical characteristics of peat moss (water-retention, air porosity, balanced pH) and is ideally recycled (with solids removed) as a soil conditioner in a garden (or placed in compost or green waste bin for municipal recycling)</li> <li>• Kitty’s Crumble is cationic (positively charged ions) and binds to nutrients passing through the soil medium (same process that traps odors from cat urine)</li> <li>• Coir widely used in horticultural applications</li> </ul>	<ul style="list-style-type: none"> <li>• Wood-based litters are biodegradable</li> <li>• Physical properties not ideally suited for mulch, soil amendment, or other use</li> <li>• Mostly disposed of in landfills</li> </ul>	<ul style="list-style-type: none"> <li>• Grain-based litters are biodegradable</li> <li>• Physical properties not ideally suited for mulch, soil amendment or other use; food product susceptible to bacterial growth; often found appetizing by other pets, such as dogs</li> <li>• Mostly disposed of in landfills</li> </ul>	<ul style="list-style-type: none"> <li>• Clay-based litters are not biodegradable</li> <li>• Disposed of in landfills</li> </ul>

### Kitty’s Crumble Manufacturing & Distribution

- Kitty’s Crumble is manufactured in close proximity to coconut groves, reducing consumption of energy for transport of raw materials.
- While all litters involve the consumption of energy in the manufacturing process, Kitty’s Crumble’s manufacturing is relatively simple and uses energy efficient machinery.
- Kitty’s Crumble is imported by marine vessel to select North American cities, which reduces transport distances for subsequent distribution to pet stores. Transport by truck produces more than ten times GHG emissions from marine vessel.

## **GHG CARBON FOOTPRINT AND OTHER ENVIRONMENTAL FACTS**

### **Deforestation**

- Deforestation is believed to contribute one-third of GHG worldwide through the release of carbon upon harvest
- One acre of forest stores 30.76 tons of carbon; trees sequester carbon from the atmosphere through photosynthesis and store it as lignin and cellulose
- Deforestation causes significant loss of habitat
- Logging practices, including construction of roads, significantly affect water quality through erosion

### **Agriculture**

- Agriculture is believed to contribute one-third of GHG worldwide and 6 percent of GHG in the U.S.
- The largest sources of indirect GHG from agriculture are fertilizers (N<sub>2</sub>O), tilling (carbon) and deforestation (carbon) to create space for crops
- Nitrous oxides are 300 times more powerful than carbon in trapping heat in the atmosphere
- Wheat and corn are among the highest fertilizer consuming crops
- 90% of corn crops in the US use herbicides
- Agriculture consumes significant water resources and energy
- Agricultural runoff contains toxins that pollute groundwater and surface waters
- Agricultural crops sequester 2.02 metric tons of carbon per acre pre-harvest

### **Mining**

- Strip mining causes a host of environmental problems
- 1.5 million tons of bentonite clay is strip-mined annually for clumping cat litter
- Many types of clay contain crystalline silica, a known carcinogen

### **Landfills**

- 2.97 tons of carbon emissions are saved for every ton of waste not placed in a landfill

### **Transportation**

- CO<sub>2</sub> emissions are estimated for the following modes of transportation:
  - Marine vessel container ships -- 11g CO<sub>2</sub> e/t-km
  - Rail -- 18g CO<sub>2</sub> e/t-km
  - Truck transportation --114g CO<sub>2</sub> e/t-km(CO<sub>2</sub> e/t-km = carbon dioxide equivalent units per ton, per kilometer)

### **References**

- US EPA, Greenhouse Gas Equivalencies Calculator Emissions & Generation Resource Integrated Database (eGRID). <http://www.epa.gov/cleanenergy/energy-resources/refs.html>
- US Dept of Agriculture, U.S. Agriculture and Forestry Greenhouse Gas Inventory: 1990-2001bB. [http://www.usda.gov/oce/global\\_change/gg\\_inventory.htm](http://www.usda.gov/oce/global_change/gg_inventory.htm)
- US Geological Survey, Historical Statistics for Mineral and Material Commodities in the United States, 2010. <http://minerals.usgs.gov/ds/2005/140/>
- World Resource Institute, CO<sub>2</sub> emissions from transport or mobile sources calculation tool, <http://www.ghgprotocol.org/calculation-tools/all-tools>