

Supplementary Materials

Table S1. Anaerobic digestion of food waste and bioplastics (scenario 1a) inventory data for waste treatment options.

Data description	Unit	Unit	Source
1 kg of influent to manage bio-plastic and food waste	1	kg	N/A
Anaerobic digestion untreated			
Inputs			
Food waste input	10%	Percent by mass	calculated (Shakira R. Hobbs, Landis, Parameswaran, Astmann, & Devkota, 2016)
Anaerobic digested sludge input	89%	Percent by mass	calculated (S. R. Hobbs et al., 2016)
Polylactic acid input	1%	Percent by mass	calculated (S. R. Hobbs et al., 2016)
Outputs			
CH ₄ produced	1%	Percent by mass	calculated (S. R. Hobbs et al., 2016)
CO ₂ produced	0%	Percent by mass	calculated (S. R. Hobbs et al., 2016)
Biosolids (sludge)	29%	Percent by mass	calculated (S. R. Hobbs et al., 2016)
Biosolids (inert)	10%	Percent by mass	calculated (S. R. Hobbs et al., 2016)
PLA output	1%	Percent by mass	calculated (S. R. Hobbs et al., 2016)
Influent consumed	59%	Percent by mass	calculated (S. R. Hobbs et al., 2016)
Calculation Parameters			
Biosolids- food waste	5%	Percent of total solid	calculated (Liu & Liptak, 1999)
Biosolids-ash from sludge	11%	Percent of total solid	calculated (Liu & Liptak, 1999)
NaOH for Scrubber per CO ₂ & H ₂ S	4.3	gram per gram	calculated (Tippayawong, Promwungkwa, & Rerkkriangkrai, 2007)
CO ₂ removal efficiency	93%	Percent by volume	calculated (Tippayawong et al., 2007)
Moisture content	30%	Percent by mass	calculated (Patrick Walsh & O'Leary, 2002)

Table S2. Anaerobic digestion of food waste and pretreated bioplastics (scenario 1b) inventory data for waste treatment options.

Data description	Unit	Unit	Source
1 kg of influent to manage bio-plastic and food waste	1	kg	N/A
Anaerobic digestion treated			
Inputs			
Food waste input	4.6%	Percent by mass	calculated (S. R. Hobbs et al., 2016)

Anaerobic digested sludge input	40.2%	Percent by mass	calculated (S. R. Hobbs et al., 2016)
Water	48.5%	Percent by mass	calculated (S. R. Hobbs et al., 2016)
HCl input	3.0%	Percent by mass	calculated (S. R. Hobbs et al., 2016)
NaOH input	3.1%	Percent by mass	calculated (S. R. Hobbs et al., 2016)
PLA input	0.6%	Percent by mass	calculated (S. R. Hobbs et al., 2016)
Outputs			
CH ₄ produced	0.3%	Percent by mass	calculated (S. R. Hobbs et al., 2016)
CO ₂ produced	0.1%	Percent by mass	calculated (S. R. Hobbs et al., 2016)
Biosolids (sludge)	13.0%	Percent by mass	calculated (S. R. Hobbs et al., 2016)
Biosolids-ash(inert)	4.6%	Percent by mass	calculated (Liu & Liptak, 1999)
Water	48.5%	Percent by mass	calculated (S. R. Hobbs et al., 2016)
Influent consumed	26.9%	Percent by mass	calculated (S. R. Hobbs et al., 2016)
*Chemical outputs	6.6%	Percent by mass	calculated (S. R. Hobbs et al., 2016)
Calculation Parameters			
Biosolids- food waste	5%	Percent of total solid	calculated (Liu & Liptak, 1999)
Biosolids-ash from sludge	13%	Percent of total solid	calculated (Liu & Liptak, 1999)
NaOH for Scrubber per CO ₂ & H ₂ S	4.3	gram per gram	calculated (Tippayawong et al., 2007)
CO ₂ removal efficiency	93%	Percent by volume	calculated (Tippayawong et al., 2007)
Moisture content	30%	Percent by mass	calculated (Patrick Walsh & O'Leary, 2002)
P ₂ O ₅ fertilizer	1%	g/kg total solid	calculated (Tambone et al., 2010)
K ₂ O fertilizer	1%	g/kg total solid	calculated (Tambone et al., 2010)
N fertilizer	5%	Percent of total solids	calculated (Davidsson, Gruvberger, Christensen, Hansen, & Jansen, 2007)
Lime stabilization (CaO)	10%	Percent by mass	Calculated, (Shelef, Sukenik, & Green, 1984; Wurtz, 1981)

*Chemical outputs are sodium, hydroxide, lactic acid, hydrogen and chlorine.

Table S3. Compost of food waste and bioplastics (scenario 2a) inventory data for waste treatment options.

Data description	Unit	Unit	Source
1 kg of influent to manage bio-plastic and food waste	1	kg	N/A
Compost untreated			
Food waste input	83%	Percent by mass	calculated (Hottle et al., 2016)
PLA input	17%	Percent by mass	calculated (Hottle et al., 2016)
Calculation Parameters			
P ₂ O ₅ fertilizer	1%	g/kg total solid	calculated (Tambone et al., 2010)
K ₂ O fertilizer	1%	g/kg total solid	calculated (Tambone et al., 2010)
N fertilizer	5%	percent of total solid	calculated (Davidsson et al., 2007)

Table S4. Compost of food waste and pretreated bioplastic (scenario 2b) inventory data for waste treatment options.

Data description	Unit	Unit	Source
1 kg of influent to manage bio-plastic and food waste	1	kg	N/A
Compost treated			
Food waste input	67%	Percent by mass	calculated (Hottle et al., 2016)
PLA input	13%	Percent by mass	calculated (Hottle et al., 2016)
Soil amendment	20%	Percent by mass	calculated (Hottle et al., 2016)
Calculation Parameters			
P ₂ O ₅ fertilizer	1%	g/kg total solid	calculated (Tambone et al., 2010)
K ₂ O fertilizer	1%	g/kg total solid	calculated (Tambone et al., 2010)
N fertilizer	5%	percent of total solid	calculated (Davidsson et al., 2007)