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Supplement to the April 2001 Report: Life Cycle Assessment of the Stonyfield Farm Product Delivery System

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Vanessa M. Smith and Gregory A. Keoleian
Center for Sustainable Systems

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Center for Sustainable Systems
The University of Michigan
430 East University, Dana Building
Ann Arbor, MI 48109-1115
Phone: 734-764-1412
Fax: 734-647-5841
e-mail: css.info@umich
http://css.snre.umich.edu

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1.0 Introduction

Following a review of the April 2001 report, Stonyfield Farm decided to explore one of the recommended options for improving the environmental performance of their product delivery system. Stonyfield Farm asked the Center for Sustainable Systems to evaluate three alternative closure options for their six and eight ounce containers. This supplement provides a life cycle assessment of the three alternative closure options and compares the environmental life cycle burdens of each alternative with the current closure system. It also includes an estimate of the reduction in corrugated secondary packaging material that would be required to achieve comparable savings.

The Center for Sustainable Systems carried out the evaluation using the same life cycle methodology outlined in the April 2001 report. Four new data modules were added in order to model the alternative options. The current closure system was unchanged except for a revision in the recycling rate of the paperboard slip-sheet which is part of the secondary packaging for Distribution 2.

2.0 Current System and Alternate Options

The 6 and 8 oz. yogurt containers require the same size lid (closure option). The only difference is the number of yogurt containers of each size required to deliver the same functional unit of yogurt, 1000 lbs[1]. The four options evaluated in this life cycle study are as follows:

1) The current closure system for the 6 and 8 oz. containers consisting of:
    a) LLDPE injection molded lid
    b) Co-extruded PE/PET roll stock seal

2) The first alternative is to eliminate the LLDPE lid from the current system and use only the co-extruded PE/PET roll stock seal.

3) The second alternative is a laminated foil pick and place seal consisting of the following layers:
    a) Rolled Aluminum
    b) PE resin (extrudate)
    c) Co-extruded PE sealant film (heat seal)

[1] 6oz. PDS - 2666.67 containers required to deliver 1000 lbs. of yogurt. 8 oz. PDS – 2000 containers required to deliver 1000 lbs. of yogurt.

4) The third alternative is a polycoated paper pick and place seal consisting of the following layers:
    a) Bleached Kraft Paper
    b) LDPE Coating (heat seal)
    c) Tinted Acrylic Resin on non-seal side

3.0 Data Modules

The data modules and data categories are unchanged and the same assumptions are applied. Printing of the lids was not included for any of the alternative options. Four new data modules were required: ocean transport, aluminum, bleached kraft paper and methyl methacrylate. The four data modules that were added are described in tables 3-1 and 3-2.

The methyl methacrylate data module was used to model the acrylic resin layer in the coated paper option although the actual composition of the acrylic layer was not disclosed by the supplier due to the proprietary nature of the information. A Materials Science and Engineering professor at the University of Michigan recommended the use of methyl methacrylate as a surrogate for this application[2]. The rolled aluminum module was developed for automotive applications and, as it would not vary significantly for packaging applications, was utilized to model the laminated foil lid option.

[2] Correspondence April 2, 2002.

Table 3-1 Transportation Data Module Description

Transport Mode	Source	Description
Ocean Tanker	DEAM module name – Sea Transport (US Tanker) Primary source: EPA (Environmental Protection Agency)	Technology – ▪ Heavy Fuel Oil Production included, US data ▪ Module values are calculated in km.kg of shipped goods. ▪ Heavy fuel oil consumption 2.6 g/t.km ▪ Ship characteristics: Average speed: 8 knots Specific engine power: 0.11 kW/metric tons Actual load weight > 80 000 dwt Fuel consumption: 0.35 kg/kWh

Table 3-2 Material Data Module Descriptions

Material	Source	Description
Bleached Kraft Paper	DEAM module name – Bleached Kraft Paper Original Source: BUWAL (Bundesamt für Umwelt, Wald und Landschaft) n°250 Bern, 1996	Technology – ▪ Production of 1000 kg kraft (bleached) from pulp bleached with sulphate ▪ moisture content: 8% ▪ co-product: tall oil (11.7 kg) and turpentine oil (1.38 kg) ▪ data derived from one plant in Switzerland ▪ all transport included (150 km rail)
Aluminum – rolled	TEAM module name – Rolled aluminum Primary Data from the Aluminum Association	Technology –Production of 1 kg Rolled Aluminum ▪ Data for Rolled Aluminum for automotive applications ▪ Obtained from USAMP database

Methyl Methacrylate – for acrylic film on polycoated paper	DEAM module name – Methyl Methacrylate Original Source- Eco-profiles of European plastics industry Report 14 : Polymethyl Methacrylate September, 1997 Primary source for energy: 1) International Energy Agency. Coal Information 1995. OECD Paris 1995 2) International Energy Agency. Oil and Gas Information 1995. OECD Paris 1995 3) International Energy Agency. Electricity Information 1995. OECD Paris 1995	Technology – Production of 1 kg Methyl Methacrylate Monomer ▪ Information have been supplied by 4 plants producing a total of 360 000 tonnes of methyl methacrylate monomer. ▪ Methyl Methacrylate monomer is produced by reacting acetone cyanohydrin with sulphuric acid to produce methacrylamide sulphate. Without separating this intermediate, it is further reacted with methanol and water to produce methyl methacrylate. ▪ The suphuric acid is recovered and in this module, the sulphuric acid recovery plant has been included.

4.0 Data Inputs

The current Product Delivery System (PDS) data input was unchanged except for the recycling rate for the paperboard slip sheet in Distribution 3 which was updated from 0% to the current rate of 85%[3]. Two packaging suppliers, whose names are not disclosed here for proprietary reasons, provided product composition, transportation and secondary packaging data for both the laminated foil and coated paper options. All input data is available in the input forms from the computer calculation model in Appendix A.

5.0 Results

The results of the life cycle study for the four closure options are presented in the following tables and figures. Results for the 6 oz. PDS and 8 oz. PDS are presented separately. In the first two tables, 5-1 and 5-2, the environmental burdens associated with each of the options are listed. The savings offered by each alternative option when compared with the Current System are also listed. The option that offers the greatest savings for each environmental flow is highlighted in red. Options within 2% of the greatest savings are not considered to be significantly different and, therefore, are also highlighted.

Result forms from the computer calculation model can be found in Appendix B.

[3] Correspondence with Stonyfield April 3, 2002

Table 5-1: Environmental Burdens for 6 oz. PDS (1000 lbs. Yogurt Delivered)

Environmental Flows	Units	Current System	Seal only	% Savings	Laminated Foil	% Savings	Coated Paper	% Savings
Energy								
Energy (Total - inlc. renewable)	MJ	4756	3650	23%	3957	17%	3705	22%
Renewable	%	18%	22%		22%		21%	
Waste								
Solid Waste (Total - incl. recycled)	kg	67	57	15%	63	6%	57	16%
Recycled	%	49%	55%		50%		56%	
Criteria Air Pollutants								
Carbon Monoxide (CO)	g	224	195	13%	291	-30%	184	18%
Hydrocarbons	g	565	407	28%	384	32%	385	32%
Nitrous Oxides (NOx)	g	974	846	13%	894	8%	837	14%
Particulates	g	122	104	15%	157	-29%	96	21%
Sulfur Oxides (SOx)	g	451	408	9%	488	-8%	368	18%
Water Emissions								
Acid	g	2.5	2.1	18%	2.0	20%	2.0	20%
BOD	g	78	77	1%	75	3%	76	3%
COD	g	238	229	4%	220	7%	225	6%
TDS	g	8	7	17%	6	19%	6	19%
Metals	g	15	7	50%	8	48%	8	49%
Water Use	L	916	812	11%	790	14%	785	14%
Impact Categories								
Global Warming Potential	kg CO2	159	137	14%	159	0%	143	10%
Ozone Depletion Potential	mg CFC-11	3.9	3.7	5%	3.7	5%	3.7	5%
Maximum Allowable Concentration	m3	164	143	13%	163	0%	138	16%

Table 5-2: Environmental Burdens for 8 oz. PDS (1000 lbs. Yogurt Delivered)

Environmental Flows	Units	Current System	Seal only	% Savings	Laminated Foil	% Savings	Coated Paper	% Savings
Energy								
Energy (Total - inlc. renewable)	MJ	4019	3187	21%	3394	16%	3229	20%
Renewable	%	18%	20%		21%		20%	
Waste								
Solid Waste (Total - incl. recycled)	kg	55	48	14%	52	5%	48	14%
Recycled	%	48%	53%		49%		54%	
Criteria Air Pollutants								
Carbon Monoxide (CO)	g	202	180	11%	252	-25%	172	15%
Hydrocarbons	g	477	359	25%	335	30%	342	28%
Nitrous Oxides (NOx)	g	884	788	11%	821	7%	781	12%
Particulates	g	106	92	13%	132	-24%	87	18%
Sulfur Oxides (SOx)	g	388	357	8%	414	-7%	326	16%
Water Emissions								
Acid	g	2.1	1.8	15%	1.7	19%	1.8	17%
BOD	g	62	61	1%	60	3%	61	2%
COD	g	197	190	3%	183	7%	187	5%
TDS	g	7	6	15%	6	17%	6	17%
Metals	g	12	6	47%	7	46%	7	45%
Water Use	L	784	708	10%	686	13%	688	12%
Impact Categories								
Global Warming Potential	kg CO2	139	123	12%	139	0%	127	9%
Ozone Depletion Potential	mg CFC-11	3.1	3.0	4%	2.9	5%	3.0	4%
Maximum Allowable Concentration	m3	147	131	11%	146	1%	127	13%

5.1 Life Cycle Energy

The total life cycle energy requirements for each option were compared. The values from Tables 5-1 and 5-2 were graphed and shown in figures 5-1 and 5-2. The options that require the least amount of energy for both the 6 oz. and 8 oz. PDS are the Seal Only and Coated Paper options. The Seal Only and Coated Paper options require 3650 MJ and 3705 MJ, respectively, for the 6 oz. PDS and 3187 and 3229 MJ, respectively for the 8 oz. PDS.

Figure 5-1: Life Cycle Energy for 6 oz. PDS

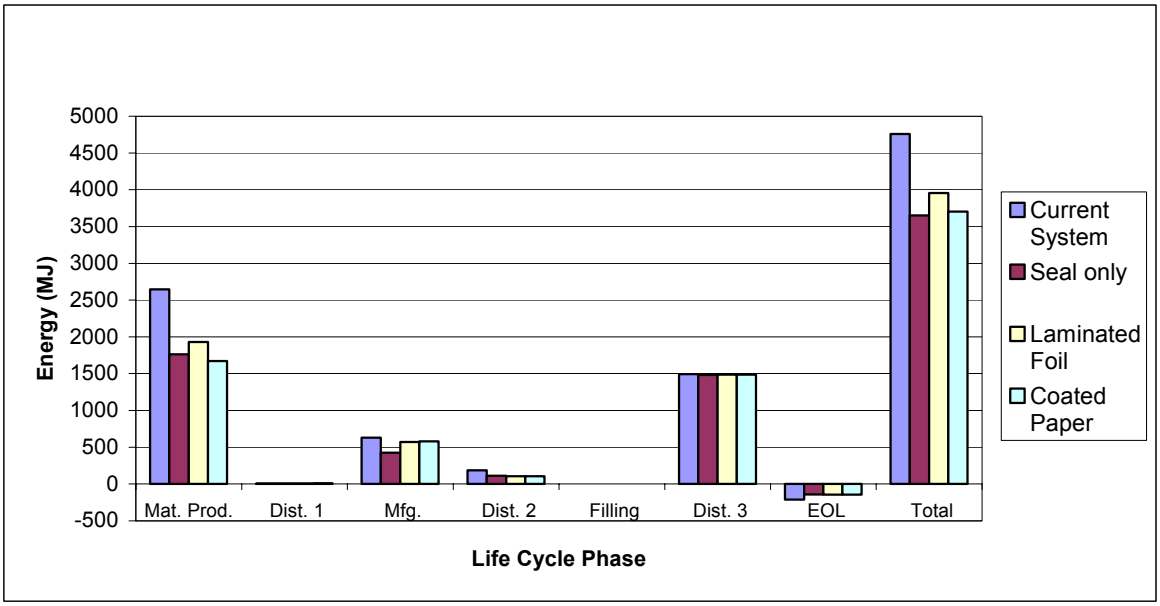
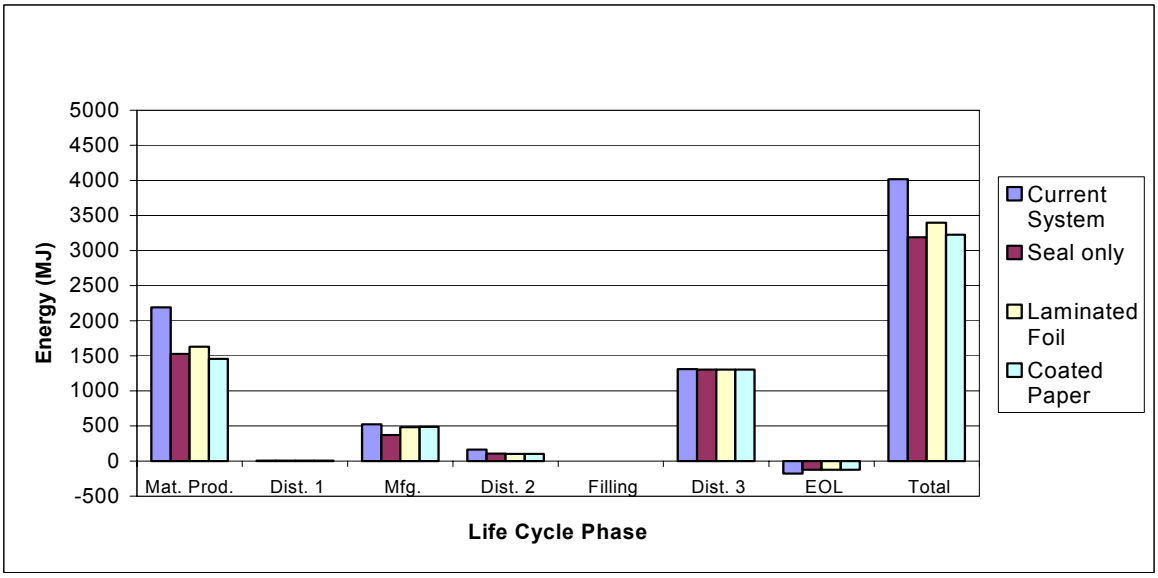


Figure 5-2: Life Cycle Energy for 8 oz. PDS



5.2 Life Cycle Solid Waste

The Current System produces 67 kg of solid waste for the 6 oz. PDS and 55 kg of solid waste for the 8 oz. PDS. The Seal Only and Coated Paper options result in the greatest reductions in the amount of solid waste produced for both the 6 oz. and 8 oz. PDS. The solid waste produced by the Seal Only, Laminated Foil and Coated Paper is 57, 63 and 57 kg for the 6 oz. PDS and 48, 52, and 48 kg for the 8 oz. PDS.

Figure 5-3: Life Cycle Solid Waste for 6 oz. PDS

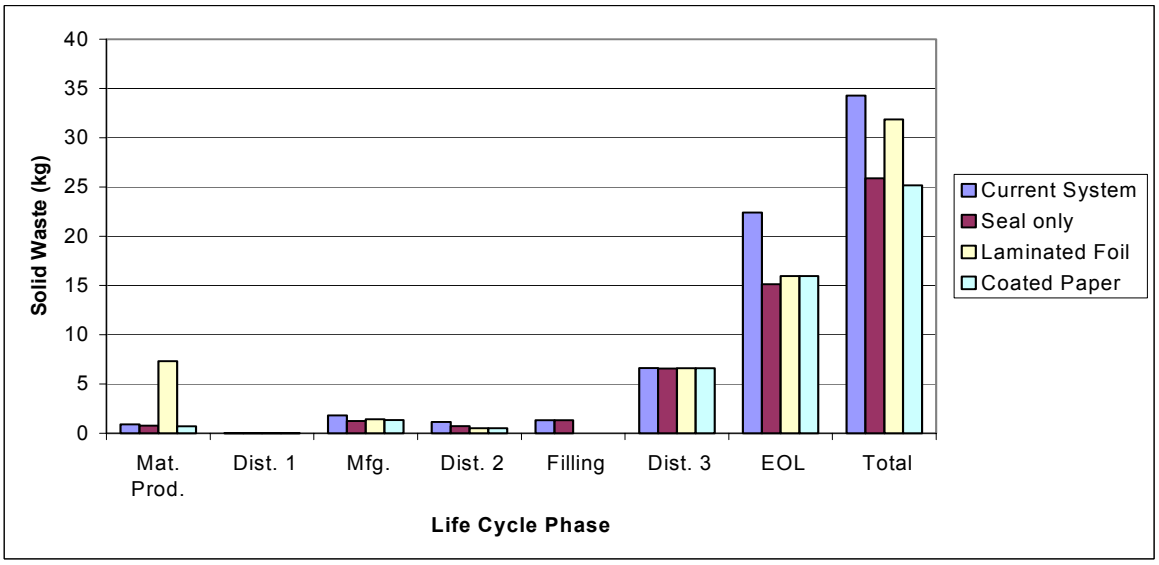
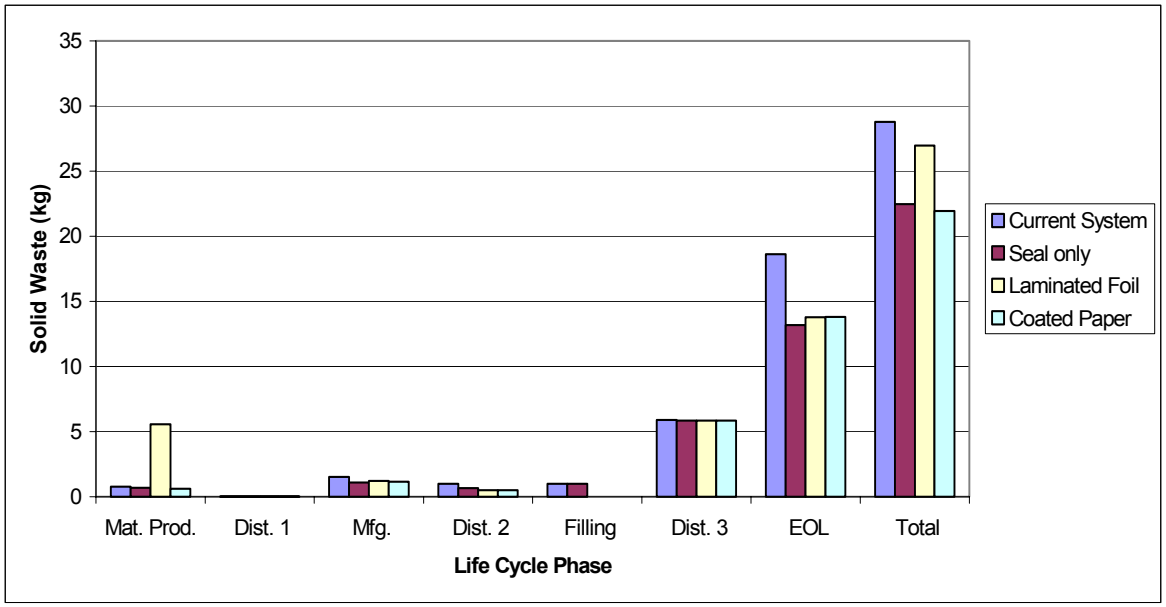


Figure 5-4: Life Cycle Solid Waste for 8 oz. PDS



5.3 Life Cycle Air Emissions

The amount of criteria air pollutants emitted for each option are listed in Tables 5-1 and 5-2 for the 6 and 8 oz. PDS, respectively. The option offering the greatest savings for each air pollutant for both the 6 and 8 oz. PDS is the Coated Paper option.

Figure 5-5: Life Cycle Criteria Air Pollutant Emissions for 6 oz. PDS

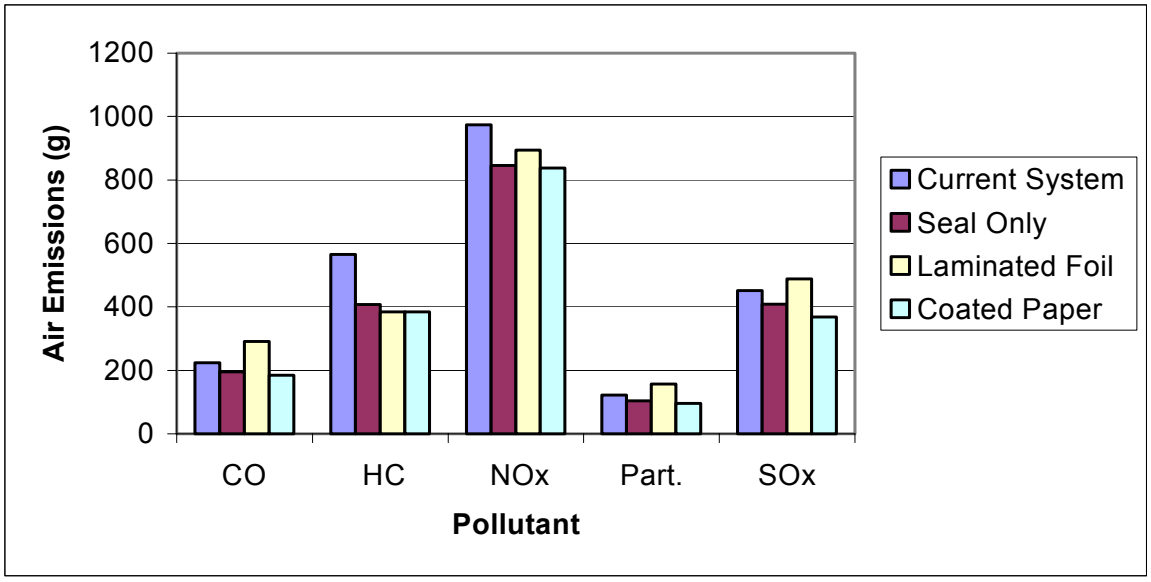
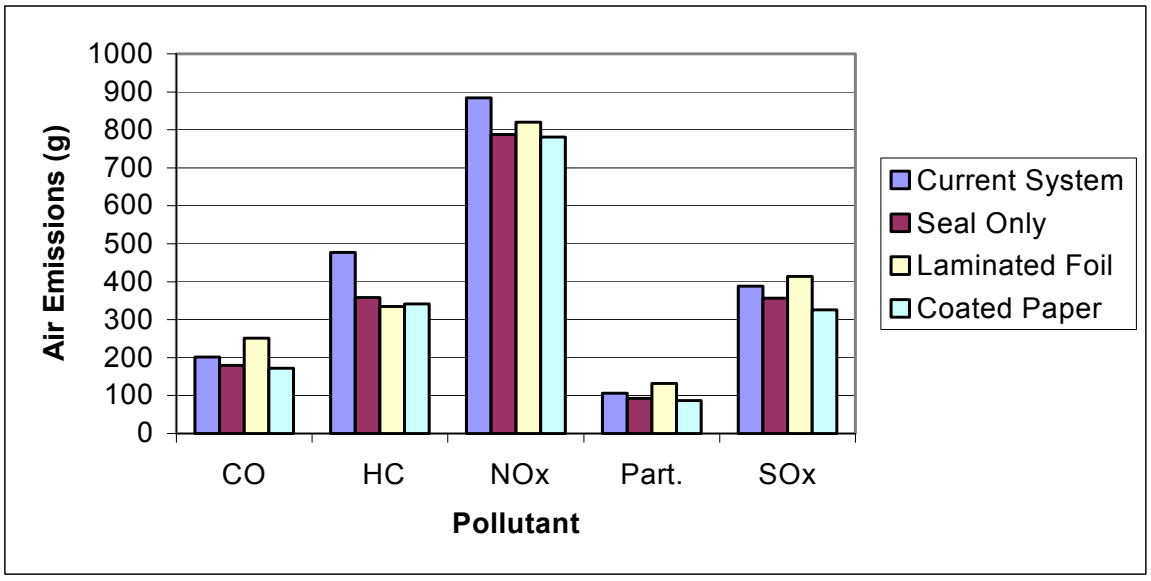


Figure 5-6: Life Cycle Criteria Air Pollutant Emissions for 8 oz. PDS



5.4 Life Cycle Emissions to Water

The pollutants emitted to water for the 6 and 8 oz. PDS are listed in tables 5-1 and 5-2 respectively. The Seal Only, Laminated Foil and Coated Paper options offer almost equivalent savings for both the 6 and 8 oz. PDS. Savings in Metal emissions were the most significant, at 48 to 50% for the 6 oz. PDS and 45 to 47% for the 8 oz. PDS.

Figure 5-7: Life Cycle Emissions to Water for 6 oz. PDS

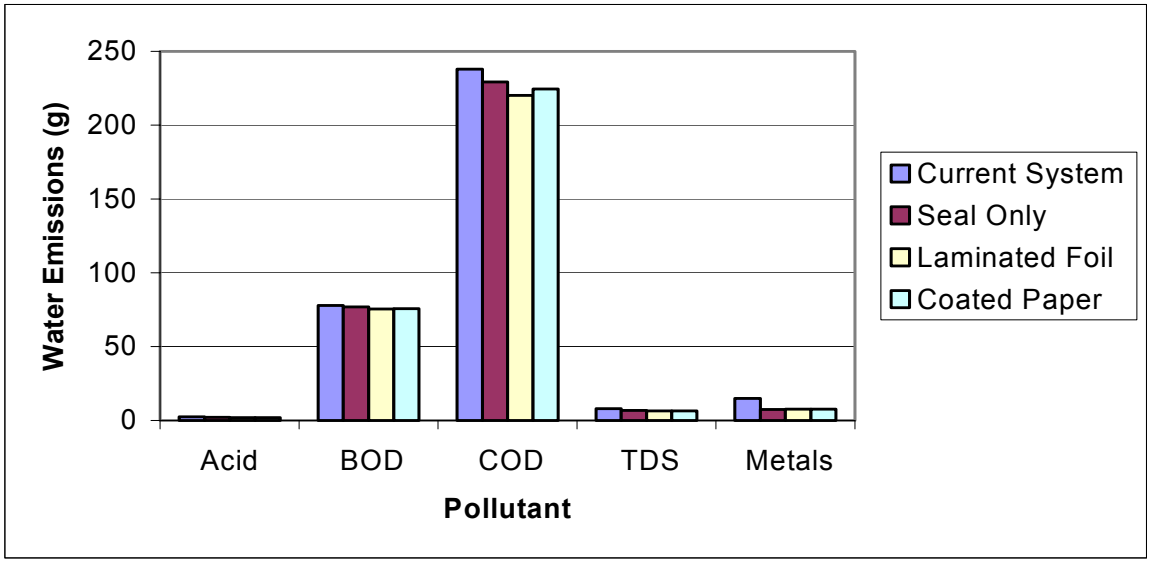
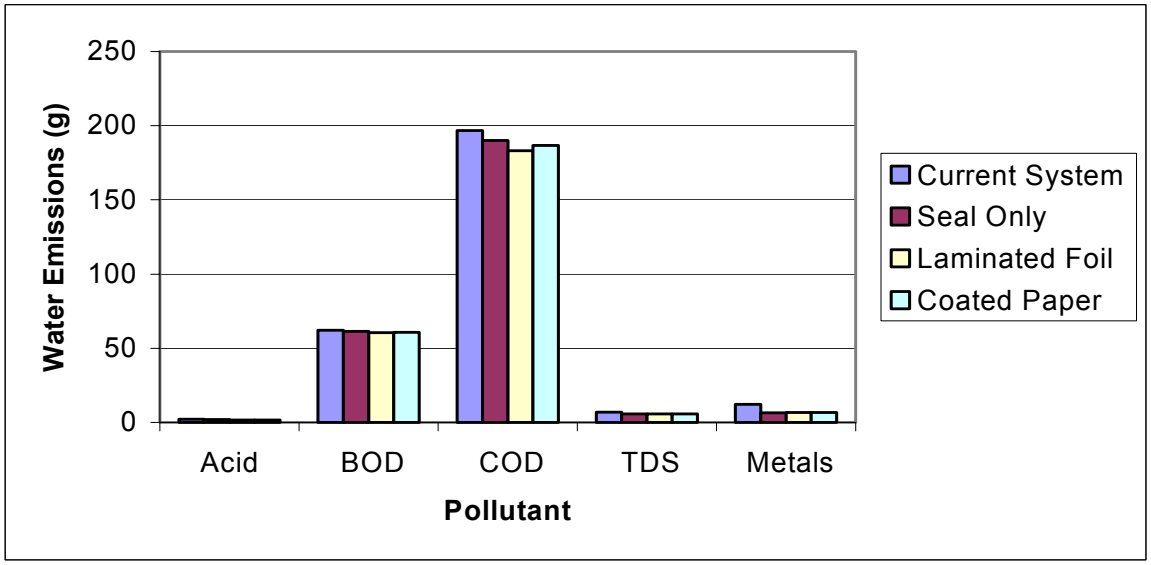


Figure 5-8: Life Cycle Emissions to Water for 8 oz. PDS



5.5 Life Cycle Water Use

Life cycle water use for the Current System was 916 and 784 liters for the 6 and 8 oz. PDS, respectively. The alternate options offered savings of between 11 and 14% for the 6 oz. PDS and 10 to 13% for the 8 oz. PDS.

Figure 5-9: Life Cycle Water Use for the 6 oz. PDS

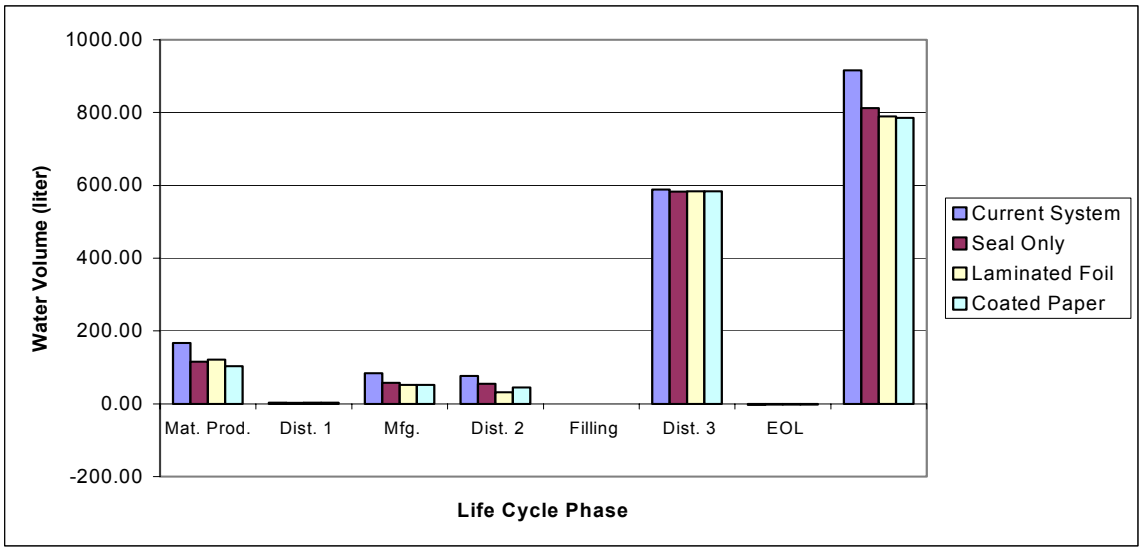
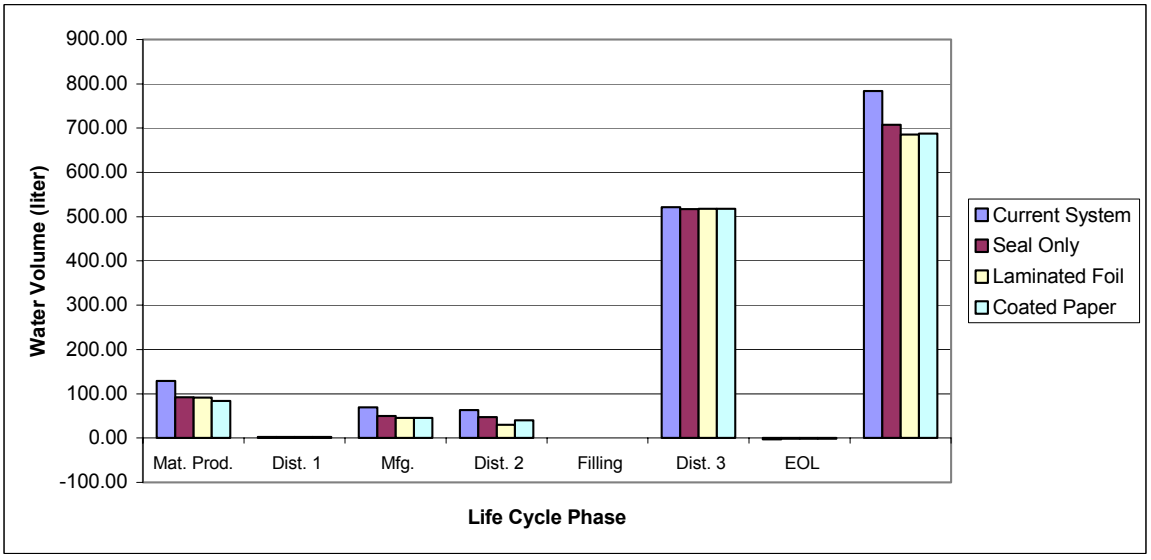


Figure 5-10: Life Cycle Water Use for the 8 oz. PDS



5.6 Characterized Impact Categories

The Seal Only and Coated Paper options offered the greatest overall reductions in the Impact Categories for the 6 and 8 oz. PDS. For the 6 oz. PDS the Seal Only offered the greatest reductions in Global Warming Potential (GWP) at 14%, all 3 alternative options offered 5% reductions in Ozone Depletion Potential (ODP) and the Coated Paper offered the greatest reductions in Maximum Allowable Concentration (MAC) at 16%. For the 8 oz. PDS the Seal Only offered the greatest reductions in GWP at 12%, all 3 alternative options offered 4 to 5% reductions in ODP and the Seal only and Coated Paper offered 11 to 13% reductions in MAC.

Figure 5-11: Life Cycle Global Warming Potential for 6 oz. PDS

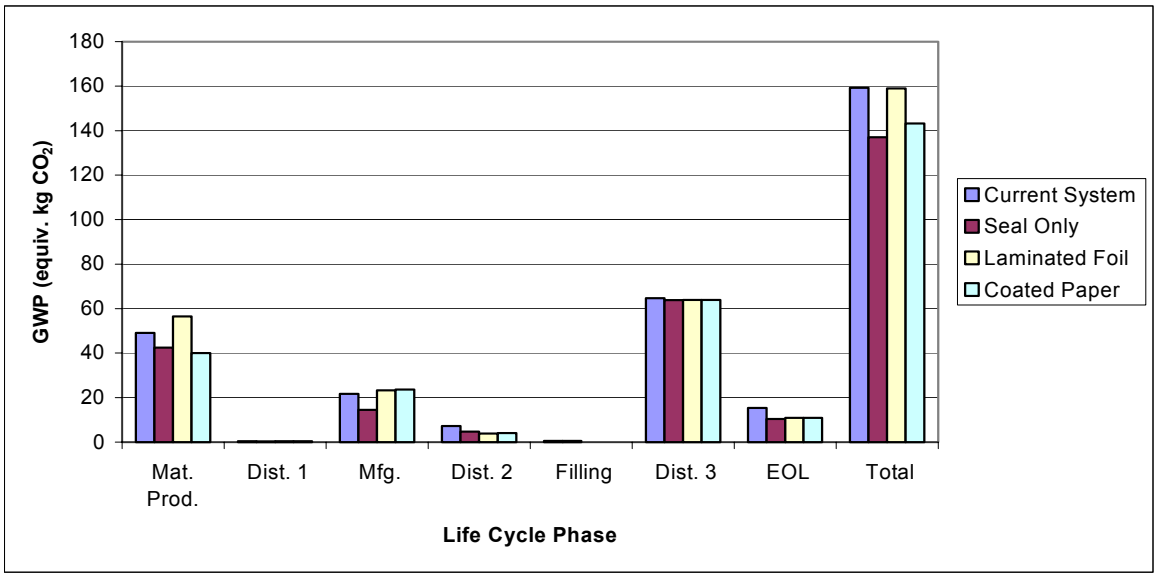


Figure 5-12: Life Cycle Global Warming Potential for 8 oz. PDS

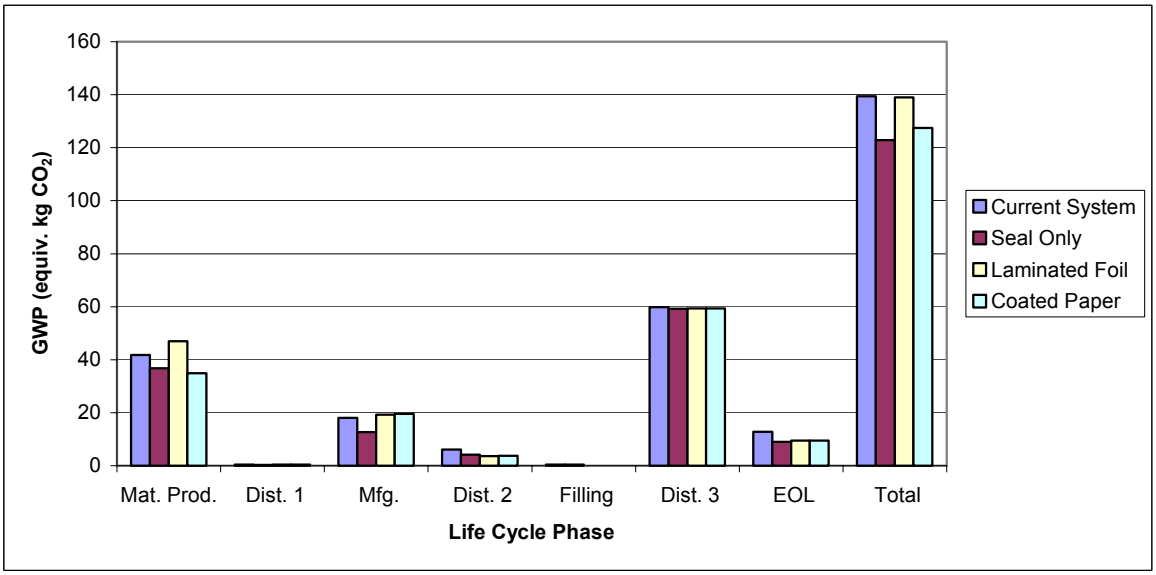


Figure 5-13: Life Cycle Ozone Depletion Potential for 6 oz. PDS

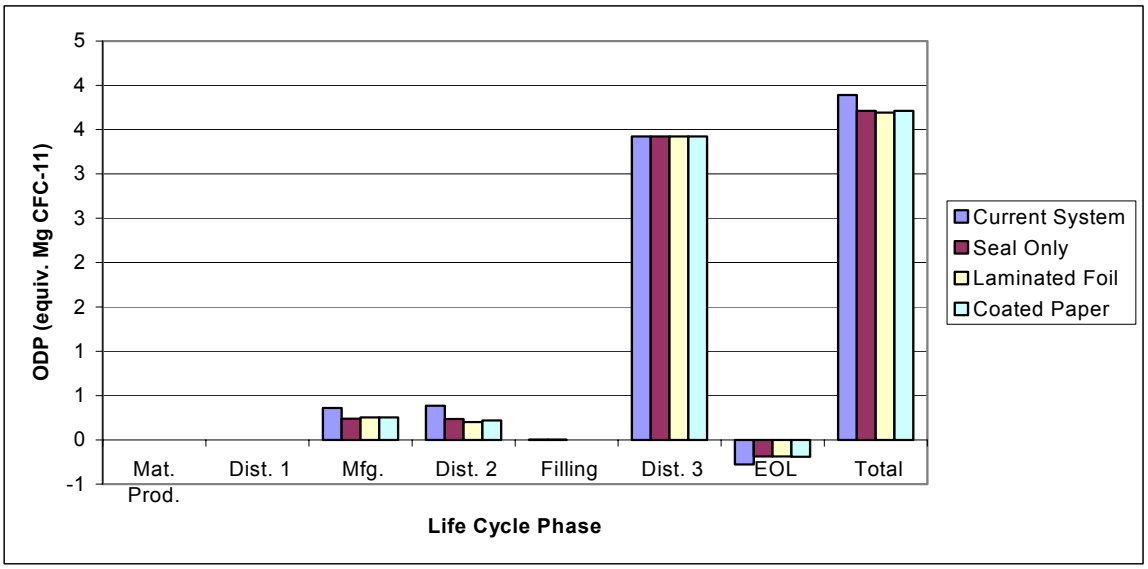


Figure 5-14: Life Cycle Ozone Depletion Potential for 8 oz. PDS

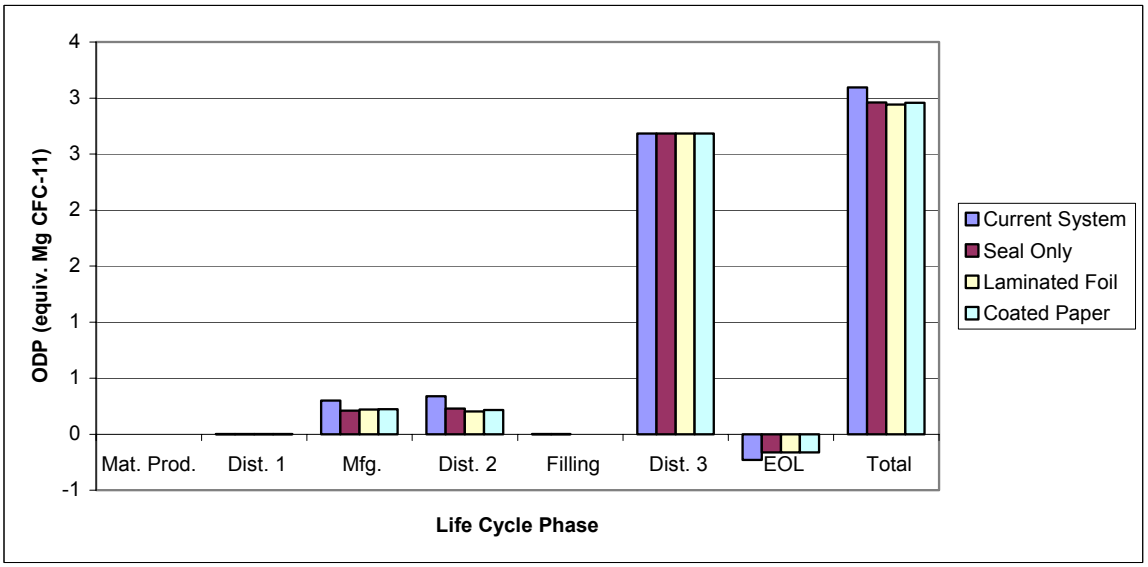


Figure 5-15: Life Cycle Maximum Allowable Concentration for 6 oz. PDS

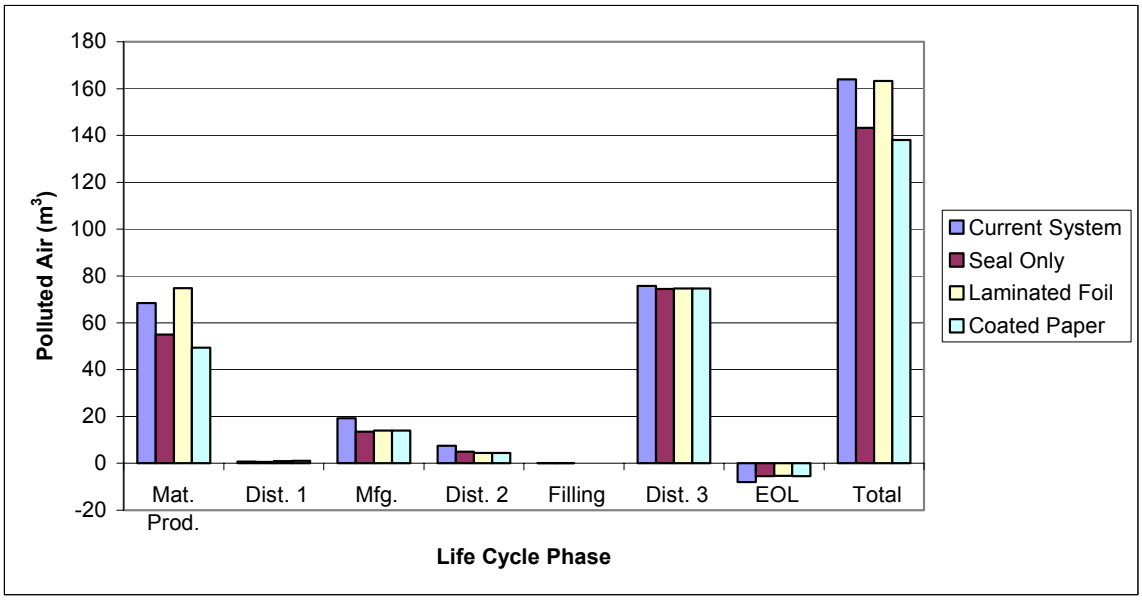
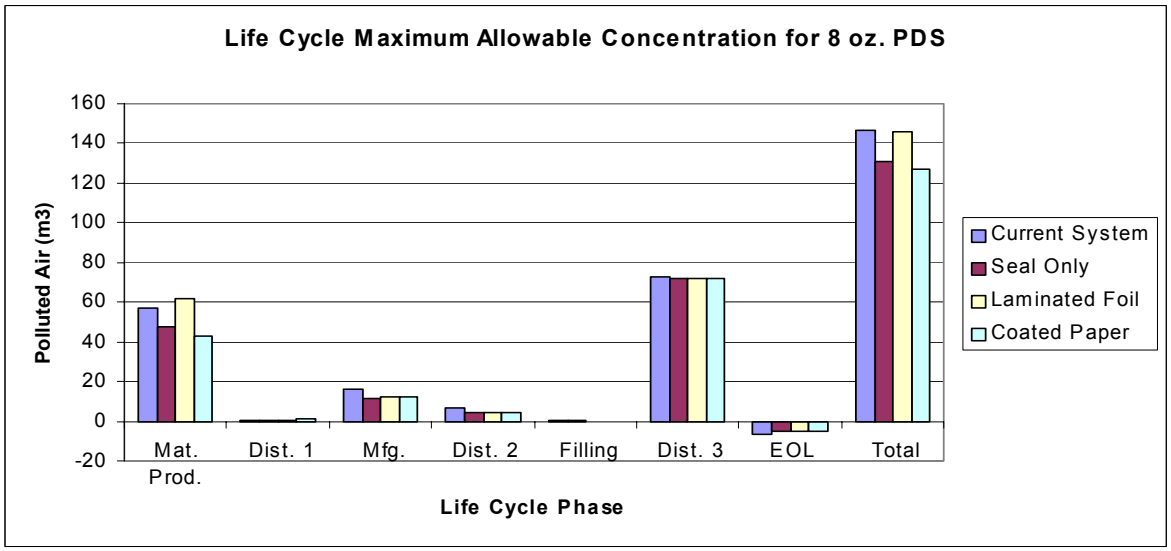


Figure 5-16: Life Cycle Maximum Allowable Concentration for 8 oz. PDS



5.7 Results for 2002 Projected Sales

In the following tables, 5-3 and 5-4, the total environmental burdens associated with the 6 and 8 oz. PDS, respectively, are presented based on the projected 2002 sales for each PDS.

Table 5-3: Environmental Burdens for 6 oz. PDS (For 2002 Predicted Sales Volume)

Environmental Flows	Units	Current System	Seal only	Laminated Foil	Coated Paper
Energy					
Energy (Total - inlc. renewable)	MJ	40,241,579	30,879,981	33,475,625	31,349,837
Renewable	%	18%	22%	22%	21%
Waste					
Solid Waste (Total - incl. recycled)	kg	569,918	482,262	536,221	480,989
Recycled	%	49%	55%	50%	56%
Criteria Air Pollutants					
Carbon Monoxide (CO)	kg	1,891	1,649	2,460	1,558
Hydrocarbons	kg	4,781	3,447	3,248	3,255
Nitrous Oxides (NOx)	kg	8,242	7,155	7,564	7,086
Particulates	kg	1,030	878	1,325	812
Sulfur Oxides (SOx)	kg	3,816	3,456	4,130	3,113
Water Emissions					
Acid	kg	21	17	17	17
BOD	kg	658	650	638	642
COD	kg	2,013	1,940	1,864	1,900
TDS	kg	68	56	55	55
Metals	kg	126	63	65	65
Water Use	L	7,752,458	6,871,107	6,682,348	6,645,798
Impact Categories					
Global Warming Potential	kg CO2	1,347,198	1,159,878	1,345,421	1,211,657
Ozone Depletion Potential	mg CFC-11	32,912	31,389	31,220	31,389
Maximum Allowable Concentration	m3	1,387,082	1,212,402	1,382,005	1,168,169

Table 5-4: Environmental Burdens for 8 oz. PDS (For 2002 Predicted Sales Volume)

Environmental Flows	Units	Current System	Seal only	Laminated Foil	Coated Paper
Energy					
Energy (Total - inlc. renewable)	MJ	82,773,451	65,634,139	69,896,772	66,491,916
Renewable	%	18%	22%	22%	21%
Waste					
Solid Waste (Total - incl. recycled)	kg	1,141,633	981,468	1,079,720	979,350
Recycled	%	49%	55%	50%	56%
Criteria Air Pollutants					
Carbon Monoxide (CO)	kg	4,155	3,711	5,187	3,546
Hydrocarbons	kg	9,829	7,388	6,899	7,037
Nitrous Oxides (NOx)	kg	18,205	16,219	16,900	16,092
Particulates	kg	2,181	1,904	2,709	1,783
Sulfur Oxides (SOx)	kg	7,996	7,342	8,531	6,717
Water Emissions					
Acid	kg	44	37	36	36
BOD	kg	1,281	1,266	1,243	1,250
COD	kg	4,049	3,915	3,769	3,842
TDS	kg	142	120	117	118
Metals	kg	250	133	136	137
Water Use	L	16,143,333	14,571,960	14,119,702	14,160,685
Impact Categories					
Global Warming Potential	kg CO2	2,871,308	2,529,437	2,861,629	2,624,172
Ozone Depletion Potential	mg CFC-11	63,638	60,960	60,548	60,960
Maximum Allowable Concentration	m3	3,018,807	2,700,043	2,997,512	2,619,291

5.8 Secondary Packaging Reduction Study

A brief study was performed in order to find out whether it would be possible to achieve similar reductions in environmental burdens as were achieved by the alternate options by reducing the board grade of corrugated secondary packaging in Distribution 3 (Stonyfield to Distributor).

The study was carried out by varying the mass of corrugated packaging used in Distribution 3. It was found that it would not be possible to achieve the reductions seen in energy consumption for the 6 and 8 oz. PDS with the Seal Only and Coated Paper options even by eliminating the corrugated packaging all together. It was possible, however, to achieve equivalent savings in solid waste production for both the 6 and 8 oz. PDS by reducing the mass of corrugated packaging by 30%. Tables 5-5 and 5-6 show the results of the 30% reduction and the elimination of the corrugated packaging along side of the results of the other 4 options. Savings that were equivalent or better to those achieved with the other options are highlighted in blue. Please note that these reductions do not hold any design significance, as it is not known whether light-weighting the corrugated packaging by 30% would provide equivalent functional packaging performance.

Table 5-5: Environmental Burdens for 6 oz. PDS (1000 lbs. Yogurt Delivered)

Environmental Flows	Units	Current System	Seal only	% Savings	Laminated Foil	% Savings	Coated Paper	% Savings	30 % reduction of Corrugated in Dist. 3	% Savings	Elimination of Corrugated in Dist. 3	% Savings
Energy												
Energy (Total - inlc. renewable)	MJ	4756	3650	23%	3957	17%	3705	22%	4488	6%	3862	19%
Renewable	%	18%	22%		22%		21%		18%		7%	
Waste												
Solid Waste (Total - incl. recycled)	kg	67	57	15%	63	6%	57	16%	58	14%	36	47%
Recycled	%	49%	55%		50%		56%		43%		15%	
Criteria Air Pollutants												
Carbon Monoxide (CO)	g	224	195	13%	291	-30%	184	18%	218	3%	204	9%
Hydrocarbons	g	565	407	28%	384	32%	385	32%	558	1%	543	4%
Nitrous Oxides (NOx)	g	974	846	13%	894	8%	837	14%	951	2%	897	8%
Particulates	g	122	104	15%	157	-29%	96	21%	119	3%	111	9%
Sulfur Oxides (SOx)	g	451	408	9%	488	-8%	368	18%	437	3%	404	10%
Water Emissions												
Acid	g	2.5	2.1	18%	2.0	20%	2.0	20%	2.5	0%	2.0	20%
BOD	g	78	77	1%	75	3%	76	3%	57	26%	10	87%
COD	g	238	229	4%	220	7%	225	6%	189	21%	75	68%
TDS	g	8	7	17%	6	19%	6	19%	8	0%	8	0%
Metals	g	15	7	50%	8	48%	8	49%	15	1%	14	6%
Water Use	L	916	812	11%	790	14%	785	14%	822	10%	604	34%
Impact Categories												
Global Warming Potential	kg CO2	159	137	14%	159	0%	143	10%	152	4%	136	15%
Ozone Depletion Potential	mg CFC-11	3.9	3.7	5%	3.7	5%	3.7	5%	3	26%	0.5	87%
Maximum Allowable Concentration	m3	164	143	13%	163	0%	138	16%	160	3%	150	9%

Table 5-6: Environmental Burdens for 8 oz. PDS (1000 lbs. Yogurt Delivered)

Environmental Flows	Units	Current System	Seal only	% Savings	Laminated Foil	% Savings	Coated Paper	% Savings	30 % reduction of Corrugated in Dist. 3	% Savings	Elimination of Corrugated in Dist. 3	% Savings
Energy												
Energy (Total - inlc. renewable)	MJ	4019	3187	21%	3394	16%	3229	20%	3809	5%	3320	17%
Renewable	%	18%	20%		21%		20%		15%		6%	
Waste												
Solid Waste (Total - incl. recycled)	kg	55	48	14%	52	5%	48	14%	48	13%	30	46%
Recycled	%	48%	53%		49%		54%		42%		16%	
Criteria Air Pollutants												
Carbon Monoxide (CO)	g	202	180	11%	252	-25%	172	15%	197	2%	187	7%
Hydrocarbons	g	477	359	25%	335	30%	342	28%	472	1%	460	4%
Nitrous Oxides (NOx)	g	884	788	11%	821	7%	781	12%	866	2%	823	7%
Particulates	g	106	92	13%	132	-24%	87	18%	103	2%	98	7%
Sulfur Oxides (SOx)	g	388	357	8%	414	-7%	326	16%	377	3%	352	9%
Water Emissions												
Acid	g	2.1	1.8	15%	1.7	19%	1.8	17%	2.1	0%	2.0	6%
BOD	g	62	61	1%	60	3%	61	2%	46	26%	9	86%
COD	g	197	190	3%	183	7%	187	5%	158	19%	69	65%
TDS	g	7	6	15%	6	17%	6	17%	7	0%	7	-2%
Metals	g	12	6	47%	7	46%	7	45%	12	1%	12	1%
Water Use	L	784	708	10%	686	13%	688	12%	711	9%	540	31%
Impact Categories												
Global Warming Potential	kg CO2	139	123	12%	139	0%	127	9%	134	4%	121	13%
Ozone Depletion Potential	mg CFC-11	3.1	3.0	4%	2.9	5%	3.0	4%	2.3	26%	0.4	86%
Maximum Allowable Concentration	m3	147	131	11%	146	1%	127	13%	143	2%	136	7%

6.0 Conclusions and Recommendations

This study investigated the environmental performance of the current closure system and three alternative closure options for the 6 and 8 oz. Stonyfield Farm PDS:

1) Current System – LLDPE injection molded lid and co-extruded PE/PET roll stock seal.
2) Seal Only – elimination of LLDPE lid from current closure system; use only the co-extruded PE/PET roll stock seal
3) Laminated Foil – laminated foil pick and place seal
4) Coated Paper – polycoated paper pick and place seal

The impact of board grade reductions of secondary corrugated packaging in Distribution 3 on environmental flows was also investigated. An economic analysis and an analysis of the structural integrity of each option were not within the scope of this supplemental report; therefore, recommendations and conclusions are based solely on the outcome of the life cycle inventory carried out to determine the environmental performance of each option.

As is shown in Tables 5-1 and 5-2, the option with the best overall environmental performance for both the 6 and 8 oz. PDS is the Coated Paper lid. Both the Seal Only and Coated Paper options improve every environmental flow category relative to the Current System. The Coated Paper lid, however, provides equivalent or greater savings for each category compared to the Seal Only option, excluding Global Warming Potential (the Seal Only option exceeds the Coated Paper savings with 3 to 4% additional savings).

The Seal Only lid is the second best option for both the 6 and 8 oz. PDS, providing equivalent savings in energy consumption, solid waste production, nitrous oxide emissions, some water emissions (Acid (6 oz. only), BOD, TDS and metals) and the impact categories (excluding GWP savings which are higher, as mentioned). The Laminated Foil lid had equivalent savings to the Coated Paper lid in some environmental flows including hydrocarbons, water emissions, water use and Ozone Depletion Potential but resulted in higher flows than the Current System in a few of the air emission categories. For both the 6 and 8 oz. PDS, it resulted in 25 to 30% higher carbon monoxide emissions, 24 to 29% higher particulate emissions, and 7 to 8% higher sulfur oxide emissions.

In general reductions in board grade of the corrugated secondary packaging used in Distribution 3 did not improve the environmental performance of the PDS as much as the Coated Paper or Seal Only options. However, significant reductions in solid waste, some water emissions, water use, GWP and Ozone Depletion Potential are achievable with board grade reductions greater than or equal to 30% by mass.

When comparing the 6 and 8 oz. PDS, it was found that the 8 oz. PDS has a better overall environmental performance than the 6 oz. PDS because fewer 8 oz. PDS are needed to

deliver the same volume of yogurt product[4]. For the Current System using an 8 oz. PDS instead of a 6 oz. PDS reduces the amount of energy required by 15%, produces 18% less solid waste, 9 to 16% fewer air emissions, 14 to 20% fewer water emissions, uses 14% less water, and reduces all of the impact categories by 11 to 21%.

Based on 2002 project annual sales of the 6 and 8 oz. PDS, Stonyfield Farm could increase the energy efficiency of each PDS significantly by choosing either the Coated Paper or Seal Only option over the Current System. Energy consumption would be reduced by approximately 9.1 million MJ per year for the 6 oz. PDS and 16.7 million MJ per year for the 8 oz. PDS. This is equivalent to 1500 and 2700 barrels of crude oil[5], respectively, or the amount of energy consumed annually by 86 and 157 U.S. households[6], respectively.

The Center for Sustainable Systems recommends the use of either the Coated Paper or Seal Only option based solely on their superior environmental performance to the Current System and Laminated Foil. The Center also recommends that Stonyfield Farm conduct feasibility studies on board grade reductions of corrugated packaging in Distribution 3. This can provide further reductions in solid waste, some water emissions, water use, Global Warming Potential and Ozone Depletion Potential as well as small improvements in energy efficiency and air emissions. The Center's final recommendation is for Stonyfield Farm to encourage consumers to purchase yogurt products in larger container sizes (e.g. this study shows that 8 oz. containers outperform 6 oz. containers).

[4] 6oz. PDS - 2666.67 containers required to deliver 1000 lbs. of yogurt. 8 oz. PDS – 2000 containers required to deliver 1000 lbs. of yogurt.
[5] Average heat content for imported and exported crude oil in the United States in 2000 was 5.879 million BTU per barrel; Source: Annual Energy Review 2000, DOE-EIA-0384(2000), p. 332.
[6] Annual Household Energy Consumption for 1997, 101 million Btu; upstream energy requirements not included; Source: Annual Energy Review 2000, DOE-EIA-0384(2000), p. 49.

APPENDIX A

INPUT FORMS

Content Description:

Scenario A: 6 oz. Current System
Scenario B: 8 oz. Current System

Scenario C: 6 oz. Seal Only
Scenario D: 8 oz. Seal Only

Scenario E: 6 oz. Laminated Foil
Scenario F: 8 oz. Laminated Foil

Scenario G: 6 oz. Coated Paper
Scenario H: 8 oz. Coated Paper

Scenario I: 6 oz. Distribution 3 Corrugated Packaging – 30% reduction*
Scenario J: 8 oz. Distribution 3 Corrugated Packaging – 30% reduction*

Scenario K: 6 oz. Distribution 3 Corrugated Packaging – Eliminated (0 kg)*
Scenario L: 8 oz. Distribution 3 Corrugated Packaging – Eliminated (0 kg)*

*Change from Current System is circled.

Stonyfield Farm Master's Project
LCI Model Inputs

PP 6 oz CF IM

General

Data Set	1
Designation	PP 6 oz CF IM (Current System
Functional Unit	1000 lb
Container Size	6 oz.

Designation	Name	Manufacturer	Weight (g)	Units/Comp.
Component 1	Cup	Polytainers	7.800	1
Component 2	Lid	Polytainers	3.900	1
Component 3	Seal	Clear-Lam	0.332	1

Material Prod.

Cup Composition

Material	weight %	Supplier
PP	97.0%	Montell
Cotton Color	3.0%	Spartech
N/A	0.0%	N/A
N/A	0.0%	N/A

Lid Composition

Material	weight %	Supplier
LLDPE	97.0%	Novacor
Cotton Color	3.0%	Spartech
N/A	0.0%	N/A
N/A	0.0%	N/A

Seal Composition

Material	weight %	Supplier
PE	65.0%	Unknown
PET	30.1%	Unknown
Other	4.9%	Unknown
N/A	0.0%	N/A

Distribution 1 (Material Production To Manufacturing)

Cup Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
PP (Montell)	425	Rail	99%	100%	0.00%	N/A	0	0
		Truck	1%	100%	0.00%	N/A	0	0
Cotton Color (Spartech)	90	Truck	100%	100%	0.00%	Bag & Pallet	449	20
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Lid Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
LLDPE (Novacor)	190	Rail	92.0%	100%	0.00%	N/A	0	0
		Truck	8.0%	0%	0.00%	N/A	0	0
Cotton Color (Spartech)	90	Truck	100%	100%	0.00%	Bag & Pallet	449	20
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Scenario A

Distribution 1 (Cont.)

Seal Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
PE (Unknown)	492	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
PET (Unknown)	492	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
Other (Unknown)	492	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Mfg.

Component	Manufacturer	Process	Scrap Rate	Recycle
Cup	Polytainers	Injection Moldir	3.76%	100.0%
Lid	Polytainers	Injection Moldir	3.76%	100.0%
Seal	Clear-Lam	Extrusion	2.00%	0.0%

Distribution 2 (Manufacturer to Stonyfield Farm)

Transport

Component	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate
Cup	587	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%
Lid	587	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%
Seal	1050	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%

Packaging

Component	Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight (g)	Reuse Rate	Recycle Rate
Cup	Box	Atlantic	5	2130	Corrugated(10(	1497	0%	100%
	Liner	Regency	9.4	2130	LDPE	110.5858	0%	0%
	Pallet	Woodbridge	23	51120	Wood	18144	94%	71%
	Stretch Wrap	Artic	18	51120	LLDPE Film	635	0%	0%
	N/A	N/A	0	0	N/A	0	0%	0%
Lid	Box	Atlantic	5	1500	Corrugated(10(	862	0%	100%
	Pallet	Woodbridge	23	72000	Wood	18144	94%	71%
	Stretch Wrap	Artic	18	72000	LLDPE Film	635	0%	0%
	Sleeve	Regency	9.4	50	LDPE	3	0%	0%
	N/A	N/A	0	0	N/A	0	0%	0%

Dist. 2 (Cont.)

Packaging (Cont.)

Component	Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight	Reuse Rate	Recycle Rate
Seal	Core Tube	Unknown	77	20800	Paper Board	635	0%	0%
	Pallet	Unknown	77	665600	Wood	13608	94%	71%
	Stretch Wrap	Unknown	77	665600	LLDPE Film	181	0%	0%
	Slip Sheet	Unknown	77	665600	Paper Board	1361	0%	85%
	Roll Wrap	Unknown	77	20800	LLDPE Film	18.143696	0%	0%

Filling

Component	Engineered Scrap Rate	Process Scrap Rate	Recycle Rate
Cup	0.00%	0.00%	0%
Lid	0.00%	0.00%	0%
Seal	150.00%	0.00%	0%

Dist. 3 (SF to Customers)

Transport

Distance	Mode	Fraction	Efficiency	Loss Rate
552	Truck	100%	100%	0.00%
0	N/A	0%	0%	0.00%

Packaging

Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight	Reuse	Recycle
Box	Smurfit-Stone	47.6	12	Corrugated(22%	132	0%	95%
Pallet	Pallet Services	10	3360	Wood	18144	94%	71%
Stretch Wrap	Brown	138.2	3360	LLDPE Film	331	0%	7%
N/A	N/A	0	0	N/A	0	0	0%
N/A	N/A	0	0	N/A	0	0%	0%

End of Life

Fraction Incinerated 23.5%

Primary Packaging Make-up

Component	Recycle Rate	Fraction Plastic	Fraction Paper	Fraction Other
Cup	0%	100%	0%	0%
Lid	0%	100%	0%	0%
Seal	0%	100%	0%	0%

Stonyfield Farm Master's Project
LCI Model Inputs

PP 8 oz WH IM

General

Data Set	2
Designation	PP 8 oz WH IM (Current System)
Functional Unit	1000 lb
Container Size	8 oz.

Designation	Name	Manufacturer	Weight (g)	Units/Comp.
Component 1	Cup	Polytainers	9.100	1
Component 2	Lid	Polytainers	3.900	1
Component 3	Seal	Clear-Lam	0.332	1

Material Prod.

Cup Composition

Material	weight %	Supplier
PP	98.0%	Montell
White Color	2.0%	Spartech
N/A	0.0%	N/A
N/A	0.0%	N/A

Lid Composition

Material	weight %	Supplier
LLDPE	98.0%	Novacor
White Color	2.0%	Spartech
N/A	0.0%	N/A
N/A	0.0%	N/A

Seal Composition

Material	weight %	Supplier
PE	65.0%	Unknown
PET	30.1%	Unknown
Other	4.9%	Unknown
N/A	0.0%	N/A

Distribution 1 (Material Production To Manufacturing)

Cup Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
PP (Montell)	425	Rail	99%	100%	0.00%	N/A	0	0
		Truck	1%	100%	0.00%	N/A	0	0
White Color (Spartech)	90	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Lid Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
LLDPE (Novacor)	190	Rail	92.0%	100%	0.00%	N/A	0	0
		Truck	8.0%	100%	0.00%	N/A	0	0
White Color (Spartech)	90	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Scenario B

Distribution 1 (Cont.)

Seal Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
PE (Unknown)	492	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
PET (Unknown)	492	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
Other (Unknown)	492	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Mfg.

Component	Manufacturer	Process	Scrap Rate	Recycle
Cup	Polytainers	Injection Moldin	3.76%	100.0%
Lid	Polytainers	Injection Moldin	3.76%	100.0%
Seal	Clear-Lam	Extrusion	2.00%	0.0%

Distribution 2 (Manufacturer to Stonyfield Farm)

Transport

Component	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate
Cup	587	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%
Lid	587	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%
Seal	1050	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%

Packaging

Component	Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight (g)	Reuse Rate	Recycle Rate
Cup	Box	Atlantic	5	1500	Corrugated(10	1451	0%	100%
	Liner	Regency	9.4	1500	LDPE	110.5858	0%	0%
	Pallet	Woodbridge	23	45000	Wood	18144	94%	71%
	Stretch Wrap	Artic	18	45000	LLDPE Film	635	0%	0%
	N/A	N/A	0	0	N/A	0	0%	0%
Lid	Box	Atlantic	5	1500	Corrugated(10	862	0%	100%
	Pallet	Woodbridge	23	72000	Wood	18144	94%	71%
	Stretch Wrap	Artic	18	72000	LLDPE Film	635	0%	0%
	Sleeve	Regency	9.4	50	LDPE	3	0%	0%
	N/A	N/A	0	0	N/A	0	0%	0%

Dist. 2 (Cont.)

Packaging (Cont.)

Component	Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight	Reuse Rate	Recycle Rate
Seal	Core Tube	Unknown	77	20800	Paper Board	635	0%	0%
	Pallet	Unknown	77	665600	Wood	13608	94%	71%
	Stretch Wrap	Unknown	77	665600	LLDPE Film	181	0%	0%
	Slip Sheet	Unknown	77	665600	Paper Board	1361	0%	85%
	Roll Wrap	Unknown	77	20800	LLDPE Film	18.143696	0%	0%

Filling

Component	Engineered Scrap Rate	Process Scrap Rate	Recycle Rate
Cup	0.00%	0.00%	0%
Lid	0.00%	0.00%	0%
Seal	150.00%	0.00%	0%

Dist. 3 (SF to Customers)

Transport

Distance	Mode	Fraction	Efficiency	Loss Rate
552	Truck	100%	100%	0.00%
0	N/A	0%	0%	0.00%

Packaging

Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight	Reuse	Recycle
Box	Smurfit-Stone	47.6	12	Corrugated(22%	137	0%	95%
Pallet	Pallet Services	10	2016	Wood	18144	94%	71%
Stretch Wrap	Brown	138.2	2016	LLDPE Film	331	0%	7%
N/A	N/A	0	0	N/A	0	0	0%
N/A	N/A	0	0	N/A	0	0%	0%

End of Life

Fraction Incinerated 23.5%

Primary Packaging Make-up

Component	Recycle Rate	Fraction Plastic	Fraction Paper	Fraction Other
Cup	0%	100%	0%	0%
Lid	0%	100%	0%	0%
Seal	0%	100%	0%	0%

Stonyfield Farm Master's Project
LCI Model Inputs

PP 6 oz CF IM

General

Data Set	3
Designation	PP 6 oz CF IM (Seal Only)
Functional Unit	1000 lb
Container Size	6 oz.

Designation	Name	Manufacturer	Weight (g)	Units/Comp.
Component 1	Cup	Polytainers	7.800	1
Component 2	Lid			1
Component 3	Seal	Clear-Lam	0.332	1

Material Prod.

Cup Composition

Material	weight %	Supplier
PP	97.0%	Montell
Cotton Color	3.0%	Spartech
N/A	0.0%	N/A
N/A	0.0%	N/A

Lid Composition

Material	weight %	Supplier
LLDPE	0.0%	Novacor
Cotton Color	0.0%	Spartech
N/A	0.0%	N/A
N/A	0.0%	N/A

Seal Composition

Material	weight %	Supplier
PE	65.0%	Unknown
PET	30.1%	Unknown
Other	4.9%	Unknown
N/A	0.0%	N/A

Distribution 1 (Material Production To Manufacturing)

Cup Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
PP (Montell)	425	Rail	99%	100%	0.00%	N/A	0	0
		Truck	1%	100%	0.00%	N/A	0	0
Cotton Color (Spartech)	90	Truck	100%	100%	0.00%	Bag & Pallet	449	20
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Lid Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
LLDPE (Novacor)	0	Rail	0.0%	0%	0.00%	N/A	0	0
		Truck	0.0%	0%	0.00%	N/A	0	0
Cotton Color (Spartech)	0	Truck	0%	0%	0.00%	Bag & Pallet	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Scenario C

Distribution 1 (Cont.)

Seal Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
PE (Unknown)	492	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
PET (Unknown)	492	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
Other (Unknown)	492	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Mfg.

Component	Manufacturer	Process	Scrap Rate	Recycle
Cup	Polytainers	Injection Moldin	3.76%	100.0%
Lid			0.00%	0.0%
Seal	Clear-Lam	Extrusion	2.00%	0.0%

Distribution 2 (Manufacturer to Stonyfield Farm)

Transport

Component	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate
Cup	587	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%
Lid	0	Truck	0%	0%	0.00%
		N/A	0%	0%	0.00%
Seal	1050	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%

Packaging

Component	Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight (g)	Reuse Rate	Recycle Rate
Cup	Box	Atlantic	5	2130	Corrugated(10	1497	0%	100%
	Liner	Regency	9.4	2130	LDPE	110.5858	0%	0%
	Pallet	Woodbridge	23	51120	Wood	18144	94%	71%
	Stretch Wrap	Artic	18	51120	LLDPE Film	635	0%	0%
	N/A	N/A	0	0	N/A	0	0%	0%
Lid	Box	Atlantic	0	0	Corrugated(10	0	0%	0%
	Pallet	Woodbridge	0	0	Wood	0	0%	0%
	Stretch Wrap	Artic	0	0	LLDPE Film	0	0%	0%
	Sleeve	Regency	0	0	LDPE	0	0%	0%
	N/A	N/A	0	0	N/A	0	0%	0%

Dist. 2 (Cont.)

Packaging (Cont.)

Component	Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight	Reuse Rate	Recycle Rate
Seal	Core Tube	Unknown	77	20800	Paper Board	635	0%	0%
	Pallet	Unknown	77	665600	Wood	13608	94%	71%
	Stretch Wrap	Unknown	77	665600	LLDPE Film	181	0%	0%
	Slip Sheet	Unknown	77	665600	Paper Board	1361	0%	85%
	Roll Wrap	Unknown	77	20800	LLDPE Film	18.143696	0%	0%

Filling

Component	Engineered Scrap Rate	Process Scrap Rate	Recycle Rate
Cup	0.00%	0.00%	0%
Lid	0.00%	0.00%	0%
Seal	150.00%	0.00%	0%

Dist. 3 (SF to Customers)

Transport

Distance	Mode	Fraction	Efficiency	Loss Rate
552	Truck	100%	100%	0.00%
0	N/A	0%	0%	0.00%

Packaging

Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight	Reuse	Recycle
Box	Smurfit-Stone	47.6	12	Corrugated(22	132	0%	95%
Pallet	Pallet Services	10	3360	Wood	18144	94%	71%
Stretch Wrap	Brown	138.2	3360	LLDPE Film	331	0%	7%
N/A	N/A	0	0	N/A	0	0	0%
N/A	N/A	0	0	N/A	0	0%	0%

End of Life

Fraction Incinerated 23.5%

Primary Packaging Make-up

Component	Recycle Rate	Fraction Plastic	Fraction Paper	Fraction Other
Cup	0%	100%	0%	0%
Lid	0%	100%	0%	0%
Seal	0%	100%	0%	0%

Stonyfield Farm Master's Project
LCI Model Inputs

PP 8 oz WH IM

General

Data Set	4
Designation	PP 8 oz WH IM (Seal Only)
Functional Unit	1000 lb
Container Size	8 oz.

Designation	Name	Manufacturer	Weight (g)	Units/Comp.
Component 1	Cup	Polytainers	9.100	1
Component 2	Lid			1
Component 3	Seal	Clear-Lam	0.332	1

Material Prod.

Cup Composition

Material	weight %	Supplier
PP	98.0%	Montell
White Color	2.0%	Spartech
N/A	0.0%	N/A
N/A	0.0%	N/A

Lid Composition

Material	weight %	Supplier
LLDPE	0.0%	Novacor
White Color	0.0%	Spartech
N/A	0.0%	N/A
N/A	0.0%	N/A

Seal Composition

Material	weight %	Supplier
PE	65.0%	Unknown
PET	30.1%	Unknown
Other	4.9%	Unknown
N/A	0.0%	N/A

Distribution 1 (Material Production To Manufacturing)

Cup Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
PP (Montell)	425	Rail	99%	100%	0.00%	N/A	0	0
		Truck	1%	100%	0.00%	N/A	0	0
White Color (Spartech)	90	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Lid Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
LLDPE (Novacor)	0	Rail	0.0%	0%	0.00%	N/A	0	0
		Truck	0.0%	0%	0.00%	N/A	0	0
White Color (Spartech)	0	Truck	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Scenario D

Distribution 1 (Cont.)

Seal Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
PE (Unknown)	492	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
PET (Unknown)	492	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
Other (Unknown)	492	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Mfg.

Component	Manufacturer	Process	Scrap Rate	Recycle
Cup	Polytainers	Injection Moldin	3.76%	100.0%
Lid			0.00%	0.0%
Seal	Clear-Lam	Extrusion	2.00%	0.0%

Distribution 2 (Manufacturer to Stonyfield Farm)

Transport

Component	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate
Cup	587	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%
Lid	0	Truck	0%	0%	0.00%
		N/A	0%	0%	0.00%
Seal	1050	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%

Packaging

Component	Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight (g)	Reuse Rate	Recycle Rate
Cup	Box	Atlantic	5	1500	Corrugated(10	1451	0%	100%
	Liner	Regency	9.4	1500	LDPE	110.5858	0%	0%
	Pallet	Woodbridge	23	45000	Wood	18144	94%	71%
	Stretch Wrap	Artic	18	45000	LLDPE Film	635	0%	0%
	N/A	N/A	0	0	N/A	0	0%	0%
Lid	Box	Atlantic	0	0	Corrugated(10	0	0%	0%
	Pallet	Woodbridge	0	0	Wood	0	0%	0%
	Stretch Wrap	Artic	0	0	LLDPE Film	0	0%	0%
	Sleeve	Regency	0	0	LDPE	0	0%	0%
	N/A	N/A	0	0	N/A	0	0%	0%

Dist. 2 (Cont.)

Packaging (Cont.)

Component	Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight	Reuse Rate	Recycle Rate
Seal	Core Tube	Unknown	77	20800	Paper Board	635	0%	0%
	Pallet	Unknown	77	665600	Wood	13608	94%	71%
	Stretch Wrap	Unknown	77	665600	LLDPE Film	181	0%	0%
	Slip Sheet	Unknown	77	665600	Paper Board	1361	0%	85%
	Roll Wrap	Unknown	77	20800	LLDPE Film	18.143696	0%	0%

Filling

Component	Engineered Scrap Rate	Process Scrap Rate	Recycle Rate
Cup	0.00%	0.00%	0%
Lid	0.00%	0.00%	0%
Seal	150.00%	0.00%	0%

Dist. 3 (SF to Customers)

Transport

Distance	Mode	Fraction	Efficiency	Loss Rate
552	Truck	100%	100%	0.00%
0	N/A	0%	0%	0.00%

Packaging

Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight	Reuse	Recycle
Box	Smurfit-Stone	47.6	12	Corrugated(22%	137	0%	95%
Pallet	Pallet Services	10	2016	Wood	18144	94%	71%
Stretch Wrap	Brown	138.2	2016	LLDPE Film	331	0%	7%
N/A	N/A	0	0	N/A	0	0	0%
N/A	N/A	0	0	N/A	0	0%	0%

End of Life

Fraction Incinerated 23.5%

Primary Packaging Make-up

Component	Recycle Rate	Fraction Plastic	Fraction Paper	Fraction Other
Cup	0%	100%	0%	0%
Lid	0%	0%	0%	0%
Seal	0%	100%	0%	0%

Stonyfield Farm Master's Project
LCI Model Inputs

6 oz Foil Lid

General

Data Set	5
Designation	6 oz Foil Lid
Functional Unit	1000 lb
Container Size	6 oz.

Designation	Name	Manufacturer	Weight (g)	Units/Comp.
Component 1	Cup	Polytainers	7.800	1
Component 2	Lid	Winpak	0.718	1
Component 3	Seal			1

Material Prod.

Cup Composition

Material	weight %	Supplier
PP	97.0%	Montell
Cotton Color	3.0%	Spartech
N/A	0.0%	N/A
N/A	0.0%	N/A

Lid Composition

Material	weight %	Supplier
Aluminum	68.4%	Unknown
PE	14.1%	Unknown
PE	17.5%	Unknown
N/A	0.0%	N/A

Seal Composition

Material	weight %	Supplier
PE	0.0%	Unknown
PET	0.0%	Unknown
Other	0.0%	Unknown
N/A	0.0%	N/A

Distribution 1 (Material Production To Manufacturing)

Cup Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
PP (Montell)	425	Rail	99%	100%	0.00%	N/A	0	0
		Truck	1%	100%	0.00%	N/A	0	0
Cotton Color (Spartech)	90	Truck	100%	100%	0.00%	Bag & Pallet	449	20
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Lid Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
Aluminum (Unknown)	5344	Ship	96.5%	100%	0.00%	N/A	0	0
		Truck	3.5%	100%	0.00%	N/A	0	0
PE (Unknown)	1821	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
PE (Unknown)	298	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Scenario E

Distribution 1 (Cont.)

Seal Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
PE (Unknown)	0	Truck	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
PET (Unknown)	0	Truck	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
Other (Unknown)	0	Truck	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Mfg.

Component	Manufacturer	Process	Scrap Rate	Recycle
Cup	Polytainers	Injection Moldin	3.76%	100.0%
Lid	Winpak	LDPE Coating	15.70%	68.4%
Seal			0.00%	0.0%

Distribution 2 (Manufacturer to Stonyfield Farm)

Transport

Component	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate
Cup	587	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%
Lid	470	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%
Seal	0	Truck	0%	0%	0.00%
		N/A	0%	0%	0.00%

Packaging

Component	Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight (g)	Reuse Rate	Recycle Rate
Cup	Box	Atlantic	5	2130	Corrugated(100	1497	0%	100%
	Liner	Regency	9.4	2130	LDPE	110.5858	0%	0%
	Pallet	Woodbridge	23	51120	Wood	18144	94%	71%
	Stretch Wrap	Artic	18	51120	LLDPE Film	635	0%	0%
	N/A	N/A	0	0	N/A	0	0%	0%
Lid	Box	Unknown	15	2000	Corrugated(100	92	0%	100%
	Box	Unknown	15	24000	Corrugated(100	687	0%	100%
	Pallet	Unknown	16.8	768000	Wood	13000	94%	71%
	Stretch Wrap	Unknown	12.4	768000	LLDPE Film	227	0%	0%
	N/A	N/A	0	0	N/A	0	0%	0%

Dist. 2 (Cont.)

Packaging (Cont.)

Component	Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight	Reuse Rate	Recycle Rate
Seal	Core Tube	Unknown	0	0	Paper Board	0	0%	0%
	Pallet	Unknown	0	0	Wood	0	0%	0%
	Stretch Wrap	Unknown	0	0	LLDPE Film	0	0%	0%
	Slip Sheet	Unknown	0	0	Paper Board	0	0%	0%
	Roll Wrap	Unknown	0	0	LLDPE Film	0	0%	0%

Filling

Component	Engineered Scrap Rate	Process Scrap Rate	Recycle Rate
Cup	0.00%	0.00%	0%
Lid	0.00%	0.00%	0%
Seal	0.00%	0.00%	0%

Dist. 3 (SF to Customers)

Transport

Distance	Mode	Fraction	Efficiency	Loss Rate
552	Truck	100%	100%	0.00%
0	N/A	0%	0%	0.00%

Packaging

Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight	Reuse	Recycle
Box	Smurfit-Stone	47.6	12	Corrugated(22%	132	0%	95%
Pallet	Pallet Services	10	3360	Wood	18144	94%	71%
Stretch Wrap	Brown	138.2	3360	LLDPE Film	331	0%	7%
N/A	N/A	0	0	N/A	0	0	0%
N/A	N/A	0	0	N/A	0	0%	0%

End of Life

Fraction Incinerated 23.5%

Primary Packaging Make-up

Component	Recycle Rate	Fraction Plastic	Fraction Paper	Fraction Other
Cup	0%	100%	0%	0%
Lid	0%	32%	0%	68%
Seal	0%	0%	0%	0%

Stonyfield Farm Master's Project
LCI Model Inputs

8 oz Foil Lid

General

Data Set	6
Designation	8 oz Foil Lid
Functional Unit	1000 lb
Container Size	8 oz.

Designation	Name	Manufacturer	Weight (g)	Units/Comp.
Component 1	Cup	Polytainers	9.100	1
Component 2	Lid	Winpak	0.718	1
Component 3	Seal			1

Material Prod.

Cup Composition

Material	weight %	Supplier
PP	98.0%	Montell
White Color	2.0%	Spartech
N/A	0.0%	N/A
N/A	0.0%	N/A

Lid Composition

Material	weight %	Supplier
Aluminum	68.4%	Unknown
PE	14.1%	Unknown
PE	17.5%	Unknown
N/A	0.0%	N/A

Seal Composition

Material	weight %	Supplier
PE	0.0%	Unknown
PET	0.0%	Unknown
Other	0.0%	Unknown
N/A	0.0%	N/A

Distribution 1 (Material Production To Manufacturing)

Cup Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
PP (Montell)	425	Rail	99%	100%	0.00%	N/A	0	0
		Truck	1%	100%	0.00%	N/A	0	0
White Color (Spartech)	90	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Lid Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
Aluminum (Unknown)	5344	Ship	96.5%	100%	0.00%	N/A	0	0
		Truck	3.5%	100%	0.00%	N/A	0	0
PE (Unknown)	1821	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
PE (Unknown)	298	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Scenario F

Distribution 1 (Cont.)

Seal Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
PE (Unknown)	0	Truck	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
PET (Unknown)	0	Truck	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
Other (Unknown)	0	Truck	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Mfg.

Component	Manufacturer	Process	Scrap Rate	Recycle
Cup	Polytainers	Injection Moldin	3.76%	100.0%
Lid	Winpak	LDPE Coating	15.70%	68.4%
Seal			0.00%	0.0%

Distribution 2 (Manufacturer to Stonyfield Farm)

Transport

Component	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate
Cup	587	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%
Lid	470	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%
Seal	0	Truck	0%	0%	0.00%
		N/A	0%	0%	0.00%

Packaging

Component	Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight (g)	Reuse Rate	Recycle Rate
Cup	Box	Atlantic	5	1500	Corrugated(100	1451	0%	100%
	Liner	Regency	9.4	1500	LDPE	110.5858	0%	0%
	Pallet	Woodbridge	23	45000	Wood	18144	94%	71%
	Stretch Wrap	Artic	18	45000	LLDPE Film	635	0%	0%
	N/A	N/A	0	0	N/A	0	0%	0%
Lid	Box	Unknown	15	2000	Corrugated(100	92	0%	100%
	Box	Unknown	15	24000	Corrugated(100	687	0%	100%
	Pallet	Unknown	16.8	768000	Wood	13000	94%	71%
	Stretch Wrap	Unknown	12.4	768000	LLDPE Film	227	0%	0%
	N/A	N/A	0	0	N/A	0	0%	0%

Dist. 2 (Cont.)

Packaging (Cont.)

Component	Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight	Reuse Rate	Recycle Rate
Seal	Core Tube	Unknown	0	0	Paper Board	0	0%	0%
	Pallet	Unknown	0	0	Wood	0	0%	0%
	Stretch Wrap	Unknown	0	0	LLDPE Film	0	0%	0%
	Slip Sheet	Unknown	0	0	Paper Board	0	0%	0%
	Roll Wrap	Unknown	0	0	LLDPE Film	0	0%	0%

Filling

Component	Engineered Scrap Rate	Process Scrap Rate	Recycle Rate
Cup	0.00%	0.00%	0%
Lid	0.00%	0.00%	0%
Seal	0.00%	0.00%	0%

Dist. 3 (SF to Customers)

Transport

Distance	Mode	Fraction	Efficiency	Loss Rate
552	Truck	100%	100%	0.00%
0	N/A	0%	0%	0.00%

Packaging

Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight	Reuse	Recycle
Box	Smurfit-Stone	47.6	12	Corrugated(22?	137	0%	95%
Pallet	Pallet Services	10	2016	Wood	18144	94%	71%
Stretch Wrap	Brown	138.2	2016	LLDPE Film	331	0%	7%
N/A	N/A	0	0	N/A	0	0	0%
N/A	N/A	0	0	N/A	0	0%	0%

End of Life

Fraction Incinerated 23.5%

Primary Packaging Make-up

Component	Recycle Rate	Fraction Plastic	Fraction Paper	Fraction Other
Cup	0%	100%	0%	0%
Lid	0%	32%	0%	68%
Seal	0%	0%	0%	0%

Stonyfield Farm Master's Project
LCI Model Inputs

6 oz Paper Lid

General

Data Set	7
Designation	6 oz Paper Lid
Functional Unit	1000 lb
Container Size	6 oz.

Designation	Name	Manufacturer	Weight (g)	Units/Comp.
Component 1	Cup	Polytainers	7.800	1
Component 2	Lid	Apple Converti	0.753	1
Component 3	Seal			1

Material Prod.

Cup Composition

Material	weight %	Supplier
PP	97.0%	Montell
Cotton Color	3.0%	Spartech
N/A	0.0%	N/A
N/A	0.0%	N/A

Lid Composition

Material	weight %	Supplier
Acrylic	1.5%	Unknown
Paper	63.3%	Unknown
LDPE	35.2%	Unknown
N/A	0.0%	N/A

Seal Composition

Material	weight %	Supplier
PE	0.0%	Unknown
PET	0.0%	Unknown
Other	0.0%	Unknown
N/A	0.0%	N/A

Distribution 1 (Material Production To Manufacturing)

Cup Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
PP (Montell)	425	Rail	99%	100%	0.00%	N/A	0	0
		Truck	1%	100%	0.00%	N/A	0	0
Cotton Color (Spartech)	90	Truck	100%	100%	0.00%	Bag & Pallet	449	20
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Lid Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
Acrylic (Unknown)	239	Truck	100.0%	100%	0.00%	N/A	0	0
		N/A	0.0%	0%	0.00%	N/A	0	0
Paper (Unknown)	4456	Truck	10%	100%	0.00%	N/A	0	0
		Ship	90%	100%	0.00%	N/A	0	0
LDPE (Unknown)	4456	Truck	10%	100%	0.00%	N/A	0	0
		Ship	90%	100%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Scenario G

Distribution 1 (Cont.)

Seal Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
PE (Unknown)	0	Truck	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
PET (Unknown)	0	Truck	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
Other (Unknown)	0	Truck	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Mfg.

Component	Manufacturer	Process	Scrap Rate	Recycle
Cup	Polytainers	Injection Moldin	3.76%	100.0%
Lid	Apple Convertin	LDPE Coating	20.00%	100.0%
Seal			0.00%	0.0%

Distribution 2 (Manufacturer to Stonyfield Farm)

Transport

Component	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate
Cup	587	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%
Lid	285	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%
Seal	0	Truck	0%	0%	0.00%
		N/A	0%	0%	0.00%

Packaging

Component	Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight (g)	Reuse Rate	Recycle Rate
Cup	Box	Atlantic	5	2130	Corrugated(100	1497	0%	100%
	Liner	Regency	9.4	2130	LDPE	110.5858	0%	0%
	Pallet	Woodbridge	23	51120	Wood	18144	94%	71%
	Stretch Wrap	Artic	18	51120	LLDPE Film	635	0%	0%
	N/A	N/A	0	0	N/A	0	0%	0%
Lid	Box	Unknown	55	1350	Paper Board	70	0%	100%
	Box	Unknown	55	21600	Corrugated(100	325	0%	100%
	Pallet	Unknown	10	864000	Wood	18144	94%	71%
	Stretch Wrap	Unknown	77	864000	LLDPE Film	635	0%	0%
	N/A	N/A	0	0	N/A	0	0%	0%

Dist. 2 (Cont.)

Packaging (Cont.)

Component	Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight	Reuse Rate	Recycle Rate
Seal	Core Tube	Unknown	0	0	Paper Board	0	0%	0%
	Pallet	Unknown	0	0	Wood	0	0%	0%
	Stretch Wrap	Unknown	0	0	LLDPE Film	0	0%	0%
	Slip Sheet	Unknown	0	0	Paper Board	0	0%	0%
	Roll Wrap	Unknown	0	0	LLDPE Film	0	0%	0%

Filling

Component	Engineered Scrap Rate	Process Scrap Rate	Recycle Rate
Cup	0.00%	0.00%	0%
Lid	0.00%	0.00%	0%
Seal	0.00%	0.00%	0%

Dist. 3 (SF to Customers)

Transport

Distance	Mode	Fraction	Efficiency	Loss Rate
552	Truck	100%	100%	0.00%
0	N/A	0%	0%	0.00%

Packaging

Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight	Reuse	Recycle
Box	Smurfit-Stone	47.6	12	Corrugated(22%	132	0%	95%
Pallet	Pallet Services	10	3360	Wood	18144	94%	71%
Stretch Wrap	Brown	138.2	3360	LLDPE Film	331	0%	7%
N/A	N/A	0	0	N/A	0	0	0%
N/A	N/A	0	0	N/A	0	0%	0%

End of Life

Fraction Incinerated 23.5%

Primary Packaging Make-up

Component	Recycle Rate	Fraction Plastic	Fraction Paper	Fraction Other
Cup	0%	100%	0%	0%
Lid	0%	37%	63%	0%
Seal	0%	0%	0%	0%

Stonyfield Farm Master's Project
LCI Model Inputs

8 oz Paper Lid

General

Data Set	8
Designation	8 oz Paper Lid
Functional Unit	1000 lb
Container Size	8 oz.

Designation	Name	Manufacturer	Weight (g)	Units/Comp.
Component 1	Cup	Polytainers	9.100	1
Component 2	Lid	Apple Converti	0.753	1
Component 3	Seal			1

Material Prod.

Cup Composition

Material	weight %	Supplier
PP	98.0%	Montell
White Color	2.0%	Spartech
N/A	0.0%	N/A
N/A	0.0%	N/A

Lid Composition

Material	weight %	Supplier
Acrylic	1.5%	Unknown
Paper	63.3%	Unknown
LDPE	35.2%	Unknown
N/A	0.0%	N/A

Seal Composition

Material	weight %	Supplier
PE	0.0%	Unknown
PET	0.0%	Unknown
Other	0.0%	Unknown
N/A	0.0%	N/A

Distribution 1 (Material Production To Manufacturing)

Cup Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
PP (Montell)	425	Rail	99%	100%	0.00%	N/A	0	0
		Truck	1%	100%	0.00%	N/A	0	0
White Color (Spartech)	90	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Lid Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
Acrylic (Unknown)	239	Truck	100.0%	100%	0.00%	N/A	0	0
		N/A	0.0%	0%	0.00%	N/A	0	0
Paper (Unknown)	4456	Truck	10%	100%	0.00%	N/A	0	0
		Ship	90%	100%	0.00%	N/A	0	0
LDPE (Unknown)	4456	Truck	10%	100%	0.00%	N/A	0	0
		Ship	90%	100%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Scenario H

Distribution 1 (Cont.)

Seal Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
PE (Unknown)	0	Truck	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
PET (Unknown)	0	Truck	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
Other (Unknown)	0	Truck	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Mfg.

Component	Manufacturer	Process	Scrap Rate	Recycle
Cup	Polytainers	Injection Moldin	3.76%	100.0%
Lid	Apple Convertin	LDPE Coating	20.00%	100.0%
Seal			0.00%	0.0%

Distribution 2 (Manufacturer to Stonyfield Farm)

Transport

Component	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate
Cup	587	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%
Lid	285	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%
Seal	0	Truck	0%	0%	0.00%
		N/A	0%	0%	0.00%

Packaging

Component	Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight (g)	Reuse Rate	Recycle Rate
Cup	Box	Atlantic	5	1500	Corrugated(10	1451	0%	100%
	Liner	Regency	9.4	1500	LDPE	110.5858	0%	0%
	Pallet	Woodbridge	23	45000	Wood	18144	94%	71%
	Stretch Wrap	Artic	18	45000	LLDPE Film	635	0%	0%
	N/A	N/A	0	0	N/A	0	0%	0%
Lid	Box	Unknown	55	1350	Paper Board	70	0%	100%
	Box	Unknown	55	21600	Corrugated(10	325	0%	100%
	Pallet	Unknown	10	864000	Wood	18144	94%	71%
	Stretch Wrap	Unknown	77	864000	LLDPE Film	635	0%	0%
	N/A	N/A	0	0	N/A	0	0%	0%

Dist. 2 (Cont.)

Packaging (Cont.)

Component	Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight	Reuse Rate	Recycle Rate
Seal	Core Tube	Unknown	0	0	Paper Board	0	0%	0%
	Pallet	Unknown	0	0	Wood	0	0%	0%
	Stretch Wrap	Unknown	0	0	LLDPE Film	0	0%	0%
	Slip Sheet	Unknown	0	0	Paper Board	0	0%	0%
	Roll Wrap	Unknown	0	0	LLDPE Film	0	0%	0%

Filling

Component	Engineered Scrap Rate	Process Scrap Rate	Recycle Rate
Cup	0.00%	0.00%	0%
Lid	0.00%	0.00%	0%
Seal	0.00%	0.00%	0%

Dist. 3 (SF to Customers)

Transport

Distance	Mode	Fraction	Efficiency	Loss Rate
552	Truck	100%	100%	0.00%
0	N/A	0%	0%	0.00%

Packaging

Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight	Reuse	Recycle
Box	Smurfit-Stone	47.6	12	Corrugated(22%	137	0%	95%
Pallet	Pallet Services	10	2016	Wood	18144	94%	71%
Stretch Wrap	Brown	138.2	2016	LLDPE Film	331	0%	7%
N/A	N/A	0	0	N/A	0	0	0%
N/A	N/A	0	0	N/A	0	0%	0%

End of Life

Fraction Incinerated 23.5%

Primary Packaging Make-up

Component	Recycle Rate	Fraction Plastic	Fraction Paper	Fraction Other
Cup	0%	100%	0%	0%
Lid	0%	37%	63%	0%
Seal	0%	0%	0%	0%

Stonyfield Farm Master's Project
LCI Model Inputs

6 oz. Dist. 3 Cc

General

Data Set	11
Designation	6 oz. Dist. 3 Corr. 30% Reduction
Functional Unit	1000 lb
Container Size	6 oz.

Designation	Name	Manufacturer	Weight (g)	Units/Comp.
Component 1	Cup	Polytainers	7.800	1
Component 2	Lid	Polytainers	3.900	1
Component 3	Seal	Clear-Lam	0.332	1

Material Prod.

Cup Composition

Material	weight %	Supplier
PP	97.0%	Montell
Cotton Color	3.0%	Spartech
N/A	0.0%	N/A
N/A	0.0%	N/A

Lid Composition

Material	weight %	Supplier
LLDPE	97.0%	Novacor
Cotton Color	3.0%	Spartech
N/A	0.0%	N/A
N/A	0.0%	N/A

Seal Composition

Material	weight %	Supplier
PE	65.0%	Unknown
PET	30.1%	Unknown
Other	4.9%	Unknown
N/A	0.0%	N/A

Distribution 1 (Material Production To Manufacturing)

Cup Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
PP (Montell)	425	Rail	99%	100%	0.00%	N/A	0	0
		Truck	1%	100%	0.00%	N/A	0	0
Cotton Color (Spartech)	90	Truck	100%	100%	0.00%	Bag & Pallet	449	20
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Lid Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
LLDPE (Novacor)	190	Rail	92.0%	100%	0.00%	N/A	0	0
		Truck	8.0%	0%	0.00%	N/A	0	0
Cotton Color (Spartech)	90	Truck	100%	100%	0.00%	Bag & Pallet	449	20
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Scenario I

Distribution 1 (Cont.)

Seal Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
PE (Unknown)	492	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
PET (Unknown)	492	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
Other (Unknown)	492	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Mfg.

Component	Manufacturer	Process	Scrap Rate	Recycle
Cup	Polytainers	Injection Moldin	3.76%	100.0%
Lid	Polytainers	Injection Moldin	3.76%	100.0%
Seal	Clear-Lam	Extrusion	2.00%	0.0%

Distribution 2 (Manufacturer to Stonyfield Farm)

Transport

Component	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate
Cup	587	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%
Lid	587	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%
Seal	1050	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%

Packaging

Component	Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight (g)	Reuse Rate	Recycle Rate
Cup	Box	Atlantic	5	2130	Corrugated(10(	1497	0%	100%
	Liner	Regency	9.4	2130	LDPE	110.5858	0%	0%
	Pallet	Woodbridge	23	51120	Wood	18144	94%	71%
	Stretch Wrap	Artic	18	51120	LLDPE Film	635	0%	0%
	N/A	N/A	0	0	N/A	0	0%	0%
Lid	Box	Atlantic	5	1500	Corrugated(10(	862	0%	100%
	Pallet	Woodbridge	23	72000	Wood	18144	94%	71%
	Stretch Wrap	Artic	18	72000	LLDPE Film	635	0%	0%
	Sleeve	Regency	9.4	50	LDPE	3	0%	0%
	N/A	N/A	0	0	N/A	0	0%	0%

Dist. 2 (Cont.)

Packaging (Cont.)

Component	Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight	Reuse Rate	Recycle Rate
Seal	Core Tube	Unknown	77	20800	Paper Board	635	0%	0%
	Pallet	Unknown	77	665600	Wood	13608	94%	71%
	Stretch Wrap	Unknown	77	665600	LLDPE Film	181	0%	0%
	Slip Sheet	Unknown	77	665600	Paper Board	1361	0%	85%
	Roll Wrap	Unknown	77	20800	LLDPE Film	18.143696	0%	0%

Filling

Component	Engineered Scrap Rate	Process Scrap Rate	Recycle Rate
Cup	0.00%	0.00%	0%
Lid	0.00%	0.00%	0%
Seal	150.00%	0.00%	0%

Dist. 3 (SF to Customers)

Transport

Distance	Mode	Fraction	Efficiency	Loss Rate
552	Truck	100%	100%	0.00%
0	N/A	0%	0%	0.00%

Packaging

Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight	Reuse	Recycle
Box	Smurfit-Stone	47.6	12	Corrugated(22%	92	0%	95%
Pallet	Pallet Services	10	3360	Wood	18144	94%	71%
Stretch Wrap	Brown	138.2	3360	LLDPE Film	331	0%	7%
N/A	N/A	0	0	N/A	0	0	0%
N/A	N/A	0	0	N/A	0	0%	0%

End of Life

Fraction Incinerated 23.5%

Primary Packaging Make-up

Component	Recycle Rate	Fraction Plastic	Fraction Paper	Fraction Other
Cup	0%	100%	0%	0%
Lid	0%	100%	0%	0%
Seal	0%	100%	0%	0%

Stonyfield Farm Master's Project
LCI Model Inputs

8 oz. Dist. 3 Cc

General

Data Set	12
Designation	8 oz. Dist. 3 Corr. 30% Reduction
Functional Unit	1000 lb
Container Size	8 oz.

Designation	Name	Manufacturer	Weight (g)	Units/Comp.
Component 1	Cup	Polytainers	9.100	1
Component 2	Lid	Polytainers	3.900	1
Component 3	Seal	Clear-Lam	0.332	1

Material Prod.

Cup Composition

Material	weight %	Supplier
PP	98.0%	Montell
White Color	2.0%	Spartech
N/A	0.0%	N/A
N/A	0.0%	N/A

Lid Composition

Material	weight %	Supplier
LLDPE	98.0%	Novacor
White Color	2.0%	Spartech
N/A	0.0%	N/A
N/A	0.0%	N/A

Seal Composition

Material	weight %	Supplier
PE	65.0%	Unknown
PET	30.1%	Unknown
Other	4.9%	Unknown
N/A	0.0%	N/A

Distribution 1 (Material Production To Manufacturing)

Cup Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
PP (Montell)	425	Rail	99%	100%	0.00%	N/A	0	0
		Truck	1%	100%	0.00%	N/A	0	0
White Color (Spartech)	90	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Lid Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
LLDPE (Novacor)	190	Rail	92.0%	100%	0.00%	N/A	0	0
		Truck	8.0%	100%	0.00%	N/A	0	0
White Color (Spartech)	90	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Scenario J

Distribution 1 (Cont.)

Seal Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
PE (Unknown)	492	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
PET (Unknown)	492	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
Other (Unknown)	492	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Mfg.

Component	Manufacturer	Process	Scrap Rate	Recycle
Cup	Polytainers	Injection Moldin	3.76%	100.0%
Lid	Polytainers	Injection Moldin	3.76%	100.0%
Seal	Clear-Lam	Extrusion	2.00%	0.0%

Distribution 2 (Manufacturer to Stonyfield Farm)

Transport

Component	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate
Cup	587	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%
Lid	587	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%
Seal	1050	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%

Packaging

Component	Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight (g)	Reuse Rate	Recycle Rate
Cup	Box	Atlantic	5	1500	Corrugated(100	1451	0%	100%
	Liner	Regency	9.4	1500	LDPE	110.5858	0%	0%
	Pallet	Woodbridge	23	45000	Wood	18144	94%	71%
	Stretch Wrap	Artic	18	45000	LLDPE Film	635	0%	0%
	N/A	N/A	0	0	N/A	0	0%	0%
Lid	Box	Atlantic	5	1500	Corrugated(100	862	0%	100%
	Pallet	Woodbridge	23	72000	Wood	18144	94%	71%
	Stretch Wrap	Artic	18	72000	LLDPE Film	635	0%	0%
	Sleeve	Regency	9.4	50	LDPE	3	0%	0%
	N/A	N/A	0	0	N/A	0	0%	0%

Dist. 2 (Cont.)

Packaging (Cont.)

Component	Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight	Reuse Rate	Recycle Rate
Seal	Core Tube	Unknown	77	20800	Paper Board	635	0%	0%
	Pallet	Unknown	77	665600	Wood	13608	94%	71%
	Stretch Wrap	Unknown	77	665600	LLDPE Film	181	0%	0%
	Slip Sheet	Unknown	77	665600	Paper Board	1361	0%	85%
	Roll Wrap	Unknown	77	20800	LLDPE Film	18.143696	0%	0%

Filling

Component	Engineered Scrap Rate	Process Scrap Rate	Recycle Rate
Cup	0.00%	0.00%	0%
Lid	0.00%	0.00%	0%
Seal	150.00%	0.00%	0%

Dist. 3 (SF to Customers)

Transport

Distance	Mode	Fraction	Efficiency	Loss Rate
552	Truck	100%	100%	0.00%
0	N/A	0%	0%	0.00%

Packaging

Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight	Reuse	Recycle
Box	Smurfit-Stone	47.6	12	Corrugated(22%	96	0%	95%
Pallet	Pallet Services	10	2016	Wood	18144	94%	71%
Stretch Wrap	Brown	138.2	2016	LLDPE Film	331	0%	7%
N/A	N/A	0	0	N/A	0	0	0%
N/A	N/A	0	0	N/A	0	0%	0%

End of Life

Fraction Incinerated 23.5%

Primary Packaging Make-up

Component	Recycle Rate	Fraction Plastic	Fraction Paper	Fraction Other
Cup	0%	100%	0%	0%
Lid	0%	100%	0%	0%
Seal	0%	100%	0%	0%

Stonyfield Farm Master's Project
LCI Model Inputs

6 oz. Dist. 3 Cc

General

Data Set	13
Designation	; oz. Dist. 3 Corrugated Eliminatio
Functional Unit	1000 lb
Container Size	6 oz.

Designation	Name	Manufacturer	Weight (g)	Units/Comp.
Component 1	Cup	Polytainers	7.800	1
Component 2	Lid	Polytainers	3.900	1
Component 3	Seal	Clear-Lam	0.332	1

Material Prod.

Cup Composition

Material	weight %	Supplier
PP	97.0%	Montell
Cotton Color	3.0%	Spartech
N/A	0.0%	N/A
N/A	0.0%	N/A

Lid Composition

Material	weight %	Supplier
LLDPE	97.0%	Novacor
Cotton Color	3.0%	Spartech
N/A	0.0%	N/A
N/A	0.0%	N/A

Seal Composition

Material	weight %	Supplier
PE	65.0%	Unknown
PET	30.1%	Unknown
Other	4.9%	Unknown
N/A	0.0%	N/A

Distribution 1 (Material Production To Manufacturing)

Cup Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
PP (Montell)	425	Rail	99%	100%	0.00%	N/A	0	0
		Truck	1%	100%	0.00%	N/A	0	0
Cotton Color (Spartech)	90	Truck	100%	100%	0.00%	Bag & Pallet	449	20
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Lid Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
LLDPE (Novacor)	190	Rail	92.0%	100%	0.00%	N/A	0	0
		Truck	8.0%	0%	0.00%	N/A	0	0
Cotton Color (Spartech)	90	Truck	100%	100%	0.00%	Bag & Pallet	449	20
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Scenario K

Distribution 1 (Cont.)

Seal Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
PE (Unknown)	492	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
PET (Unknown)	492	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
Other (Unknown)	492	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Mfg.

Component	Manufacturer	Process	Scrap Rate	Recycle
Cup	Polytainers	Injection Moldin	3.76%	100.0%
Lid	Polytainers	Injection Moldin	3.76%	100.0%
Seal	Clear-Lam	Extrusion	2.00%	0.0%

Distribution 2 (Manufacturer to Stonyfield Farm)

Transport

Component	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate
Cup	587	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%
Lid	587	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%
Seal	1050	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%

Packaging

Component	Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight (g)	Reuse Rate	Recycle Rate
Cup	Box	Atlantic	5	2130	Corrugated(100	1497	0%	100%
	Liner	Regency	9.4	2130	LDPE	110.5858	0%	0%
	Pallet	Woodbridge	23	51120	Wood	18144	94%	71%
	Stretch Wrap	Artic	18	51120	LLDPE Film	635	0%	0%
	N/A	N/A	0	0	N/A	0	0%	0%
Lid	Box	Atlantic	5	1500	Corrugated(100	862	0%	100%
	Pallet	Woodbridge	23	72000	Wood	18144	94%	71%
	Stretch Wrap	Artic	18	72000	LLDPE Film	635	0%	0%
	Sleeve	Regency	9.4	50	LDPE	3	0%	0%
	N/A	N/A	0	0	N/A	0	0%	0%

Dist. 2 (Cont.)

Packaging (Cont.)

Component	Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight	Reuse Rate	Recycle Rate
Seal	Core Tube	Unknown	77	20800	Paper Board	635	0%	0%
	Pallet	Unknown	77	665600	Wood	13608	94%	71%
	Stretch Wrap	Unknown	77	665600	LLDPE Film	181	0%	0%
	Slip Sheet	Unknown	77	665600	Paper Board	1361	0%	85%
	Roll Wrap	Unknown	77	20800	LLDPE Film	18.143696	0%	0%

Filling

Component	Engineered Scrap Rate	Process Scrap Rate	Recycle Rate
Cup	0.00%	0.00%	0%
Lid	0.00%	0.00%	0%
Seal	150.00%	0.00%	0%

Dist. 3 (SF to Customers)

Transport

Distance	Mode	Fraction	Efficiency	Loss Rate
552	Truck	100%	100%	0.00%
0	N/A	0%	0%	0.00%

Packaging

Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight	Reuse	Recycle
Box	Smurfit-Stone	47.6	12	Corrugated(22?	0	0%	95%
Pallet	Pallet Services	10	3360	Wood	18144	94%	71%
Stretch Wrap	Brown	138.2	3360	LLDPE Film	331	0%	7%
N/A	N/A	0	0	N/A	0	0	0%
N/A	N/A	0	0	N/A	0	0%	0%

End of Life

Fraction Incinerated 23.5%

Primary Packaging Make-up

Component	Recycle Rate	Fraction Plastic	Fraction Paper	Fraction Other
Cup	0%	100%	0%	0%
Lid	0%	100%	0%	0%
Seal	0%	100%	0%	0%

Stonyfield Farm Master's Project
LCI Model Inputs

8 oz. Dist. 3 Cc

General

Data Set	14
Designation	8 oz. Dist. 3 Corrugated Elimination
Functional Unit	1000 lb
Container Size	8 oz.

Designation	Name	Manufacturer	Weight (g)	Units/Comp.
Component 1	Cup	Polytainers	9.100	1
Component 2	Lid	Polytainers	3.900	1
Component 3	Seal	Clear-Lam	0.332	1

Material Prod.

Cup Composition

Material	weight %	Supplier
PP	98.0%	Montell
White Color	2.0%	Spartech
N/A	0.0%	N/A
N/A	0.0%	N/A

Lid Composition

Material	weight %	Supplier
LLDPE	98.0%	Novacor
White Color	2.0%	Spartech
N/A	0.0%	N/A
N/A	0.0%	N/A

Seal Composition

Material	weight %	Supplier
PE	65.0%	Unknown
PET	30.1%	Unknown
Other	4.9%	Unknown
N/A	0.0%	N/A

Distribution 1 (Material Production To Manufacturing)

Cup Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
PP (Montell)	425	Rail	99%	100%	0.00%	N/A	0	0
		Truck	1%	100%	0.00%	N/A	0	0
White Color (Spartech)	90	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Lid Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
LLDPE (Novacor)	190	Rail	92.0%	100%	0.00%	N/A	0	0
		Truck	8.0%	100%	0.00%	N/A	0	0
White Color (Spartech)	90	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Scenario L

Distribution 1 (Cont.)

Seal Material Transport

Material (Supplier)	Transport					Packaging		
	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate	Type	Mat/Package	Pkg. Wt. (kg)
PE (Unknown)	492	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
PET (Unknown)	492	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
Other (Unknown)	492	Truck	100%	100%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0
N/A (N/A)	0	N/A	0%	0%	0.00%	N/A	0	0
		N/A	0%	0%	0.00%	N/A	0	0

Mfg.

Component	Manufacturer	Process	Scrap Rate	Recycle
Cup	Polytainers	Injection Moldin	3.76%	100.0%
Lid	Polytainers	Injection Moldin	3.76%	100.0%
Seal	Clear-Lam	Extrusion	2.00%	0.0%

Distribution 2 (Manufacturer to Stonyfield Farm)

Transport

Component	Distance	Mode of Trans.	Fraction	Efficiency	Loss Rate
Cup	587	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%
Lid	587	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%
Seal	1050	Truck	100%	100%	0.00%
		N/A	0%	0%	0.00%

Packaging

Component	Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight (g)	Reuse Rate	Recycle Rate
Cup	Box	Atlantic	5	1500	Corrugated(10	1451	0%	100%
	Liner	Regency	9.4	1500	LDPE	110.5858	0%	0%
	Pallet	Woodbridge	23	45000	Wood	18144	94%	71%
	Stretch Wrap	Artic	18	45000	LLDPE Film	635	0%	0%
	N/A	N/A	0	0	N/A	0	0%	0%
Lid	Box	Atlantic	5	1500	Corrugated(10	862	0%	100%
	Pallet	Woodbridge	23	72000	Wood	18144	94%	71%
	Stretch Wrap	Artic	18	72000	LLDPE Film	635	0%	0%
	Sleeve	Regency	9.4	50	LDPE	3	0%	0%
	N/A	N/A	0	0	N/A	0	0%	0%

Dist. 2 (Cont.)

Packaging (Cont.)

Component	Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight	Reuse Rate	Recycle Rate
Seal	Core Tube	Unknown	77	20800	Paper Board	635	0%	0%
	Pallet	Unknown	77	665600	Wood	13608	94%	71%
	Stretch Wrap	Unknown	77	665600	LLDPE Film	181	0%	0%
	Slip Sheet	Unknown	77	665600	Paper Board	1361	0%	85%
	Roll Wrap	Unknown	77	20800	LLDPE Film	18.143696	0%	0%

Filling

Component	Engineered Scrap Rate	Process Scrap Rate	Recycle Rate
Cup	0.00%	0.00%	0%
Lid	0.00%	0.00%	0%
Seal	150.00%	0.00%	0%

Dist. 3 (SF to Customers)

Transport

Distance	Mode	Fraction	Efficiency	Loss Rate
552	Truck	100%	100%	0.00%
0	N/A	0%	0%	0.00%

Packaging

Type	Supplier	Dist. to Mfg.	Units/Package	Material	Weight	Reuse	Recycle
Box	Smurfit-Stone	47.6	12	Corrugated(22?	0	0%	95%
Pallet	Pallet Services	10	2016	Wood	18144	94%	71%
Stretch Wrap	Brown	138.2	2016	LLDPE Film	331	0%	7%
N/A	N/A	0	0	N/A	0	0	0%
N/A	N/A	0	0	N/A	0	0%	0%

End of Life

Fraction Incinerated 23.5%

Primary Packaging Make-up

Component	Recycle Rate	Fraction Plastic	Fraction Paper	Fraction Other
Cup	0%	100%	0%	0%
Lid	0%	100%	0%	0%
Seal	0%	100%	0%	0%

APPENDIX B

RESULT FORMS

Content Description:

Scenario A: 6 oz. Current System
Scenario B: 8 oz. Current System

Scenario C: 6 oz. Seal Only
Scenario D: 8 oz. Seal Only

Scenario E: 6 oz. Laminated Foil
Scenario F: 8 oz. Laminated Foil

Scenario G: 6 oz. Coated Paper
Scenario H: 8 oz. Coated Paper

Scenario I: 6 oz. Distribution 3 Corrugated Packaging – 30% reduction
Scenario J: 8 oz. Distribution 3 Corrugated Packaging – 30% reduction

Scenario K: 6 oz. Distribution 3 Corrugated Packaging – Eliminated (0 kg)
Scenario L: 8 oz. Distribution 3 Corrugated Packaging – Eliminated (0 kg)

Stonyfield Farm Master's Project - Results

PP 6 oz CF IM (

General

Data Set	1
Designation	PP 6 oz CF IM (Current System)
Functional Unit	1000 lb
Container Size	6 oz.

Designation	Name	Manufacturer	Process
Component 1	Cup	Polytainers	Injection Molding
Component 2	Lid	Polytainers	Injection Molding
Component 3	Seal	Clear-Lam	Extrusion

Material Inputs

Material	Weight (kg)	%	Rank	Mat. Prod.	%	Rank
Acrylic	0.000	0.0%	N/A	0.00	0.0%	N/A
Aluminum	0.000	0.0%	N/A	0.00	0.0%	N/A
Corrugated	32.638	47.3%	1	937.31	25.5%	2
Cotton Color	0.971	1.4%	5	45.34	1.2%	6
LLDPE Film	0.327	0.5%	8	29.41	0.8%	7
LDPE	0.305	0.4%	9	25.01	0.7%	9
LLDPE	10.467	15.2%	3	868.58	23.6%	3
Paper Board	0.217	0.3%	10	10.52	0.3%	10
PE	1.467	2.1%	4	116.59	3.2%	4
PET	0.680	1.0%	7	49.31	1.3%	5
PP	20.935	30.4%	2	1567.59	42.6%	1
White Color	0.000	0.0%	N/A	0.00	0.0%	N/A
Wood	0.969	1.4%	6	27.58	0.7%	8
Total	68.98	100%	N/A	3677.24	100%	N/A

Energy

Phase Allocation - Energy

Phase	Energy (MJ)	%	Rank	Renewable %
Material Production	2647.40	56%	1	0.73%
Distribution 1	6.73	0%	5	0.09%
Manufacturing	630.02	13%	3	28.00%
Distribution 2	188.45	4%	4	38.73%
Filling	0.16	0%	6	0.00%
Distribution 3	1495.10	31%	2	40.91%
End of Life	-211.57	-4%	7	3.43%
Total	4756.29	100%	N/A	N/A

Component Allocation - Energy

Component	Energy (MJ)	%	Rank	Renewable %
Cup	1939.59	62%	1	6.77%
Lid	1063.53	34%	2	5.54%
Seal	148.79	5%	3	6.80%
Total	3151.91	100%	N/A	N/A

Segment Allocation - Energy

Segment	Energy (MJ)	%	Rank	Renewable %
Feedstock	1824.69	38%	1	N/A
Material Production	822.71	17%	3	N/A
D1 Transport	6.73	0%	11	0.09%
D1 Pkg. Transport	0.01	0%	13	0.09%
Manufacturing	630.02	13%	4	28.00%
D2 1Pkg. Transport	41.28	1%	8	0.09%
D2 2Pkg. Production	140.06	3%	6	52.08%
D2 2Pkg. Transport	7.10	0%	10	0.09%
Filling	0.16	0%	12	0.00%
D3 Product Transport	501.15	11%	5	0.09%
D3 1Pkg. Transport	35.44	1%	9	0.09%
D3 2Pkg. Production	910.03	19%	2	67.15%
D3 2Pkg. Transport	48.48	1%	7	0.09%
End of Life	-211.57	-4%	14	3.43%
Total	4756.29	100%	N/A	N/A

Scenario A

Solid Waste

Phase Allocation - Solid Waste

Phase	Waste (kg)	%	Rank	Recycled (kg)
Material Production	0.9153	3%	6	0.0000
Distribution 1	0.0253	0%	7	0.0000
Manufacturing	1.8318	5%	3	1.1731
Distribution 2	1.1561	3%	5	3.4930
Filling	1.3284	4%	4	0.0000
Distribution 3	6.6339	19%	2	28.4025
End of Life	22.4000	65%	1	0.0000
Total	34.2906	100%	N/A	33.0686

Component Allocation - Solid Waste

Component	Waste (kg)	%	Rank	Recycled (kg)
Cup	16.7245	61%	1	2.6966
Lid	8.2606	30%	2	1.9521
Seal	2.3951	9%	3	0.0174
Total	27.3803	100%	N/A	4.6661

Segment Allocation - Solid Waste

Segment	Waste (kg)	%	Rank	Recycled (kg)
Feedstock	0.6308	2%	7	0.0000
Material Production	0.2844	1%	8	0.0000
D1 Transport	0.0252	0%	13	0.0000
D1 Pkg. Transport	0.0000	0%	14	0.0000
Manufacturing	1.8318	5%	4	1.1731
D2 1Pkg. Transport	0.1549	0%	10	0.0000
D2 2Pkg. Production	0.9745	3%	6	0.0000
D2 2Pkg. Transport	0.0266	0%	12	3.4930
Filling	1.3284	4%	5	0.0000
D3 Product Transport	1.8802	5%	3	0.0000
D3 1Pkg. Transport	0.1330	0%	11	0.0000
D3 2Pkg. Production	4.4388	13%	2	0.0000
D3 2Pkg. Transport	0.1819	1%	9	28.4025
End of Life	22.4000	65%	1	0.0000
Total	34.2906	100%	N/A	33.0686

Air Emissions

Phase Allocation - Air Emissions

Phase	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Material Production	1219.19	45%	1	39.41	468.33	328.58	63.32	303.83	1203.46
Distribution 1	8.99	0%	7	1.34	0.59	5.77	0.31	0.61	8.61
Manufacturing	284.07	10%	3	11.80	5.46	73.74	46.87	77.69	215.56
Distribution 2	109.14	4%	4	12.42	14.50	50.24	4.48	13.95	95.59
Filling	13.76	1%	6	2.10	0.02	0.28	0.07	0.04	2.51
Distribution 3	968.46	36%	2	121.23	77.44	536.87	38.89	102.67	877.09
End of Life	108.14	4%	5	35.24	-1.24	-21.39	-32.16	-47.75	-67.30
Total	2711.75	100%	N/A	223.53	565.09	974.10	121.77	451.05	2335.54

Component Allocation - Air Emissions

Component	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Cup	1109.07	66%	1	55.58	288.22	294.14	53.71	252.52	944.18
Lid	452.56	27%	2	28.08	156.80	126.33	17.78	40.39	369.39
Seal	121.00	7%	3	7.85	34.24	28.40	7.30	23.92	101.72
Total	1682.63	100%	N/A	91.52	479.27	448.87	78.79	316.83	1415.29

Air Emissions (Cont'd)

Segment Allocation - Air Emissions

Segment	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Feedstock	840.32	31%	1	27.16	322.79	226.47	43.64	209.41	829.47
Material Production	378.88	14%	3	12.25	145.54	102.11	19.68	94.42	373.99
D1 Transport	8.98	0%	13	1.33	0.59	5.76	0.31	0.61	8.60
D1 Pkg. Transport	0.01	0%	14	0.00	0.00	0.01	0.00	0.00	0.01
Manufacturing	284.07	10%	4	11.80	5.46	73.74	46.87	77.69	215.56
D2 1Pkg. Transport	52.79	2%	8	7.16	3.60	33.89	1.95	3.74	50.34
D2 2Pkg. Production	47.26	2%	9	4.02	10.28	10.52	2.20	9.57	36.60
D2 2Pkg. Transport	9.08	0%	12	1.23	0.62	5.83	0.33	0.64	8.66
Filling	13.76	1%	11	2.10	0.02	0.28	0.07	0.04	2.51
D3 Product Transpor	640.84	24%	2	86.96	43.69	411.23	23.62	45.41	610.91
D3 1Pkg. Transport	45.32	2%	10	6.15	3.09	29.08	1.67	3.21	43.20
D3 2Pkg. Production	220.31	8%	5	19.70	26.43	56.78	11.32	49.65	163.88
D3 2Pkg. Transport	62.00	2%	7	8.41	4.23	39.78	2.28	4.39	59.10
End of Life	108.14	4%	6	35.24	-1.24	-21.39	-32.16	-47.75	-67.30
Total	2711.75	100%	N/A	223.53	565.09	974.10	121.77	451.05	2335.54

Water Emissions

Phase Allocation - Water Emissions

Phase	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Material Production	93.51	8%	2	2.44	2.20	14.63	7.93	14.42
Distribution 1	5.42	0%	5	0.00	0.06	0.50	0.00	0.00
Manufacturing	17.30	2%	4	0.00	0.19	1.48	0.00	-0.54
Distribution 2	83.19	7%	3	0.02	2.00	15.53	0.04	0.17
Filling	0.16	0%	6	0.00	0.03	0.12	0.00	0.00
Distribution 3	947.01	83%	1	0.02	72.83	204.02	0.06	0.88
End of Life	-4.18	0%	7	0.00	0.50	1.68	0.00	0.00
Total	1142.42	100%	N/A	2.49	77.80	237.96	8.03	14.92

Component Allocation - Water Emisssions

Component	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Cup	104.87	58%	1	1.91	2.17	14.45	6.34	6.56
Lid	52.88	29%	2	0.44	0.58	6.34	1.40	7.49
Seal	21.92	12%	3	0.10	1.03	9.20	0.15	-0.09
Total	179.67	100%	N/A	2.45	3.78	30.00	7.89	13.96

Water Emissions (Cont'd)

Segment Allocation - Water Emissions

Segment	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Feedstock	64.45	6%	3	1.683	1.514	10.086	5.465	9.936
Material Production	29.06	3%	7	0.759	0.683	4.547	2.464	4.480
D1 Transport	5.42	0%	11	0.000	0.059	0.498	0.000	0.003
D1 Pkg. Transport	0.01	0%	13	0.000	0.000	0.001	0.000	0.000
Manufacturing	17.30	2%	9	0.000	0.186	1.481	0.000	-0.537
D2 1Pkg. Transport	33.26	3%	6	0.000	0.361	3.056	0.001	0.021
D2 2Pkg. Production	44.21	4%	4	0.023	1.572	11.943	0.040	0.143
D2 2Pkg. Transport	5.72	1%	10	0.000	0.062	0.526	0.000	0.004
Filling	0.16	0%	12	0.000	0.030	0.115	0.000	0.000
D3 Product Transpor	403.74	35%	2	0.000	4.383	37.087	0.010	0.255
D3 1Pkg. Transport	28.55	2%	8	0.000	0.310	2.623	0.001	0.018
D3 2Pkg. Production	475.66	42%	1	0.023	67.715	160.726	0.050	0.578
D3 2Pkg. Transport	39.06	3%	5	0.000	0.424	3.588	0.001	0.025
End of Life	-4.18	0%	14	0.000	0.503	1.679	0.001	-0.001
Total	1142.42	100%	N/A	2.487	77.803	237.955	8.032	14.925

Water Use

Phase Allocation - Water Use

Phase	Use (liter)	%	Rank
Material Production	167.14	18%	2
Distribution 1	3.28	0%	5
Manufacturing	83.87	9%	3
Distribution 2	76.50	8%	4
Filling	0.00	0%	6
Distribution 3	588.62	64%	1
End of Life	-3.11	0%	7
Total	916.29	100%	N/A

Impact Categories

Phase Allocation - Impact Categories

Phase	GWP(kg CO_2)	%	Rank	ODP (mg CFC-11)	%	Rank	MAC (m^3)	%	Rank
Material Production	49.20	31%	2	0.00	0%	6	68.508	42%	2
Distribution 1	0.48	0%	7	0.00	0%	5	0.766	0%	5
Manufacturing	21.68	14%	3	0.36	9%	3	19.275	12%	3
Distribution 2	7.23	5%	5	0.38	10%	2	7.561	5%	4
Filling	0.58	0%	6	0.00	0%	4	0.114	0%	6
Distribution 3	64.66	41%	1	3.42	88%	1	75.774	46%	1
End of Life	15.40	10%	4	-0.28	-7%	7	-8.053	-5%	7
Total	159.23	100%	N/A	3.89	100%	N/A	163.944	100%	N/A

Stonyfield Farm Master's Project - Results

General

Data Set	2
Designation	PP 8 oz WH IM (Current
Functional Unit	1000 lb
Container Size	8 oz.

PP 8 oz WH IM

Designation	Name	Manufacturer	Process
Component 1	Cup	Polytainers	Injection Molding
Component 2	Lid	Polytainers	Injection Molding
Component 3	Seal	Clear-Lam	Extrusion

Material Inputs

Material	Weight (kg)	%	Rank	Mat. Prod.	%	Rank
Acrylic	0.000	0.0%	N/A	0.00	0.0%	N/A
Aluminum	0.000	0.0%	N/A	0.00	0.0%	N/A
Corrugated	25.953	45.9%	1	745.31	24.6%	2
Cotton Color	0.000	0.0%	N/A	0.00	0.0%	N/A
LLDPE Film	0.380	0.7%	8	34.18	1.1%	6
LDPE	0.273	0.5%	9	22.33	0.7%	9
LLDPE	7.931	14.0%	3	658.15	21.7%	3
Paper Board	0.163	0.3%	10	7.89	0.3%	10
PE	1.101	1.9%	5	87.44	2.9%	4
PET	0.510	0.9%	7	36.98	1.2%	5
PP	18.507	32.7%	2	1385.78	45.7%	1
White Color	0.540	1.0%	6	22.50	0.7%	8
Wood	1.165	2.1%	4	33.14	1.1%	7
Total	56.52	100%	N/A	3033.71	100%	N/A

Energy

Phase Allocation - Energy

Phase	Energy (MJ)	%	Rank	Renewable %
Material Production	2190.85	55%	1	0.76%
Distribution 1	5.74	0%	5	0.09%
Manufacturing	523.54	13%	3	28.08%
Distribution 2	164.08	4%	4	39.24%
Filling	0.12	0%	6	0.00%
Distribution 3	1310.66	33%	2	37.26%
End of Life	-175.82	-4%	7	3.43%
Total	4019.17	100%	N/A	N/A

Component Allocation - Energy

Component	Energy (MJ)	%	Rank	Renewable %
Cup	1702.96	65%	1	6.75%
Lid	800.00	31%	2	5.53%
Seal	111.59	4%	3	6.80%
Total	2614.56	100%	N/A	N/A

Segment Allocation - Energy

Segment	Energy (MJ)	%	Rank	Renewable %
Feedstock	1491.11	37%	1	N/A
Material Production	699.74	17%	3	N/A
D1 Transport	5.74	0%	11	0.09%
D1 Pkg. Transport	0.00	0%	N/A	0.09%
Manufacturing	523.54	13%	4	28.08%
D2 1Pkg. Transport	34.01	1%	8	0.09%
D2 2Pkg. Production	123.94	3%	6	51.92%
D2 2Pkg. Transport	6.13	0%	10	0.09%
Filling	0.12	0%	12	0.00%
D3 Product Transport	501.15	12%	5	0.09%
D3 1Pkg. Transport	29.45	1%	9	0.09%
D3 2Pkg. Production	734.56	18%	2	66.40%
D3 2Pkg. Transport	45.50	1%	7	0.09%
End of Life	-175.82	-4%	14	3.43%
Total	4019.17	100%	N/A	N/A

Scenario B

Solid Waste

Phase Allocation - Solid Waste

Phase	Waste (kg)	%	Rank	Recycled (kg)
Material Production	0.7685	3%	6	0.0000
Distribution 1	0.0215	0%	7	0.0000
Manufacturing	1.5153	5%	3	0.9776
Distribution 2	0.9841	3%	5	3.1529
Filling	0.9963	3%	4	0.0000
Distribution 3	5.8826	20%	2	22.5160
End of Life	18.6151	65%	1	0.0000
Total	28.7834	100%	N/A	26.6464

Component Allocation - Solid Waste

Component	Waste (kg)	%	Rank	Recycled (kg)
Cup	14.6614	65%	1	2.6533
Lid	6.1946	27%	2	1.4641
Seal	1.7964	8%	3	0.0130
Total	22.6524	100%	N/A	4.1305

Segment Allocation - Solid Waste

Segment	Waste (kg)	%	Rank	Recycled (kg)
Feedstock	0.5230	2%	7	0.0000
Material Production	0.2455	1%	8	0.0000
D1 Transport	0.0215	0%	13	0.0000
D1 Pkg. Transport	0.0000	0%	N/A	0.0000
Manufacturing	1.5153	5%	4	0.9776
D2 1Pkg. Transport	0.1276	0%	10	0.0000
D2 2Pkg. Production	0.8335	3%	6	0.0000
D2 2Pkg. Transport	0.0230	0%	12	3.1529
Filling	0.9963	3%	5	0.0000
D3 Product Transport	1.8802	7%	3	0.0000
D3 1Pkg. Transport	0.1105	0%	11	0.0000
D3 2Pkg. Production	3.7212	13%	2	0.0000
D3 2Pkg. Transport	0.1707	1%	9	22.5160
End of Life	18.6151	65%	1	0.0000
Total	28.7834	100%	N/A	26.6464

Air Emissions

Phase Allocation - Air Emissions

Phase	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Material Production	1014.04	43%	1	31.43	386.59	273.42	52.81	257.87	1002.12
Distribution 1	7.67	0%	7	1.14	0.50	4.92	0.26	0.52	7.34
Manufacturing	234.57	10%	3	9.76	4.36	61.08	38.69	63.63	177.53
Distribution 2	92.46	4%	4	10.34	12.52	42.16	3.78	12.03	80.83
Filling	10.32	0%	6	1.57	0.02	0.21	0.05	0.03	1.89
Distribution 3	923.86	39%	2	118.22	74.30	519.93	37.03	93.83	843.32
End of Life	89.87	4%	5	29.29	-1.03	-17.77	-26.73	-39.68	-55.93
Total	2372.78	100%	N/A	201.75	477.26	883.95	105.89	388.24	2057.09

Component Allocation - Air Emissions

Component	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Cup	973.87	69%	1	48.74	253.09	258.21	47.10	222.23	829.36
Lid	339.55	24%	2	21.10	117.84	94.87	13.28	30.08	277.17
Seal	90.75	6%	3	5.89	25.68	21.30	5.48	17.94	76.29
Total	1404.18	100%	N/A	75.73	396.61	374.37	65.85	270.25	1182.82

Air Emissions (Cont'd)

Segment Allocation - Air Emissions

Segment	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Feedstock	690.16	29%	1	21.39	263.12	186.09	35.94	175.51	682.05
Material Production	323.88	14%	3	10.04	123.47	87.33	16.87	82.36	320.07
D1 Transport	7.67	0%	13	1.14	0.50	4.92	0.26	0.52	7.34
D1 Pkg. Transport	0.00	0%	N/A	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing	234.57	10%	4	9.76	4.36	61.08	38.69	63.63	177.53
D2 1Pkg. Transport	43.48	2%	8	5.90	2.97	27.92	1.60	3.08	41.47
D2 2Pkg. Production	41.14	2%	9	3.38	9.02	9.21	1.89	8.39	31.89
D2 2Pkg. Transport	7.83	0%	12	1.06	0.53	5.03	0.29	0.56	7.47
Filling	10.32	0%	11	1.57	0.02	0.21	0.05	0.03	1.89
D3 Product Transpor	640.84	27%	2	86.96	43.69	411.23	23.62	45.41	610.91
D3 1Pkg. Transport	37.66	2%	10	5.11	2.57	24.17	1.39	2.67	35.90
D3 2Pkg. Production	187.17	8%	5	18.25	24.08	47.20	9.89	41.63	141.03
D3 2Pkg. Transport	58.19	2%	7	7.90	3.97	37.34	2.14	4.12	55.47
End of Life	89.87	4%	6	29.29	-1.03	-17.77	-26.73	-39.68	-55.93
Total	2372.78	100%	N/A	201.75	477.26	883.95	105.89	388.24	2057.09

Water Emissions

Phase Allocation - Water Emissions

Phase	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Material Production	76.89	8%	2	2.08	1.82	12.08	6.78	11.63
Distribution 1	4.62	0%	5	0.00	0.05	0.42	0.00	0.00
Manufacturing	14.26	1%	4	0.00	0.15	1.18	0.00	-0.40
Distribution 2	70.89	7%	3	0.02	1.68	12.79	0.04	0.15
Filling	0.12	0%	6	0.00	0.02	0.09	0.00	0.00
Distribution 3	836.93	84%	1	0.03	58.05	168.63	0.07	0.75
End of Life	-3.47	0%	7	0.00	0.42	1.40	0.00	0.00
Total	1000.25	100%	N/A	2.13	62.19	196.59	6.89	12.12

Component Allocation - Water Emisssions

Component	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Cup	92.25	62%	1	1.68	1.92	12.75	5.59	5.73
Lid	39.89	27%	2	0.33	0.44	4.78	1.06	5.64
Seal	16.44	11%	3	0.08	0.77	6.90	0.11	-0.07
Total	148.58	100%	N/A	2.09	3.13	24.43	6.76	11.30

Water Emissions (Cont'd)

Segment Allocation - Water Emissions

Segment	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Feedstock	52.33	5%	3	1.417	1.236	8.222	4.617	7.912
Material Production	24.56	2%	7	0.665	0.580	3.859	2.166	3.713
D1 Transport	4.62	0%	11	0.000	0.050	0.425	0.000	0.003
D1 Pkg. Transport	0.00	0%	N/A	0.000	0.000	0.000	0.000	0.000
Manufacturing	14.26	1%	9	0.000	0.147	1.178	0.000	-0.402
D2 1Pkg. Transport	27.40	3%	6	0.000	0.298	2.518	0.001	0.017
D2 2Pkg. Production	38.56	4%	4	0.020	1.328	9.822	0.035	0.127
D2 2Pkg. Transport	4.94	0%	10	0.000	0.054	0.454	0.000	0.003
Filling	0.12	0%	12	0.000	0.023	0.086	0.000	0.000
D3 Product Transpor	403.74	40%	1	0.000	4.383	37.087	0.010	0.255
D3 1Pkg. Transport	23.73	2%	8	0.000	0.258	2.180	0.001	0.015
D3 2Pkg. Production	372.80	37%	2	0.028	53.015	126.000	0.062	0.453
D3 2Pkg. Transport	36.66	4%	5	0.000	0.398	3.367	0.001	0.023
End of Life	-3.47	0%	14	0.000	0.418	1.395	0.001	-0.001
Total	1000.25	100%	N/A	2.130	62.187	196.593	6.893	12.120

Water Use

Phase Allocation - Water Use

Phase	Use (liter)	%	Rank
Material Production	129.04	16%	2
Distribution 1	2.79	0%	5
Manufacturing	69.39	9%	3
Distribution 2	63.65	8%	4
Filling	0.00	0%	6
Distribution 3	521.57	67%	1
End of Life	-2.59	0%	7
Total	783.86	100%	N/A

Impact Categories

Phase Allocation - Impact Categories

Phase	GWP(kg CO_2)	%	Rank	ODP (mg CFC-11)	%	Rank	MAC (m^3)	%	Rank
Material Production	41.76	30%	2	0.00	0%	6	57.354	39%	2
Distribution 1	0.41	0%	7	0.00	0%	5	0.653	0%	5
Manufacturing	18.03	13%	3	0.30	10%	3	15.896	11%	3
Distribution 2	6.14	4%	5	0.34	11%	2	6.370	4%	4
Filling	0.43	0%	6	0.00	0%	4	0.085	0%	6
Distribution 3	59.86	43%	1	2.68	87%	1	72.916	50%	1
End of Life	12.80	9%	4	-0.23	-7%	7	-6.692	-5%	7
Total	139.42	100%	N/A	3.09	100%	N/A	146.582	100%	N/A

Stonyfield Farm Master's Project - Results

General

Data Set	3
Designation	PP 6 oz CF IM (Seal Only)
Functional Unit	1000 lb
Container Size	6 oz.

PP 6 oz CF IM (

Designation	Name	Manufacturer	Process
Component 1	Cup	Polytainers	Injection Molding
Component 2	Lid	0	0
Component 3	Seal	Clear-Lam	Extrusion

Material Inputs

Material	Weight (kg)	%	Rank	Mat. Prod.	%	Rank
Acrylic	0.000	0.0%	N/A	0.00	0.0%	N/A
Aluminum	0.000	0.0%	N/A	0.00	0.0%	N/A
Corrugated	31.106	55.1%	1	893.30	32.7%	2
Cotton Color	0.647	1.1%	6	30.23	1.1%	5
LLDPE Film	0.304	0.5%	7	27.30	1.0%	6
LDPE	0.138	0.2%	9	11.34	0.4%	8
LLDPE	0.000	0.0%	N/A	0.00	0.0%	N/A
Paper Board	0.217	0.4%	8	10.52	0.4%	9
PE	1.467	2.6%	3	116.59	4.3%	3
PET	0.680	1.2%	5	49.31	1.8%	4
PP	20.935	37.1%	2	1567.59	57.4%	1
White Color	0.000	0.0%	N/A	0.00	0.0%	N/A
Wood	0.929	1.6%	4	26.43	1.0%	7
Total	56.42	100%	N/A	2732.60	100%	N/A

Energy

Phase Allocation - Energy

Phase	Energy (MJ)	%	Rank	Renewable %
Material Production	1763.71	48%	1	1.01%
Distribution 1	5.96	0%	5	0.09%
Manufacturing	425.93	12%	3	27.63%
Distribution 2	113.43	3%	4	39.18%
Filling	0.16	0%	6	0.00%
Distribution 3	1483.61	41%	2	41.22%
End of Life	-142.99	-4%	7	3.43%
Total	3649.81	100%	N/A	N/A

Component Allocation - Energy

Component	Energy (MJ)	%	Rank	Renewable %
Cup	1939.59	93%	1	6.77%
Lid	0.00	0%	3	0.00%
Seal	148.79	7%	2	6.80%
Total	2088.38	100%	N/A	N/A

Segment Allocation - Energy

Segment	Energy (MJ)	%	Rank	Renewable %
Feedstock	1072.75	29%	1	N/A
Material Production	690.96	19%	3	N/A
D1 Transport	5.95	0%	10	0.09%
D1 Pkg. Transport	0.01	0%	13	0.09%
Manufacturing	425.93	12%	5	27.63%
D2 1Pkg. Transport	29.11	1%	8	0.09%
D2 2Pkg. Production	80.08	2%	6	55.46%
D2 2Pkg. Transport	4.24	0%	11	0.09%
Filling	0.16	0%	12	0.00%
D3 Product Transport	501.15	14%	4	0.09%
D3 1Pkg. Transport	23.95	1%	9	0.09%
D3 2Pkg. Production	910.03	25%	2	67.15%
D3 2Pkg. Transport	48.48	1%	7	0.09%
End of Life	-142.99	-4%	14	3.43%
Total	3649.81	100%	N/A	N/A

Scenario C

Solid Waste

Phase Allocation - Solid Waste

Phase	Waste (kg)	%	Rank	Recycled (kg)
Material Production	0.7954	3%	5	0.0000
Distribution 1	0.0223	0%	7	0.0000
Manufacturing	1.2658	5%	4	0.7821
Distribution 2	0.7382	3%	6	1.9319
Filling	1.3284	5%	3	0.0000
Distribution 3	6.5908	25%	2	28.4025
End of Life	15.1393	58%	1	0.0000
Total	25.8802	100%	N/A	31.1165

Component Allocation - Solid Waste

Component	Waste (kg)	%	Rank	Recycled (kg)
Cup	16.7246	87%	1	2.6966
Lid	0.0000	0%	3	0.0000
Seal	2.3951	13%	2	0.0174
Total	19.1197	100%	N/A	2.7140

Segment Allocation - Solid Waste

Segment	Waste (kg)	%	Rank	Recycled (kg)
Feedstock	0.4838	2%	7	0.0000
Material Production	0.3116	1%	8	0.0000
D1 Transport	0.0223	0%	12	0.0000
D1 Pkg. Transport	0.0000	0%	14	0.0000
Manufacturing	1.2658	5%	5	0.7821
D2 1Pkg. Transport	0.1092	0%	10	0.0000
D2 2Pkg. Production	0.6131	2%	6	0.0000
D2 2Pkg. Transport	0.0159	0%	13	1.9319
Filling	1.3284	5%	4	0.0000
D3 Product Transport	1.8802	7%	3	0.0000
D3 1Pkg. Transport	0.0899	0%	11	0.0000
D3 2Pkg. Production	4.4388	17%	2	0.0000
D3 2Pkg. Transport	0.1819	1%	9	28.4025
End of Life	15.1393	58%	1	0.0000
Total	25.8802	100%	N/A	31.1165

Air Emissions

Phase Allocation - Air Emissions

Phase	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Material Production	934.47	42%	2	31.87	318.68	243.39	51.21	273.86	919.02
Distribution 1	7.93	0%	7	1.17	0.52	5.09	0.27	0.54	7.59
Manufacturing	198.01	9%	3	8.19	4.38	50.64	32.72	56.22	152.15
Distribution 2	69.84	3%	5	8.47	8.20	33.32	2.87	8.45	61.31
Filling	13.76	1%	6	2.10	0.02	0.28	0.07	0.04	2.51
Distribution 3	953.77	42%	1	119.23	76.44	527.45	38.35	101.63	863.09
End of Life	73.09	3%	4	23.82	-0.84	-14.45	-21.74	-32.27	-45.49
Total	2250.86	100%	N/A	194.85	407.40	845.72	103.75	408.47	1960.19

Component Allocation - Air Emissions

Component	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Cup	1109.07	90%	1	55.58	288.22	294.14	53.71	252.52	944.18
Lid	0.00	0%	3	0.00	0.00	0.00	0.00	0.00	0.00
Seal	121.00	10%	2	7.85	34.24	28.40	7.30	23.92	101.72
Total	1230.07	100%	N/A	63.43	322.47	322.54	61.01	276.44	1045.90

Air Emissions (Cont'd)

Segment Allocation - Air Emissions

Segment	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Feedstock	568.38	25%	2	19.39	193.83	148.04	31.15	166.57	558.98
Material Production	366.09	16%	3	12.49	124.85	95.35	20.06	107.29	360.04
D1 Transport	7.92	0%	12	1.17	0.52	5.08	0.27	0.54	7.58
D1 Pkg. Transport	0.01	0%	14	0.00	0.00	0.01	0.00	0.00	0.01
Manufacturing	198.01	9%	5	8.19	4.38	50.64	32.72	56.22	152.15
D2 1Pkg. Transport	37.23	2%	8	5.05	2.54	23.90	1.37	2.64	35.51
D2 2Pkg. Production	27.18	1%	10	2.69	5.29	5.94	1.29	5.42	20.63
D2 2Pkg. Transport	5.42	0%	13	0.74	0.37	3.48	0.20	0.38	5.17
Filling	13.76	1%	11	2.10	0.02	0.28	0.07	0.04	2.51
D3 Product Transpor	640.84	28%	1	86.96	43.69	411.23	23.62	45.41	610.91
D3 1Pkg. Transport	30.63	1%	9	4.16	2.09	19.65	1.13	2.17	29.20
D3 2Pkg. Production	220.31	10%	4	19.70	26.43	56.78	11.32	49.65	163.88
D3 2Pkg. Transport	62.00	3%	7	8.41	4.23	39.78	2.28	4.39	59.10
End of Life	73.09	3%	6	23.82	-0.84	-14.45	-21.74	-32.27	-45.49
Total	2250.86	100%	N/A	194.85	407.40	845.72	103.75	408.47	1960.19

Water Emissions

Phase Allocation - Water Emissions

Phase	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Material Production	67.17	6%	2	2.02	2.09	11.44	6.55	6.98
Distribution 1	4.80	0%	5	0.00	0.05	0.44	0.00	0.00
Manufacturing	12.14	1%	4	0.00	0.15	1.21	0.00	-0.54
Distribution 2	55.22	5%	3	0.01	1.42	11.82	0.02	0.09
Filling	0.16	0%	6	0.00	0.03	0.12	0.00	0.00
Distribution 3	937.75	87%	1	0.02	72.73	203.17	0.06	0.87
End of Life	-2.82	0%	7	0.00	0.34	1.13	0.00	0.00
Total	1074.42	100%	N/A	2.05	76.82	229.33	6.63	7.41

Component Allocation - Water Emisssions

Component	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Cup	104.88	83%	1	1.91	2.17	14.45	6.34	6.56
Lid	0.00	0%	3	0.00	0.00	0.00	0.00	0.00
Seal	21.92	17%	2	0.10	1.03	9.20	0.15	-0.09
Total	126.79	100%	N/A	2.01	3.20	23.65	6.49	6.47

Water Emissions (Cont'd)

Segment Allocation - Water Emissions

Segment	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Feedstock	40.86	4%	3	1.227	1.272	6.959	3.983	4.247
Material Production	26.32	2%	6	0.790	0.819	4.482	2.565	2.735
D1 Transport	4.79	0%	10	0.000	0.052	0.440	0.000	0.003
D1 Pkg. Transport	0.01	0%	13	0.000	0.000	0.001	0.000	0.000
Manufacturing	12.14	1%	9	0.000	0.154	1.210	0.000	-0.540
D2 1Pkg. Transport	23.45	2%	7	0.000	0.255	2.156	0.001	0.015
D2 2Pkg. Production	28.35	3%	5	0.011	1.128	9.347	0.020	0.075
D2 2Pkg. Transport	3.42	0%	11	0.000	0.037	0.314	0.000	0.002
Filling	0.16	0%	12	0.000	0.030	0.115	0.000	0.000
D3 Product Transpor	403.74	38%	2	0.000	4.383	37.087	0.010	0.255
D3 1Pkg. Transport	19.30	2%	8	0.000	0.209	1.773	0.000	0.012
D3 2Pkg. Production	475.66	44%	1	0.023	67.715	160.726	0.050	0.578
D3 2Pkg. Transport	39.06	4%	4	0.000	0.424	3.588	0.001	0.025
End of Life	-2.82	0%	14	0.000	0.340	1.135	0.001	-0.001
Total	1074.42	100%	N/A	2.051	76.818	229.331	6.630	7.406

Water Use

Phase Allocation - Water Use

Phase	Use (liter)	%	Rank
Material Production	115.30	14%	2
Distribution 1	2.90	0%	5
Manufacturing	57.94	7%	3
Distribution 2	55.07	7%	4
Filling	0.00	0%	6
Distribution 3	583.02	72%	1
End of Life	-2.10	0%	7
Total	812.12	100%	N/A

Impact Categories

Phase Allocation - Impact Categories

Phase	GWP(kg CO_2)	%	Rank	ODP (mg CFC-11)	%	Rank	MAC (m^3)	%	Rank
Material Production	42.53	31%	2	0.00	0%	6	54.968	38%	2
Distribution 1	0.42	0%	7	0.00	0%	5	0.676	0%	5
Manufacturing	14.61	11%	3	0.24	6%	2	13.515	9%	3
Distribution 2	4.70	3%	5	0.24	6%	3	4.947	3%	4
Filling	0.58	0%	6	0.00	0%	4	0.114	0%	6
Distribution 3	63.83	47%	1	3.42	92%	1	74.522	52%	1
End of Life	10.41	8%	4	-0.19	-5%	7	-5.443	-4%	7
Total	137.09	100%	N/A	3.71	100%	N/A	143.298	100%	N/A

Stonyfield Farm Master's Project - Results

General

Data Set	4
Designation	PP 8 oz WH IM (Seal Only)
Functional Unit	1000 lb
Container Size	8 oz.

PP 8 oz WH IM

Designation	Name	Manufacturer	Process
Component 1	Cup	Polytainers	Injection Molding
Component 2	Lid	0	0
Component 3	Seal	Clear-Lam	Extrusion

Material Inputs

Material	Weight (kg)	%	Rank	Mat. Prod.	%	Rank
Acrylic	0.000	0.0%	N/A	0.00	0.0%	N/A
Aluminum	0.000	0.0%	N/A	0.00	0.0%	N/A
Corrugated	24.803	52.7%	1	712.31	30.7%	2
Cotton Color	0.000	0.0%	N/A	0.00	0.0%	N/A
LLDPE Film	0.362	0.8%	7	32.59	1.4%	5
LDPE	0.147	0.3%	9	12.08	0.5%	8
LLDPE	0.000	0.0%	N/A	0.00	0.0%	N/A
Paper Board	0.163	0.3%	8	7.89	0.3%	9
PE	1.101	2.3%	4	87.44	3.8%	3
PET	0.510	1.1%	5	36.98	1.6%	4
PP	18.507	39.3%	2	1385.78	59.7%	1
White Color	0.378	0.8%	6	15.75	0.7%	7
Wood	1.134	2.4%	3	32.28	1.4%	6
Total	47.11	100%	N/A	2323.10	100%	N/A

Energy

Phase Allocation - Energy

Phase	Energy (MJ)	%	Rank	Renewable %
Material Production	1525.95	48%	1	1.02%
Distribution 1	4.93	0%	5	0.09%
Manufacturing	370.47	12%	3	27.79%
Distribution 2	107.82	3%	4	39.86%
Filling	0.12	0%	6	0.00%
Distribution 3	1302.04	41%	2	37.50%
End of Life	-124.39	-4%	7	3.43%
Total	3186.95	100%	N/A	N/A

Component Allocation - Energy

Component	Energy (MJ)	%	Rank	Renewable %
Cup	1702.97	94%	1	6.75%
Lid	0.00	0%	3	0.00%
Seal	111.59	6%	2	6.80%
Total	1814.55	100%	N/A	N/A

Segment Allocation - Energy

Segment	Energy (MJ)	%	Rank	Renewable %
Feedstock	924.83	29%	1	N/A
Material Production	601.13	19%	3	N/A
D1 Transport	4.93	0%	10	0.09%
D1 Pkg. Transport	0.00	0%	N/A	0.09%
Manufacturing	370.47	12%	5	27.79%
D2 1Pkg. Transport	24.87	1%	8	0.09%
D2 2Pkg. Production	78.96	2%	6	54.40%
D2 2Pkg. Transport	3.99	0%	11	0.09%
Filling	0.12	0%	12	0.00%
D3 Product Transport	501.15	16%	4	0.09%
D3 1Pkg. Transport	20.84	1%	9	0.09%
D3 2Pkg. Production	734.56	23%	2	66.40%
D3 2Pkg. Transport	45.50	1%	7	0.09%
End of Life	-124.39	-4%	14	3.43%
Total	3186.95	100%	N/A	N/A

Scenario D

Solid Waste

Phase Allocation - Solid Waste

Phase	Waste (kg)	%	Rank	Recycled (kg)
Material Production	0.6802	3%	5	0.0000
Distribution 1	0.0185	0%	7	0.0000
Manufacturing	1.0909	5%	3	0.6843
Distribution 2	0.6707	3%	6	1.9821
Filling	0.9963	4%	4	0.0000
Distribution 3	5.8503	26%	2	22.5160
End of Life	13.1697	59%	1	0.0000
Total	22.4764	100%	N/A	25.1823

Component Allocation - Solid Waste

Component	Waste (kg)	%	Rank	Recycled (kg)
Cup	14.6614	89%	1	2.6533
Lid	0.0000	0%	3	0.0000
Seal	1.7964	11%	2	0.0130
Total	16.4578	100%	N/A	2.6664

Segment Allocation - Solid Waste

Segment	Waste (kg)	%	Rank	Recycled (kg)
Feedstock	0.4122	2%	7	0.0000
Material Production	0.2679	1%	8	0.0000
D1 Transport	0.0185	0%	12	0.0000
D1 Pkg. Transport	0.0000	0%	N/A	0.0000
Manufacturing	1.0909	5%	4	0.6843
D2 1Pkg. Transport	0.0933	0%	10	0.0000
D2 2Pkg. Production	0.5624	3%	6	0.0000
D2 2Pkg. Transport	0.0150	0%	13	1.9821
Filling	0.9963	4%	5	0.0000
D3 Product Transport	1.8802	8%	3	0.0000
D3 1Pkg. Transport	0.0782	0%	11	0.0000
D3 2Pkg. Production	3.7212	17%	2	0.0000
D3 2Pkg. Transport	0.1707	1%	9	22.5160
End of Life	13.1697	59%	1	0.0000
Total	22.4764	100%	N/A	25.1823

Air Emissions

Phase Allocation - Air Emissions

Phase	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Material Production	800.64	39%	2	25.78	274.13	209.59	43.80	235.63	788.94
Distribution 1	6.58	0%	7	0.98	0.43	4.22	0.23	0.45	6.30
Manufacturing	170.02	8%	3	7.05	3.55	43.76	28.08	47.53	129.96
Distribution 2	62.98	3%	5	7.39	7.80	29.47	2.57	7.90	55.12
Filling	10.32	1%	6	1.57	0.02	0.21	0.05	0.03	1.89
Distribution 3	912.84	45%	1	116.72	73.55	512.86	36.63	93.05	832.81
End of Life	63.58	3%	4	20.72	-0.73	-12.57	-18.91	-28.07	-39.57
Total	2026.96	100%	N/A	180.20	358.75	787.53	92.44	356.52	1775.45

Component Allocation - Air Emissions

Component	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Cup	973.87	91%	1	48.74	253.09	258.21	47.10	222.23	829.36
Lid	0.00	0%	3	0.00	0.00	0.00	0.00	0.00	0.00
Seal	90.75	9%	2	5.89	25.68	21.30	5.48	17.94	76.29
Total	1064.63	100%	N/A	54.63	278.77	279.51	52.57	240.17	905.65

Air Emissions (Cont'd)

Segment Allocation - Air Emissions

Segment	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Feedstock	485.24	24%	2	15.63	166.14	127.03	26.55	142.81	478.15
Material Production	315.40	16%	3	10.16	107.99	82.57	17.25	92.82	310.79
D1 Transport	6.58	0%	12	0.98	0.43	4.22	0.23	0.45	6.30
D1 Pkg. Transport	0.00	0%	N/A	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing	170.02	8%	5	7.05	3.55	43.76	28.08	47.53	129.96
D2 1Pkg. Transport	31.80	2%	8	4.32	2.17	20.42	1.17	2.25	30.33
D2 2Pkg. Production	26.08	1%	10	2.38	5.28	5.77	1.21	5.28	19.92
D2 2Pkg. Transport	5.10	0%	13	0.69	0.35	3.28	0.19	0.36	4.87
Filling	10.32	1%	11	1.57	0.02	0.21	0.05	0.03	1.89
D3 Product Transpor	640.84	32%	1	86.96	43.69	411.23	23.62	45.41	610.91
D3 1Pkg. Transport	26.64	1%	9	3.62	1.82	17.10	0.98	1.89	25.40
D3 2Pkg. Production	187.17	9%	4	18.25	24.08	47.20	9.89	41.63	141.03
D3 2Pkg. Transport	58.19	3%	7	7.90	3.97	37.34	2.14	4.12	55.47
End of Life	63.58	3%	6	20.72	-0.73	-12.57	-18.91	-28.07	-39.57
Total	2026.96	100%	N/A	180.20	358.75	787.53	92.44	356.52	1775.45

Water Emissions

Phase Allocation - Water Emissions

Phase	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Material Production	57.07	6%	2	1.76	1.74	9.68	5.74	6.03
Distribution 1	3.97	0%	5	0.00	0.04	0.36	0.00	0.00
Manufacturing	10.39	1%	4	0.00	0.12	0.98	0.00	-0.40
Distribution 2	49.92	5%	3	0.01	1.25	10.01	0.02	0.09
Filling	0.12	0%	6	0.00	0.02	0.09	0.00	0.00
Distribution 3	829.99	87%	1	0.03	57.98	168.00	0.07	0.74
End of Life	-2.46	0%	7	0.00	0.30	0.99	0.00	0.00
Total	949.01	100%	N/A	1.80	61.45	190.10	5.84	6.46

Component Allocation - Water Emisssions

Component	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Cup	92.25	85%	1	1.68	1.92	12.75	5.59	5.73
Lid	0.00	0%	3	0.00	0.00	0.00	0.00	0.00
Seal	16.44	15%	2	0.08	0.77	6.90	0.11	-0.07
Total	108.69	100%	N/A	1.76	2.69	19.65	5.70	5.66

Water Emissions (Cont'd)

Segment Allocation - Water Emissions

Segment	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Feedstock	34.59	4%	4	1.068	1.052	5.866	3.481	3.653
Material Production	22.48	2%	6	0.694	0.684	3.813	2.263	2.374
D1 Transport	3.97	0%	10	0.000	0.043	0.365	0.000	0.003
D1 Pkg. Transport	0.00	0%	N/A	0.000	0.000	0.000	0.000	0.000
Manufacturing	10.39	1%	9	0.000	0.123	0.975	0.000	-0.405
D2 1Pkg. Transport	20.04	2%	7	0.000	0.218	1.842	0.000	0.013
D2 2Pkg. Production	26.67	3%	5	0.011	0.995	7.874	0.020	0.076
D2 2Pkg. Transport	3.22	0%	11	0.000	0.035	0.296	0.000	0.002
Filling	0.12	0%	12	0.000	0.023	0.086	0.000	0.000
D3 Product Transpor	403.74	43%	1	0.000	4.383	37.087	0.010	0.255
D3 1Pkg. Transport	16.79	2%	8	0.000	0.182	1.542	0.000	0.011
D3 2Pkg. Production	372.80	39%	2	0.028	53.015	126.000	0.062	0.453
D3 2Pkg. Transport	36.66	4%	3	0.000	0.398	3.367	0.001	0.023
End of Life	-2.46	0%	14	0.000	0.296	0.987	0.000	0.000
Total	949.01	100%	N/A	1.802	61.446	190.100	5.837	6.458

Water Use

Phase Allocation - Water Use

Phase	Use (liter)	%	Rank
Material Production	92.10	13%	2
Distribution 1	2.40	0%	5
Manufacturing	49.94	7%	3
Distribution 2	47.58	7%	4
Filling	0.00	0%	6
Distribution 3	517.38	73%	1
End of Life	-1.83	0%	7
Total	707.56	100%	N/A

Impact Categories

Phase Allocation - Impact Categories

Phase	GWP(kg CO_2)	%	Rank	ODP (mg CFC-11)	%	Rank	MAC (m^3)	%	Rank
Material Production	36.78	30%	2	0.00	0%	6	47.231	36%	2
Distribution 1	0.35	0%	7	0.00	0%	5	0.560	0%	5
Manufacturing	12.73	10%	3	0.21	7%	3	11.576	9%	3
Distribution 2	4.24	3%	5	0.23	8%	2	4.409	3%	4
Filling	0.43	0%	6	0.00	0%	4	0.085	0%	6
Distribution 3	59.24	48%	1	2.68	91%	1	71.977	55%	1
End of Life	9.05	7%	4	-0.16	-5%	7	-4.735	-4%	7
Total	122.82	100%	N/A	2.96	100%	N/A	131.104	100%	N/A

Stonyfield Farm Master's Project - Results

General

Data Set	5
Designation	6 oz Foil Lid
Functional Unit	1000 lb
Container Size	6 oz.

6 oz Foil Lid

Designation	Name	Manufacturer	Process
Component 1	Cup	Polytainers	Injection Molding
Component 2	Lid	Winpak	LDPE Coating
Component 3	Seal	0	0

Material Inputs

Material	Weight (kg)	%	Rank	Mat. Prod.	%	Rank
Acrylic	0.000	0.0%	N/A	0.00	0.0%	N/A
Aluminum	1.516	2.7%	3	277.86	9.6%	3
Corrugated	31.305	55.4%	1	899.02	31.1%	2
Cotton Color	0.647	1.1%	6	30.23	1.0%	5
LLDPE Film	0.297	0.5%	7	26.68	0.9%	6
LDPE	0.138	0.2%	8	11.34	0.4%	8
LLDPE	0.000	0.0%	N/A	0.00	0.0%	N/A
Paper Board	0.000	0.0%	N/A	0.00	0.0%	N/A
PE	0.700	1.2%	5	55.65	1.9%	4
PET	0.000	0.0%	N/A	0.00	0.0%	N/A
PP	20.935	37.1%	2	1567.59	54.2%	1
White Color	0.000	0.0%	N/A	0.00	0.0%	N/A
Wood	0.923	1.6%	4	26.27	0.9%	7
Total	56.46	100%	N/A	2894.63	100%	N/A

Energy

Phase Allocation - Energy

Phase	Energy (MJ)	%	Rank	Renewable %
Material Production	1931.32	49%	1	5.86%
Distribution 1	6.99	0%	5	0.09%
Manufacturing	573.04	14%	3	20.49%
Distribution 2	104.29	3%	4	37.11%
Filling	0.00	0%	6	0.00%
Distribution 3	1484.75	38%	2	41.19%
End of Life	-143.79	-4%	7	3.42%
Total	3956.60	100%	N/A	N/A

Component Allocation - Energy

Component	Energy (MJ)	%	Rank	Renewable %
Cup	1939.59	85%	1	6.77%
Lid	333.14	15%	2	28.79%
Seal	0.00	0%	3	0.00%
Total	2272.73	100%	N/A	N/A

Segment Allocation - Energy

Segment	Energy (MJ)	%	Rank	Renewable %
Feedstock	1033.17	26%	1	N/A
Material Production	898.15	23%	3	N/A
D1 Transport	6.99	0%	10	0.09%
D1 Pkg. Transport	0.01	0%	12	0.09%
Manufacturing	573.04	14%	4	20.49%
D2 1Pkg. Transport	26.24	1%	8	0.09%
D2 2Pkg. Production	74.31	2%	6	52.04%
D2 2Pkg. Transport	3.74	0%	11	0.09%
Filling	0.00	0%	N/A	0.00%
D3 Product Transport	501.15	13%	5	0.09%
D3 1Pkg. Transport	25.09	1%	9	0.09%
D3 2Pkg. Production	910.03	23%	2	67.15%
D3 2Pkg. Transport	48.48	1%	7	0.09%
End of Life	-143.79	-4%	14	3.42%
Total	3956.60	100%	N/A	N/A

Scenario E

Solid Waste

Phase Allocation - Solid Waste

Phase	Waste (kg)	%	Rank	Recycled (kg)
Material Production	7.3270	23%	2	0.0000
Distribution 1	0.0257	0%	6	0.0000
Manufacturing	1.4393	5%	4	0.9878
Distribution 2	0.5144	2%	5	2.1154
Filling	0.0000	0%	7	0.0000
Distribution 3	6.5950	21%	3	28.4025
End of Life	15.9663	50%	1	0.0000
Total	31.8679	100%	N/A	31.5058

Component Allocation - Solid Waste

Component	Waste (kg)	%	Rank	Recycled (kg)
Cup	16.7246	67%	1	2.6966
Lid	8.2232	33%	2	0.4067
Seal	0.0000	0%	3	0.0000
Total	24.9477	100%	N/A	3.1032

Segment Allocation - Solid Waste

Segment	Waste (kg)	%	Rank	Recycled (kg)
Feedstock	3.9196	12%	3	0.0000
Material Production	3.4074	11%	4	0.0000
D1 Transport	0.0257	0%	11	0.0000
D1 Pkg. Transport	0.0000	0%	13	0.0000
Manufacturing	1.4393	5%	6	0.9878
D2 1Pkg. Transport	0.0984	0%	9	0.0000
D2 2Pkg. Production	0.4020	1%	7	0.0000
D2 2Pkg. Transport	0.0140	0%	12	2.1154
Filling	0.0000	0%	N/A	0.0000
D3 Product Transport	1.8802	6%	5	0.0000
D3 1Pkg. Transport	0.0941	0%	10	0.0000
D3 2Pkg. Production	4.4388	14%	2	0.0000
D3 2Pkg. Transport	0.1819	1%	8	28.4025
End of Life	15.9663	50%	1	0.0000
Total	31.8679	100%	N/A	31.5058

Air Emissions

Phase Allocation - Air Emissions

Phase	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Material Production	1208.77	47%	1	123.27	295.79	282.69	106.61	362.92	1171.28
Distribution 1	11.21	0%	6	1.28	0.56	6.08	0.34	2.58	10.84
Manufacturing	255.44	10%	3	14.84	4.25	61.38	30.72	45.71	156.91
Distribution 2	60.80	2%	5	6.83	7.58	29.78	2.39	7.58	54.16
Filling	0.00	0%	7	0.00	0.00	0.00	0.00	0.00	0.00
Distribution 3	955.23	37%	2	119.43	76.54	528.38	38.40	101.73	864.48
End of Life	80.92	3%	4	25.06	-0.83	-14.27	-21.80	-32.39	-44.23
Total	2572.37	100%	N/A	290.72	383.89	894.04	156.65	488.13	2213.43

Component Allocation - Air Emissions

Component	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Cup	1109.07	71%	1	55.58	288.22	294.14	53.71	252.52	944.18
Lid	442.96	29%	2	111.65	17.97	72.99	62.91	128.36	393.87
Seal	0.00	0%	3	0.00	0.00	0.00	0.00	0.00	0.00
Total	1552.03	100%	N/A	167.23	306.19	367.13	116.62	380.88	1338.06

Air Emissions (Cont'd)

Segment Allocation - Air Emissions

Segment	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Feedstock	646.64	25%	1	65.95	158.23	151.23	57.03	194.14	626.58
Material Production	562.13	22%	3	57.33	137.56	131.46	49.58	168.77	544.70
D1 Transport	11.20	0%	11	1.28	0.56	6.07	0.34	2.58	10.82
D1 Pkg. Transport	0.01	0%	13	0.00	0.00	0.01	0.00	0.00	0.01
Manufacturing	255.44	10%	4	14.84	4.25	61.38	30.72	45.71	156.91
D2 1Pkg. Transport	33.55	1%	8	4.55	2.29	21.54	1.24	2.38	32.00
D2 2Pkg. Production	22.47	1%	10	1.62	4.96	5.17	0.98	4.87	17.60
D2 2Pkg. Transport	4.78	0%	12	0.65	0.33	3.07	0.18	0.34	4.56
Filling	0.00	0%	N/A	0.00	0.00	0.00	0.00	0.00	0.00
D3 Product Transpor	640.84	25%	2	86.96	43.69	411.23	23.62	45.41	610.91
D3 1Pkg. Transport	32.08	1%	9	4.35	2.19	20.59	1.18	2.27	30.59
D3 2Pkg. Production	220.31	9%	5	19.70	26.43	56.78	11.32	49.65	163.88
D3 2Pkg. Transport	62.00	2%	7	8.41	4.23	39.78	2.28	4.39	59.10
End of Life	80.92	3%	6	25.06	-0.83	-14.27	-21.80	-32.39	-44.23
Total	2572.37	100%	N/A	290.72	383.89	894.04	156.65	488.13	2213.43

Water Emissions

Phase Allocation - Water Emissions

Phase	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Material Production	85.33	8%	2	1.95	1.36	9.18	6.39	6.72
Distribution 1	5.60	1%	5	0.00	0.05	0.46	0.00	0.00
Manufacturing	10.97	1%	4	0.00	0.07	0.60	0.00	0.01
Distribution 2	45.33	4%	3	0.01	0.84	5.60	0.02	0.09
Filling	0.00	0%	6	0.00	0.00	0.00	0.00	0.00
Distribution 3	938.67	87%	1	0.02	72.74	203.26	0.06	0.87
End of Life	-2.75	0%	7	0.00	0.36	1.20	0.00	0.00
Total	1083.15	100%	N/A	1.98	75.44	220.30	6.47	7.69

Component Allocation - Water Emisssions

Component	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Cup	104.88	74%	1	1.91	2.17	14.45	6.34	6.56
Lid	37.73	26%	2	0.05	0.19	1.28	0.07	0.23
Seal	0.00	0%	3	0.00	0.00	0.00	0.00	0.00
Total	142.61	100%	N/A	1.96	2.36	15.73	6.41	6.79

Water Emissions (Cont'd)

Segment Allocation - Water Emissions

Segment	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Feedstock	45.65	4%	3	1.041	0.730	4.910	3.418	3.595
Material Production	39.68	4%	4	0.905	0.634	4.268	2.972	3.125
D1 Transport	5.59	1%	10	0.000	0.054	0.459	0.000	0.004
D1 Pkg. Transport	0.01	0%	12	0.000	0.000	0.001	0.000	0.000
Manufacturing	10.97	1%	9	0.000	0.072	0.601	0.000	0.007
D2 1Pkg. Transport	21.14	2%	7	0.000	0.230	1.943	0.000	0.013
D2 2Pkg. Production	21.17	2%	6	0.011	0.582	3.377	0.019	0.070
D2 2Pkg. Transport	3.01	0%	11	0.000	0.033	0.277	0.000	0.002
Filling	0.00	0%	N/A	0.000	0.000	0.000	0.000	0.000
D3 Product Transpor	403.74	37%	2	0.000	4.383	37.087	0.010	0.255
D3 1Pkg. Transport	20.21	2%	8	0.000	0.219	1.857	0.000	0.013
D3 2Pkg. Production	475.66	44%	1	0.023	67.715	160.726	0.050	0.578
D3 2Pkg. Transport	39.06	4%	5	0.000	0.424	3.588	0.001	0.025
End of Life	-2.75	0%	14	0.000	0.358	1.203	0.001	0.000
Total	1083.15	100%	N/A	1.979	75.435	220.296	6.471	7.686

Water Use

Phase Allocation - Water Use

Phase	Use (liter)	%	Rank
Material Production	121.47	15%	2
Distribution 1	3.03	0%	5
Manufacturing	52.21	7%	3
Distribution 2	31.65	4%	4
Filling	0.00	0%	6
Distribution 3	583.58	74%	1
End of Life	-2.12	0%	7
Total	789.81	100%	N/A

Impact Categories

Phase Allocation - Impact Categories

Phase	GWP(kg CO_2)	%	Rank	ODP (mg CFC-11)	%	Rank	MAC (m^3)	%	Rank
Material Production	56.57	36%	2	0.00	0%	5	74.830	46%	1
Distribution 1	0.49	0%	6	0.00	0%	4	0.953	1%	5
Manufacturing	23.28	15%	3	0.25	7%	2	13.929	9%	3
Distribution 2	3.88	2%	5	0.20	5%	3	4.382	3%	4
Filling	0.00	0%	7	0.00	0%	5	0.000	0%	6
Distribution 3	63.92	40%	1	3.42	93%	1	74.646	46%	2
End of Life	10.88	7%	4	-0.19	-5%	7	-5.395	-3%	7
Total	159.02	100%	N/A	3.69	100%	N/A	163.344	100%	N/A

Stonyfield Farm Master's Project - Results

General

Data Set	6
Designation	8 oz Foil Lid
Functional Unit	1000 lb
Container Size	8 oz.

8 oz Foil Lid

Designation	Name	Manufacturer	Process
Component 1	Cup	Polytainers	Injection Molding
Component 2	Lid	Winpak	LDPE Coating
Component 3	Seal	0	0

Material Inputs

Material	Weight (kg)	%	Rank	Mat. Prod.	%	Rank
Acrylic	0.000	0.0%	N/A	0.00	0.0%	N/A
Aluminum	1.137	2.4%	3	208.39	8.5%	3
Corrugated	24.953	52.9%	1	716.59	29.3%	2
Cotton Color	0.000	0.0%	N/A	0.00	0.0%	N/A
LLDPE Film	0.357	0.8%	7	32.13	1.3%	6
LDPE	0.147	0.3%	8	12.08	0.5%	8
LLDPE	0.000	0.0%	N/A	0.00	0.0%	N/A
Paper Board	0.000	0.0%	N/A	0.00	0.0%	N/A
PE	0.525	1.1%	5	41.74	1.7%	4
PET	0.000	0.0%	N/A	0.00	0.0%	N/A
PP	18.507	39.3%	2	1385.78	56.7%	1
White Color	0.378	0.8%	6	15.75	0.6%	7
Wood	1.130	2.4%	4	32.16	1.3%	5
Total	47.13	100%	N/A	2444.63	100%	N/A

Energy

Phase Allocation - Energy

Phase	Energy (MJ)	%	Rank	Renewable %
Material Production	1651.66	48%	1	5.27%
Distribution 1	5.71	0%	5	0.09%
Manufacturing	480.80	14%	3	21.37%
Distribution 2	100.96	3%	4	38.31%
Filling	0.00	0%	6	0.00%
Distribution 3	1302.90	38%	2	37.48%
End of Life	-124.99	-4%	7	3.42%
Total	3417.04	100%	N/A	N/A

Component Allocation - Energy

Component	Energy (MJ)	%	Rank	Renewable %
Cup	1702.97	87%	1	6.75%
Lid	249.85	13%	2	28.79%
Seal	0.00	0%	3	0.00%
Total	1952.82	100%	N/A	N/A

Segment Allocation - Energy

Segment	Energy (MJ)	%	Rank	Renewable %
Feedstock	895.14	26%	1	N/A
Material Production	756.52	22%	2	N/A
D1 Transport	5.71	0%	10	0.09%
D1 Pkg. Transport	0.00	0%	N/A	0.09%
Manufacturing	480.80	14%	5	21.37%
D2 1Pkg. Transport	22.74	1%	8	0.09%
D2 2Pkg. Production	74.63	2%	6	51.79%
D2 2Pkg. Transport	3.59	0%	11	0.09%
Filling	0.00	0%	N/A	0.00%
D3 Product Transport	501.15	15%	4	0.09%
D3 1Pkg. Transport	21.69	1%	9	0.09%
D3 2Pkg. Production	734.56	21%	3	66.40%
D3 2Pkg. Transport	45.50	1%	7	0.09%
End of Life	-124.99	-4%	14	3.42%
Total	3417.04	100%	N/A	N/A

Scenario F

Solid Waste

Phase Allocation - Solid Waste

Phase	Waste (kg)	%	Rank	Recycled (kg)
Material Production	5.5789	21%	3	0.0000
Distribution 1	0.0210	0%	6	0.0000
Manufacturing	1.2210	5%	4	0.8386
Distribution 2	0.5028	2%	5	2.1197
Filling	0.0000	0%	7	0.0000
Distribution 3	5.8535	22%	2	22.5160
End of Life	13.7899	51%	1	0.0000
Total	26.9671	100%	N/A	25.4743

Component Allocation - Solid Waste

Component	Waste (kg)	%	Rank	Recycled (kg)
Cup	14.6614	70%	1	2.6533
Lid	6.1674	30%	2	0.3050
Seal	0.0000	0%	3	0.0000
Total	20.8288	100%	N/A	2.9583

Segment Allocation - Solid Waste

Segment	Waste (kg)	%	Rank	Recycled (kg)
Feedstock	3.0236	11%	3	0.0000
Material Production	2.5554	9%	4	0.0000
D1 Transport	0.0210	0%	11	0.0000
D1 Pkg. Transport	0.0000	0%	N/A	0.0000
Manufacturing	1.2210	5%	6	0.8386
D2 1Pkg. Transport	0.0853	0%	9	0.0000
D2 2Pkg. Production	0.4041	1%	7	0.0000
D2 2Pkg. Transport	0.0135	0%	12	2.1197
Filling	0.0000	0%	N/A	0.0000
D3 Product Transport	1.8802	7%	5	0.0000
D3 1Pkg. Transport	0.0814	0%	10	0.0000
D3 2Pkg. Production	3.7212	14%	2	0.0000
D3 2Pkg. Transport	0.1707	1%	8	22.5160
End of Life	13.7899	51%	1	0.0000
Total	26.9671	100%	N/A	25.4743

Air Emissions

Phase Allocation - Air Emissions

Phase	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Material Production	1006.37	44%	1	94.33	256.97	239.06	85.35	302.42	978.13
Distribution 1	9.04	0%	6	1.06	0.46	4.96	0.27	1.98	8.73
Manufacturing	213.10	9%	3	12.04	3.46	51.81	26.58	39.65	133.54
Distribution 2	56.21	2%	5	6.15	7.33	26.82	2.21	7.25	49.76
Filling	0.00	0%	7	0.00	0.00	0.00	0.00	0.00	0.00
Distribution 3	913.93	40%	2	116.87	73.63	513.56	36.67	93.13	833.85
End of Life	69.45	3%	4	21.65	-0.72	-12.44	-18.96	-28.16	-38.63
Total	2268.09	100%	N/A	252.11	341.12	823.78	132.11	416.27	1965.38

Component Allocation - Air Emissions

Component	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Cup	973.87	75%	1	48.74	253.09	258.21	47.10	222.23	829.36
Lid	332.22	25%	2	83.74	13.48	54.74	47.18	96.27	295.40
Seal	0.00	0%	3	0.00	0.00	0.00	0.00	0.00	0.00
Total	1306.09	100%	N/A	132.48	266.56	312.95	94.28	318.50	1124.77

Air Emissions (Cont'd)

Segment Allocation - Air Emissions

Segment	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Feedstock	545.41	24%	2	51.13	139.27	129.56	46.25	163.90	530.11
Material Production	460.95	20%	3	43.21	117.70	109.50	39.09	138.52	448.02
D1 Transport	9.04	0%	11	1.06	0.46	4.96	0.27	1.98	8.73
D1 Pkg. Transport	0.00	0%	N/A	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing	213.10	9%	4	12.04	3.46	51.81	26.58	39.65	133.54
D2 1Pkg. Transport	29.08	1%	8	3.95	1.98	18.67	1.07	2.06	27.73
D2 2Pkg. Production	22.54	1%	10	1.58	5.03	5.20	0.97	4.86	17.64
D2 2Pkg. Transport	4.59	0%	12	0.62	0.31	2.95	0.17	0.33	4.38
Filling	0.00	0%	N/A	0.00	0.00	0.00	0.00	0.00	0.00
D3 Product Transpor	640.84	28%	1	86.96	43.69	411.23	23.62	45.41	610.91
D3 1Pkg. Transport	27.74	1%	9	3.76	1.89	17.80	1.02	1.97	26.44
D3 2Pkg. Production	187.17	8%	5	18.25	24.08	47.20	9.89	41.63	141.03
D3 2Pkg. Transport	58.19	3%	7	7.90	3.97	37.34	2.14	4.12	55.47
End of Life	69.45	3%	6	21.65	-0.72	-12.44	-18.96	-28.16	-38.63
Total	2268.09	100%	N/A	252.11	341.12	823.78	132.11	416.27	1965.38

Water Emissions

Phase Allocation - Water Emissions

Phase	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Material Production	70.69	7%	2	1.71	1.19	7.98	5.62	5.83
Distribution 1	4.57	0%	5	0.00	0.04	0.38	0.00	0.00
Manufacturing	9.51	1%	4	0.00	0.06	0.52	0.00	0.01
Distribution 2	42.50	4%	3	0.01	0.82	5.35	0.02	0.09
Filling	0.00	0%	6	0.00	0.00	0.00	0.00	0.00
Distribution 3	830.68	87%	1	0.03	57.99	168.06	0.07	0.74
End of Life	-2.40	0%	7	0.00	0.31	1.04	0.00	0.00
Total	955.55	100%	N/A	1.75	60.41	183.32	5.72	6.67

Component Allocation - Water Emisssions

Component	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Cup	92.25	77%	1	1.68	1.92	12.75	5.59	5.73
Lid	28.30	23%	2	0.04	0.14	0.96	0.05	0.17
Seal	0.00	0%	3	0.00	0.00	0.00	0.00	0.00
Total	120.55	100%	N/A	1.72	2.06	13.70	5.65	5.90

Water Emissions (Cont'd)

Segment Allocation - Water Emissions

Segment	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Feedstock	38.31	4%	3	0.926	0.645	4.326	3.048	3.160
Material Production	32.38	3%	5	0.783	0.545	3.656	2.576	2.671
D1 Transport	4.57	0%	10	0.000	0.045	0.379	0.000	0.003
D1 Pkg. Transport	0.00	0%	N/A	0.000	0.000	0.000	0.000	0.000
Manufacturing	9.51	1%	9	0.000	0.062	0.518	0.000	0.006
D2 1Pkg. Transport	18.32	2%	7	0.000	0.199	1.684	0.000	0.012
D2 2Pkg. Production	21.29	2%	6	0.011	0.585	3.397	0.019	0.072
D2 2Pkg. Transport	2.89	0%	11	0.000	0.031	0.266	0.000	0.002
Filling	0.00	0%	N/A	0.000	0.000	0.000	0.000	0.000
D3 Product Transpor	403.74	42%	1	0.000	4.383	37.087	0.010	0.255
D3 1Pkg. Transport	17.47	2%	8	0.000	0.190	1.605	0.000	0.011
D3 2Pkg. Production	372.80	39%	2	0.028	53.015	126.000	0.062	0.453
D3 2Pkg. Transport	36.66	4%	4	0.000	0.398	3.367	0.001	0.023
End of Life	-2.40	0%	14	0.000	0.309	1.038	0.000	0.000
Total	955.55	100%	N/A	1.748	60.409	183.324	5.718	6.667

Water Use

Phase Allocation - Water Use

Phase	Use (liter)	%	Rank
Material Production	96.73	14%	2
Distribution 1	2.50	0%	5
Manufacturing	45.64	7%	3
Distribution 2	30.02	4%	4
Filling	0.00	0%	6
Distribution 3	517.79	75%	1
End of Life	-1.84	0%	7
Total	690.83	100%	N/A

Impact Categories

Phase Allocation - Impact Categories

Phase	GWP(kg CO_2)	%	Rank	ODP (mg CFC-11)	%	Rank	MAC (m^3)	%	Rank
Material Production	47.31	34%	2	0.00	0%	5	62.127	43%	2
Distribution 1	0.40	0%	6	0.00	0%	4	0.768	1%	5
Manufacturing	19.23	14%	3	0.22	8%	2	11.887	8%	3
Distribution 2	3.62	3%	5	0.20	7%	3	3.985	3%	4
Filling	0.00	0%	7	0.00	0%	5	0.000	0%	6
Distribution 3	59.30	43%	1	2.68	91%	1	72.070	49%	1
End of Life	9.41	7%	4	-0.16	-6%	7	-4.699	-3%	7
Total	139.27	100%	N/A	2.94	100%	N/A	146.138	100%	N/A

Stonyfield Farm Master's Project - Results

General

Data Set	7
Designation	6 oz Paper Lid
Functional Unit	1000 lb
Container Size	6 oz.

6 oz Paper Lid

Designation	Name	Manufacturer	Process
Component 1	Cup	Polytainers	Injection Molding
Component 2	Lid	Apple Converting	LDPE Coating
Component 3	Seal	0	0

Material Inputs

Material	Weight (kg)	%	Rank	Mat. Prod.	%	Rank
Acrylic	0.036	0.1%	8	3.70	0.1%	8
Aluminum	0.000	0.0%	N/A	0.00	0.0%	N/A
Corrugated	31.146	56.5%	1	894.45	33.9%	2
Cotton Color	0.647	1.2%	5	30.23	1.1%	4
LLDPE Film	0.298	0.5%	6	26.79	1.0%	5
LDPE	0.987	1.8%	3	80.82	3.1%	3
LLDPE	0.000	0.0%	N/A	0.00	0.0%	N/A
Paper Board	0.138	0.3%	7	6.70	0.3%	7
PE	0.000	0.0%	N/A	0.00	0.0%	N/A
PET	0.000	0.0%	N/A	0.00	0.0%	N/A
PP	20.935	38.0%	2	1567.59	59.5%	1
White Color	0.000	0.0%	N/A	0.00	0.0%	N/A
Wood	0.924	1.7%	4	26.29	1.0%	6
Total	55.11	100%	N/A	2636.56	100%	N/A

Energy

Phase Allocation - Energy

Phase	Energy (MJ)	%	Rank	Renewable %
Material Production	1670.99	45%	1	1.05%
Distribution 1	7.48	0%	5	0.09%
Manufacturing	580.96	16%	3	20.21%
Distribution 2	105.92	3%	4	39.38%
Filling	0.00	0%	6	0.00%
Distribution 3	1484.85	40%	2	41.19%
End of Life	-144.85	-4%	7	3.43%
Total	3705.35	100%	N/A	N/A

Component Allocation - Energy

Component	Energy (MJ)	%	Rank	Renewable %
Cup	1939.59	96%	1	6.77%
Lid	78.12	4%	2	7.85%
Seal	0.00	0%	3	0.00%
Total	2017.71	100%	N/A	N/A

Segment Allocation - Energy

Segment	Energy (MJ)	%	Rank	Renewable %
Feedstock	996.74	27%	1	N/A
Material Production	674.25	18%	3	N/A
D1 Transport	7.47	0%	10	0.09%
D1 Pkg. Transport	0.01	0%	12	0.09%
Manufacturing	580.96	16%	4	20.21%
D2 1Pkg. Transport	25.60	1%	8	0.09%
D2 2Pkg. Production	76.69	2%	6	54.35%
D2 2Pkg. Transport	3.62	0%	11	0.09%
Filling	0.00	0%	N/A	0.00%
D3 Product Transport	501.15	14%	5	0.09%
D3 1Pkg. Transport	25.19	1%	9	0.09%
D3 2Pkg. Production	910.03	25%	2	67.15%
D3 2Pkg. Transport	48.48	1%	7	0.09%
End of Life	-144.85	-4%	14	3.43%
Total	3705.35	100%	N/A	N/A

Scenario G

Solid Waste

Phase Allocation - Solid Waste

Phase	Waste (kg)	%	Rank	Recycled (kg)
Material Production	0.7059	3%	4	0.0000
Distribution 1	0.0274	0%	6	0.0000
Manufacturing	1.3545	5%	3	1.1837
Distribution 2	0.5076	2%	5	2.0953
Filling	0.0000	0%	7	0.0000
Distribution 3	6.5954	26%	2	28.4025
End of Life	15.9790	63%	1	0.0000
Total	25.1698	100%	N/A	31.6815

Component Allocation - Solid Waste

Component	Waste (kg)	%	Rank	Recycled (kg)
Cup	16.7246	92%	1	2.6966
Lid	1.5295	8%	2	0.5824
Seal	0.0000	0%	3	0.0000
Total	18.2540	100%	N/A	3.2790

Segment Allocation - Solid Waste

Segment	Waste (kg)	%	Rank	Recycled (kg)
Feedstock	0.4211	2%	5	0.0000
Material Production	0.2848	1%	7	0.0000
D1 Transport	0.0274	0%	11	0.0000
D1 Pkg. Transport	0.0000	0%	13	0.0000
Manufacturing	1.3545	5%	4	1.1837
D2 1Pkg. Transport	0.0961	0%	9	0.0000
D2 2Pkg. Production	0.3980	2%	6	0.0000
D2 2Pkg. Transport	0.0136	0%	12	2.0953
Filling	0.0000	0%	N/A	0.0000
D3 Product Transport	1.8802	7%	3	0.0000
D3 1Pkg. Transport	0.0945	0%	10	0.0000
D3 2Pkg. Production	4.4388	18%	2	0.0000
D3 2Pkg. Transport	0.1819	1%	8	28.4025
End of Life	15.9790	63%	1	0.0000
Total	25.1698	100%	N/A	31.6815

Air Emissions

Phase Allocation - Air Emissions

Phase	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Material Production	828.10	38%	2	16.04	296.41	225.39	45.80	242.27	825.90
Distribution 1	12.26	1%	6	1.35	0.59	6.50	0.36	3.05	11.86
Manufacturing	258.42	12%	3	15.05	4.35	62.09	30.83	45.84	158.17
Distribution 2	61.04	3%	5	7.13	7.63	29.53	2.53	7.76	54.57
Filling	0.00	0%	7	0.00	0.00	0.00	0.00	0.00	0.00
Distribution 3	955.36	44%	1	119.45	76.54	528.46	38.41	101.74	864.60
End of Life	80.68	4%	4	25.15	-0.84	-14.50	-22.00	-32.69	-44.88
Total	2195.85	100%	N/A	184.16	384.68	837.47	95.92	367.97	1870.21

Component Allocation - Air Emissions

Component	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Cup	1109.07	95%	1	55.58	288.22	294.14	53.71	252.52	944.18
Lid	62.56	5%	2	4.76	18.74	15.64	2.07	7.85	49.06
Seal	0.00	0%	3	0.00	0.00	0.00	0.00	0.00	0.00
Total	1171.63	100%	N/A	60.35	306.97	309.79	55.78	260.37	993.25

Air Emissions (Cont'd)

Segment Allocation - Air Emissions

Segment	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Feedstock	493.96	22%	2	9.57	176.81	134.44	27.32	144.51	492.65
Material Production	334.14	15%	3	6.47	119.60	90.94	18.48	97.75	333.25
D1 Transport	12.24	1%	11	1.35	0.59	6.50	0.36	3.04	11.84
D1 Pkg. Transport	0.01	0%	13	0.00	0.00	0.01	0.00	0.00	0.01
Manufacturing	258.42	12%	4	15.05	4.35	62.09	30.83	45.84	158.17
D2 1Pkg. Transport	32.74	1%	8	4.44	2.23	21.02	1.21	2.32	31.23
D2 2Pkg. Production	23.67	1%	10	2.05	5.08	5.53	1.15	5.12	18.92
D2 2Pkg. Transport	4.63	0%	12	0.63	0.32	2.98	0.17	0.33	4.42
Filling	0.00	0%	N/A	0.00	0.00	0.00	0.00	0.00	0.00
D3 Product Transpor	640.84	29%	1	86.96	43.69	411.23	23.62	45.41	610.91
D3 1Pkg. Transport	32.21	1%	9	4.37	2.20	20.67	1.19	2.28	30.71
D3 2Pkg. Production	220.31	10%	5	19.70	26.43	56.78	11.32	49.65	163.88
D3 2Pkg. Transport	62.00	3%	7	8.41	4.23	39.78	2.28	4.39	59.10
End of Life	80.68	4%	6	25.15	-0.84	-14.50	-22.00	-32.69	-44.88
Total	2195.85	100%	N/A	184.16	384.68	837.47	95.92	367.97	1870.21

Water Emissions

Phase Allocation - Water Emissions

Phase	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Material Production	57.49	5%	2	1.96	1.44	9.79	6.41	6.71
Distribution 1	5.98	1%	5	0.00	0.06	0.48	0.00	0.00
Manufacturing	10.99	1%	4	0.00	0.07	0.59	0.00	0.01
Distribution 2	48.94	5%	3	0.01	1.17	9.28	0.02	0.09
Filling	0.00	0%	6	0.00	0.00	0.00	0.00	0.00
Distribution 3	938.75	89%	1	0.02	72.74	203.27	0.06	0.87
End of Life	-2.78	0%	7	0.00	0.36	1.21	0.00	0.00
Total	1059.36	100%	N/A	1.99	75.84	224.61	6.49	7.68

Component Allocation - Water Emisssions

Component	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Cup	104.88	87%	1	1.91	2.17	14.45	6.34	6.56
Lid	15.26	13%	2	0.06	0.64	5.82	0.09	0.23
Seal	0.00	0%	3	0.00	0.00	0.00	0.00	0.00
Total	120.13	100%	N/A	1.97	2.81	20.27	6.43	6.79

Water Emissions (Cont'd)

Segment Allocation - Water Emissions

Segment	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Feedstock	34.29	3%	4	1.167	0.857	5.837	3.822	4.005
Material Production	23.20	2%	6	0.789	0.580	3.949	2.585	2.709
D1 Transport	5.97	1%	10	0.000	0.057	0.483	0.000	0.004
D1 Pkg. Transport	0.01	0%	12	0.000	0.000	0.001	0.000	0.000
Manufacturing	10.99	1%	9	0.000	0.071	0.595	0.000	0.007
D2 1Pkg. Transport	20.63	2%	7	0.000	0.224	1.896	0.000	0.013
D2 2Pkg. Production	25.39	2%	5	0.011	0.917	7.112	0.019	0.073
D2 2Pkg. Transport	2.92	0%	11	0.000	0.032	0.268	0.000	0.002
Filling	0.00	0%	N/A	0.000	0.000	0.000	0.000	0.000
D3 Product Transpor	403.74	38%	2	0.000	4.383	37.087	0.010	0.255
D3 1Pkg. Transport	20.30	2%	8	0.000	0.220	1.864	0.000	0.013
D3 2Pkg. Production	475.66	45%	1	0.023	67.715	160.726	0.050	0.578
D3 2Pkg. Transport	39.06	4%	3	0.000	0.424	3.588	0.001	0.025
End of Life	-2.78	0%	14	0.000	0.359	1.205	0.001	0.000
Total	1059.36	100%	N/A	1.990	75.839	224.611	6.488	7.683

Water Use

Phase Allocation - Water Use

Phase	Use (liter)	%	Rank
Material Production	103.72	13%	2
Distribution 1	3.18	0%	5
Manufacturing	52.22	7%	3
Distribution 2	44.86	6%	4
Filling	0.00	0%	6
Distribution 3	583.63	74%	1
End of Life	-2.13	0%	7
Total	785.49	100%	N/A

Impact Categories

Phase Allocation - Impact Categories

Phase	GWP(kg CO_2)	%	Rank	ODP (mg CFC-11)	%	Rank	MAC (m^3)	%	Rank
Material Production	40.09	28%	2	0.00	0%	5	49.404	36%	2
Distribution 1	0.53	0%	6	0.00	0%	4	1.041	1%	5
Manufacturing	23.68	17%	3	0.26	7%	2	14.036	10%	3
Distribution 2	4.11	3%	5	0.22	6%	3	4.392	3%	4
Filling	0.00	0%	7	0.00	0%	5	0.000	0%	6
Distribution 3	63.92	45%	1	3.42	92%	1	74.657	54%	1
End of Life	10.89	8%	4	-0.19	-5%	7	-5.460	-4%	7
Total	143.21	100%	N/A	3.71	100%	N/A	138.070	100%	N/A

Stonyfield Farm Master's Project - Results

General

Data Set	8
Designation	8 oz Paper Lid
Functional Unit	1000 lb
Container Size	8 oz.

8 oz Paper Lid

Designation	Name	Manufacturer	Process
Component 1	Cup	Polytainers	Injection Molding
Component 2	Lid	Apple Converting	LDPE Coating
Component 3	Seal	0	0

Material Inputs

Material	Weight (kg)	%	Rank	Mat. Prod.	%	Rank
Acrylic	0.027	0.1%	8	2.78	0.1%	8
Aluminum	0.000	0.0%	N/A	0.00	0.0%	N/A
Corrugated	24.833	53.8%	1	713.17	31.7%	2
Cotton Color	0.000	0.0%	N/A	0.00	0.0%	N/A
LLDPE Film	0.358	0.8%	6	32.21	1.4%	4
LDPE	0.784	1.7%	4	64.18	2.9%	3
LLDPE	0.000	0.0%	N/A	0.00	0.0%	N/A
Paper Board	0.104	0.2%	7	5.03	0.2%	7
PE	0.000	0.0%	N/A	0.00	0.0%	N/A
PET	0.000	0.0%	N/A	0.00	0.0%	N/A
PP	18.507	40.1%	2	1385.78	61.6%	1
White Color	0.378	0.8%	5	15.75	0.7%	6
Wood	1.131	2.5%	3	32.17	1.4%	5
Total	46.12	100%	N/A	2251.07	100%	N/A

Energy

Phase Allocation - Energy

Phase	Energy (MJ)	%	Rank	Renewable %
Material Production	1456.41	45%	1	1.06%
Distribution 1	6.07	0%	5	0.09%
Manufacturing	486.74	15%	3	21.11%
Distribution 2	102.18	3%	4	40.06%
Filling	0.00	0%	6	0.00%
Distribution 3	1302.97	40%	2	37.48%
End of Life	-125.78	-4%	7	3.43%
Total	3228.60	100%	N/A	N/A

Component Allocation - Energy

Component	Energy (MJ)	%	Rank	Renewable %
Cup	1702.97	97%	1	6.75%
Lid	58.58	3%	2	7.85%
Seal	0.00	0%	3	0.00%
Total	1761.55	100%	N/A	N/A

Segment Allocation - Energy

Segment	Energy (MJ)	%	Rank	Renewable %
Feedstock	867.82	27%	1	N/A
Material Production	588.59	18%	3	N/A
D1 Transport	6.07	0%	10	0.09%
D1 Pkg. Transport	0.00	0%	N/A	0.09%
Manufacturing	486.74	15%	5	21.11%
D2 1Pkg. Transport	22.27	1%	8	0.09%
D2 2Pkg. Production	76.42	2%	6	53.53%
D2 2Pkg. Transport	3.50	0%	11	0.09%
Filling	0.00	0%	N/A	0.00%
D3 Product Transport	501.15	16%	4	0.09%
D3 1Pkg. Transport	21.77	1%	9	0.09%
D3 2Pkg. Production	734.56	23%	2	66.40%
D3 2Pkg. Transport	45.50	1%	7	0.09%
End of Life	-125.78	-4%	14	3.43%
Total	3228.60	100%	N/A	N/A

Scenario H

Solid Waste

Phase Allocation - Solid Waste

Phase	Waste (kg)	%	Rank	Recycled (kg)
Material Production	0.6131	3%	4	0.0000
Distribution 1	0.0223	0%	6	0.0000
Manufacturing	1.1574	5%	3	0.9855
Distribution 2	0.4977	2%	5	2.1046
Filling	0.0000	0%	7	0.0000
Distribution 3	5.8538	27%	2	22.5160
End of Life	13.7994	63%	1	0.0000
Total	21.9436	100%	N/A	25.6061

Component Allocation - Solid Waste

Component	Waste (kg)	%	Rank	Recycled (kg)
Cup	14.6614	93%	1	2.6533
Lid	1.1471	7%	2	0.4368
Seal	0.0000	0%	3	0.0000
Total	15.8085	100%	N/A	3.0901

Segment Allocation - Solid Waste

Segment	Waste (kg)	%	Rank	Recycled (kg)
Feedstock	0.3653	2%	6	0.0000
Material Production	0.2478	1%	7	0.0000
D1 Transport	0.0223	0%	11	0.0000
D1 Pkg. Transport	0.0000	0%	N/A	0.0000
Manufacturing	1.1574	5%	4	0.9855
D2 1Pkg. Transport	0.0835	0%	9	0.0000
D2 2Pkg. Production	0.4011	2%	5	0.0000
D2 2Pkg. Transport	0.0131	0%	12	2.1046
Filling	0.0000	0%	N/A	0.0000
D3 Product Transport	1.8802	9%	3	0.0000
D3 1Pkg. Transport	0.0817	0%	10	0.0000
D3 2Pkg. Production	3.7212	17%	2	0.0000
D3 2Pkg. Transport	0.1707	1%	8	22.5160
End of Life	13.7994	63%	1	0.0000
Total	21.9436	100%	N/A	25.6061

Air Emissions

Phase Allocation - Air Emissions

Phase	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Material Production	720.87	36%	2	13.91	257.43	196.08	39.74	211.93	719.09
Distribution 1	9.82	0%	6	1.11	0.48	5.28	0.29	2.33	9.50
Manufacturing	215.33	11%	3	12.19	3.54	52.34	26.66	39.75	134.48
Distribution 2	56.39	3%	5	6.37	7.36	26.62	2.31	7.39	50.06
Filling	0.00	0%	7	0.00	0.00	0.00	0.00	0.00	0.00
Distribution 3	914.03	46%	1	116.88	73.63	513.62	36.67	93.14	833.95
End of Life	69.27	3%	4	21.72	-0.73	-12.61	-19.11	-28.39	-39.11
Total	1985.71	100%	N/A	172.19	341.71	781.35	86.57	326.15	1707.97

Component Allocation - Air Emissions

Component	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Cup	973.87	95%	1	48.74	253.09	258.21	47.10	222.23	829.36
Lid	46.92	5%	2	3.57	14.06	11.73	1.55	5.88	36.80
Seal	0.00	0%	3	0.00	0.00	0.00	0.00	0.00	0.00
Total	1020.79	100%	N/A	52.32	267.14	269.94	48.65	228.11	866.16

Air Emissions (Cont'd)

Segment Allocation - Air Emissions

Segment	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Feedstock	429.54	22%	2	8.29	153.39	116.84	23.68	126.28	428.48
Material Production	291.33	15%	3	5.62	104.04	79.25	16.06	85.65	290.61
D1 Transport	9.82	0%	11	1.11	0.48	5.28	0.29	2.33	9.50
D1 Pkg. Transport	0.00	0%	N/A	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing	215.33	11%	4	12.19	3.54	52.34	26.66	39.75	134.48
D2 1Pkg. Transport	28.47	1%	8	3.87	1.94	18.29	1.05	2.02	27.16
D2 2Pkg. Production	23.44	1%	10	1.90	5.11	5.47	1.10	5.05	18.63
D2 2Pkg. Transport	4.47	0%	12	0.61	0.31	2.87	0.16	0.32	4.26
Filling	0.00	0%	N/A	0.00	0.00	0.00	0.00	0.00	0.00
D3 Product Transpor	640.84	32%	1	86.96	43.69	411.23	23.62	45.41	610.91
D3 1Pkg. Transport	27.83	1%	9	3.78	1.90	17.86	1.03	1.97	26.53
D3 2Pkg. Production	187.17	9%	5	18.25	24.08	47.20	9.89	41.63	141.03
D3 2Pkg. Transport	58.19	3%	7	7.90	3.97	37.34	2.14	4.12	55.47
End of Life	69.27	3%	6	21.72	-0.73	-12.61	-19.11	-28.39	-39.11
Total	1985.71	100%	N/A	172.19	341.71	781.35	86.57	326.15	1707.97

Water Emissions

Phase Allocation - Water Emissions

Phase	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Material Production	49.81	5%	2	1.72	1.25	8.44	5.64	5.83
Distribution 1	4.86	1%	5	0.00	0.05	0.40	0.00	0.00
Manufacturing	9.53	1%	4	0.00	0.06	0.51	0.00	0.01
Distribution 2	45.20	5%	3	0.01	1.06	8.11	0.02	0.09
Filling	0.00	0%	6	0.00	0.00	0.00	0.00	0.00
Distribution 3	830.74	89%	1	0.03	57.99	168.07	0.07	0.74
End of Life	-2.43	0%	7	0.00	0.31	1.04	0.00	0.00
Total	937.71	100%	N/A	1.76	60.71	186.56	5.73	6.67

Component Allocation - Water Emisssions

Component	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Cup	92.25	89%	1	1.68	1.92	12.75	5.59	5.73
Lid	11.44	11%	2	0.05	0.48	4.36	0.07	0.17
Seal	0.00	0%	3	0.00	0.00	0.00	0.00	0.00
Total	103.69	100%	N/A	1.73	2.39	17.11	5.66	5.90

Water Emissions (Cont'd)

Segment Allocation - Water Emissions

Segment	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Feedstock	29.68	3%	4	1.023	0.742	5.028	3.359	3.472
Material Production	20.13	2%	6	0.694	0.503	3.410	2.278	2.355
D1 Transport	4.86	1%	10	0.000	0.047	0.396	0.000	0.003
D1 Pkg. Transport	0.00	0%	N/A	0.000	0.000	0.000	0.000	0.000
Manufacturing	9.53	1%	9	0.000	0.061	0.514	0.000	0.006
D2 1Pkg. Transport	17.94	2%	7	0.000	0.195	1.649	0.000	0.011
D2 2Pkg. Production	24.45	3%	5	0.011	0.837	6.199	0.019	0.075
D2 2Pkg. Transport	2.82	0%	11	0.000	0.031	0.259	0.000	0.002
Filling	0.00	0%	N/A	0.000	0.000	0.000	0.000	0.000
D3 Product Transpor	403.74	43%	1	0.000	4.383	37.087	0.010	0.255
D3 1Pkg. Transport	17.54	2%	8	0.000	0.190	1.611	0.000	0.011
D3 2Pkg. Production	372.80	40%	2	0.028	53.015	126.000	0.062	0.453
D3 2Pkg. Transport	36.66	4%	3	0.000	0.398	3.367	0.001	0.023
End of Life	-2.43	0%	14	0.000	0.310	1.040	0.000	0.000
Total	937.71	100%	N/A	1.756	60.712	186.560	5.731	6.665

Water Use

Phase Allocation - Water Use

Phase	Use (liter)	%	Rank
Material Production	83.42	12%	2
Distribution 1	2.61	0%	5
Manufacturing	45.65	7%	3
Distribution 2	39.92	6%	4
Filling	0.00	0%	6
Distribution 3	517.83	75%	1
End of Life	-1.85	0%	7
Total	687.59	100%	N/A

Impact Categories

Phase Allocation - Impact Categories

Phase	GWP(kg CO_2)	%	Rank	ODP (mg CFC-11)	%	Rank	MAC (m^3)	%	Rank
Material Production	34.95	27%	2	0.00	0%	5	43.058	34%	2
Distribution 1	0.43	0%	6	0.00	0%	4	0.835	1%	5
Manufacturing	19.53	15%	3	0.22	7%	2	11.967	9%	3
Distribution 2	3.79	3%	5	0.22	7%	3	3.992	3%	4
Filling	0.00	0%	7	0.00	0%	5	0.000	0%	6
Distribution 3	59.30	47%	1	2.68	91%	1	72.078	57%	1
End of Life	9.41	7%	4	-0.16	-6%	7	-4.748	-4%	7
Total	127.42	100%	N/A	2.96	100%	N/A	127.183	100%	N/A

Stonyfield Farm Master's Project - Results

General

Data Set	11
Designation	6 oz. Dist. 3 Corr. 30%
Functional Unit	1000 lb
Container Size	6 oz.

6 oz. Dist. 3 Cc

Designation	Name	Manufacturer	Process
Component 1	Cup	Polytainers	Injection Molding
Component 2	Lid	Polytainers	Injection Molding
Component 3	Seal	Clear-Lam	Extrusion

Material Inputs

Material	Weight (kg)	%	Rank	Mat. Prod.	%	Rank
Acrylic	0.000	0.0%	N/A	0.00	0.0%	N/A
Aluminum	0.000	0.0%	N/A	0.00	0.0%	N/A
Corrugated	23.851	39.6%	1	684.96	20.0%	3
Cotton Color	0.971	1.6%	5	45.34	1.3%	6
LLDPE Film	0.327	0.5%	8	29.41	0.9%	7
LDPE	0.305	0.5%	9	25.01	0.7%	9
LLDPE	10.467	17.4%	3	868.58	25.4%	2
Paper Board	0.217	0.4%	10	10.52	0.3%	10
PE	1.467	2.4%	4	116.59	3.4%	4
PET	0.680	1.1%	7	49.31	1.4%	5
PP	20.935	34.8%	2	1567.59	45.8%	1
White Color	0.000	0.0%	N/A	0.00	0.0%	N/A
Wood	0.969	1.6%	6	27.58	0.8%	8
Total	60.19	100%	N/A	3424.89	100%	N/A

Energy

Phase Allocation - Energy

Phase	Energy (MJ)	%	Rank	Renewable %
Material Production	2647.40	59%	1	0.73%
Distribution 1	6.73	0%	5	0.09%
Manufacturing	630.02	14%	3	28.00%
Distribution 2	188.45	4%	4	38.73%
Filling	0.16	0%	6	0.00%
Distribution 3	1226.37	27%	2	35.40%
End of Life	-211.57	-5%	7	3.43%
Total	4487.57	100%	N/A	N/A

Component Allocation - Energy

Component	Energy (MJ)	%	Rank	Renewable %
Cup	1939.56	62%	1	6.77%
Lid	1063.52	34%	2	5.54%
Seal	148.78	5%	3	6.80%
Total	3151.86	100%	N/A	N/A

Segment Allocation - Energy

Segment	Energy (MJ)	%	Rank	Renewable %
Feedstock	1824.69	41%	1	N/A
Material Production	822.71	18%	2	N/A
D1 Transport	6.73	0%	11	0.09%
D1 Pkg. Transport	0.01	0%	13	0.09%
Manufacturing	630.02	14%	4	28.00%
D2 1Pkg. Transport	41.28	1%	7	0.09%
D2 2Pkg. Production	140.06	3%	6	52.08%
D2 2Pkg. Transport	7.10	0%	10	0.09%
Filling	0.16	0%	12	0.00%
D3 Product Transport	501.15	11%	5	0.09%
D3 1Pkg. Transport	35.44	1%	9	0.09%
D3 2Pkg. Production	651.01	15%	3	66.61%
D3 2Pkg. Transport	38.78	1%	8	0.09%
End of Life	-211.57	-5%	14	3.43%
Total	4487.57	100%	N/A	N/A

Scenario I

Solid Waste

Phase Allocation - Solid Waste

Phase	Waste (kg)	%	Rank	Recycled (kg)
Material Production	0.9153	3%	6	0.0000
Distribution 1	0.0253	0%	7	0.0000
Manufacturing	1.8318	6%	3	1.1731
Distribution 2	1.1561	3%	5	3.4930
Filling	1.3284	4%	4	0.0000
Distribution 3	5.4229	16%	2	20.0548
End of Life	22.4000	68%	1	0.0000
Total	33.0796	100%	N/A	24.7209

Component Allocation - Solid Waste

Component	Waste (kg)	%	Rank	Recycled (kg)
Cup	16.7244	61%	1	2.6966
Lid	8.2605	30%	2	1.9521
Seal	2.3951	9%	3	0.0174
Total	27.3801	100%	N/A	4.6661

Segment Allocation - Solid Waste

Segment	Waste (kg)	%	Rank	Recycled (kg)
Feedstock	0.6308	2%	7	0.0000
Material Production	0.2844	1%	8	0.0000
D1 Transport	0.0252	0%	13	0.0000
D1 Pkg. Transport	0.0000	0%	14	0.0000
Manufacturing	1.8318	6%	4	1.1731
D2 1Pkg. Transport	0.1549	0%	9	0.0000
D2 2Pkg. Production	0.9745	3%	6	0.0000
D2 2Pkg. Transport	0.0266	0%	12	3.4930
Filling	1.3284	4%	5	0.0000
D3 Product Transport	1.8802	6%	3	0.0000
D3 1Pkg. Transport	0.1330	0%	11	0.0000
D3 2Pkg. Production	3.2643	10%	2	0.0000
D3 2Pkg. Transport	0.1455	0%	10	20.0548
End of Life	22.4000	68%	1	0.0000
Total	33.0796	100%	N/A	24.7209

Air Emissions

Phase Allocation - Air Emissions

Phase	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Material Production	1219.19	46%	1	39.41	468.33	328.58	63.32	303.83	1203.46
Distribution 1	8.99	0%	7	1.34	0.59	5.77	0.31	0.61	8.61
Manufacturing	284.07	11%	3	11.80	5.46	73.74	46.87	77.69	215.56
Distribution 2	109.14	4%	4	12.42	14.50	50.24	4.48	13.95	95.59
Filling	13.76	1%	6	2.10	0.02	0.28	0.07	0.04	2.51
Distribution 3	899.35	34%	2	115.44	70.83	513.62	35.69	88.66	824.24
End of Life	108.14	4%	5	35.24	-1.24	-21.39	-32.16	-47.75	-67.30
Total	2642.64	100%	N/A	217.74	558.49	950.85	118.57	437.03	2282.68

Component Allocation - Air Emissions

Component	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Cup	1109.03	66%	1	55.58	288.22	294.12	53.71	252.52	944.14
Lid	452.54	27%	2	28.08	156.80	126.32	17.78	40.39	369.37
Seal	121.00	7%	3	7.85	34.24	28.40	7.30	23.92	101.72
Total	1682.57	100%	N/A	91.51	479.27	448.83	78.79	316.83	1415.23

Air Emissions (Cont'd)

Segment Allocation - Air Emissions

Segment	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Feedstock	840.32	32%	1	27.16	322.79	226.47	43.64	209.41	829.47
Material Production	378.88	14%	3	12.25	145.54	102.11	19.68	94.42	373.99
D1 Transport	8.98	0%	13	1.33	0.59	5.76	0.31	0.61	8.60
D1 Pkg. Transport	0.01	0%	14	0.00	0.00	0.01	0.00	0.00	0.01
Manufacturing	284.07	11%	4	11.80	5.46	73.74	46.87	77.69	215.56
D2 1Pkg. Transport	52.79	2%	7	7.16	3.60	33.89	1.95	3.74	50.34
D2 2Pkg. Production	47.26	2%	9	4.02	10.28	10.52	2.20	9.57	36.60
D2 2Pkg. Transport	9.08	0%	12	1.23	0.62	5.83	0.33	0.64	8.66
Filling	13.76	1%	11	2.10	0.02	0.28	0.07	0.04	2.51
D3 Product Transpor	640.84	24%	2	86.96	43.69	411.23	23.62	45.41	610.91
D3 1Pkg. Transport	45.32	2%	10	6.15	3.09	29.08	1.67	3.21	43.20
D3 2Pkg. Production	163.61	6%	5	15.60	20.67	41.50	8.58	36.52	122.86
D3 2Pkg. Transport	49.59	2%	8	6.73	3.38	31.82	1.83	3.51	47.27
End of Life	108.14	4%	6	35.24	-1.24	-21.39	-32.16	-47.75	-67.30
Total	2642.64	100%	N/A	217.74	558.49	950.85	118.57	437.03	2282.68

Water Emissions

Phase Allocation - Water Emissions

Phase	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Material Production	93.51	9%	2	2.44	2.20	14.63	7.93	14.42
Distribution 1	5.42	1%	5	0.00	0.06	0.50	0.00	0.00
Manufacturing	17.30	2%	4	0.00	0.19	1.48	0.00	-0.54
Distribution 2	83.19	8%	3	0.02	2.00	15.53	0.04	0.17
Filling	0.16	0%	6	0.00	0.03	0.12	0.00	0.00
Distribution 3	796.65	80%	1	0.02	52.42	155.16	0.06	0.70
End of Life	-4.18	0%	7	0.00	0.50	1.68	0.00	0.00
Total	992.05	100%	N/A	2.49	57.39	189.09	8.03	14.75

Component Allocation - Water Emisssions

Component	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Cup	104.85	58%	1	1.91	2.17	14.45	6.34	6.56
Lid	52.86	29%	2	0.44	0.58	6.34	1.40	7.49
Seal	21.92	12%	3	0.10	1.03	9.20	0.15	-0.09
Total	179.63	100%	N/A	2.45	3.78	29.99	7.89	13.96

Water Emissions (Cont'd)

Segment Allocation - Water Emissions

Segment	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Feedstock	64.45	6%	3	1.683	1.514	10.086	5.465	9.936
Material Production	29.06	3%	7	0.759	0.683	4.547	2.464	4.480
D1 Transport	5.42	1%	11	0.000	0.059	0.498	0.000	0.003
D1 Pkg. Transport	0.01	0%	13	0.000	0.000	0.001	0.000	0.000
Manufacturing	17.30	2%	9	0.000	0.186	1.481	0.000	-0.537
D2 1Pkg. Transport	33.26	3%	5	0.000	0.361	3.056	0.001	0.021
D2 2Pkg. Production	44.21	4%	4	0.023	1.572	11.943	0.040	0.143
D2 2Pkg. Transport	5.72	1%	10	0.000	0.062	0.526	0.000	0.004
Filling	0.16	0%	12	0.000	0.030	0.115	0.000	0.000
D3 Product Transpor	403.74	41%	1	0.000	4.383	37.087	0.010	0.255
D3 1Pkg. Transport	28.55	3%	8	0.000	0.310	2.623	0.001	0.018
D3 2Pkg. Production	333.11	34%	2	0.023	47.385	112.578	0.050	0.405
D3 2Pkg. Transport	31.24	3%	6	0.000	0.339	2.870	0.001	0.020
End of Life	-4.18	0%	14	0.000	0.503	1.679	0.001	-0.001
Total	992.05	100%	N/A	2.487	57.388	189.089	8.031	14.747

Water Use

Phase Allocation - Water Use

Phase	Use (liter)	%	Rank
Material Production	167.14	20%	2
Distribution 1	3.28	0%	5
Manufacturing	83.87	10%	3
Distribution 2	76.50	9%	4
Filling	0.00	0%	6
Distribution 3	494.79	60%	1
End of Life	-3.11	0%	7
Total	822.46	100%	N/A

Impact Categories

Phase Allocation - Impact Categories

Phase	GWP(kg CO_2)	%	Rank	ODP (mg CFC-11)	%	Rank	MAC (m^3)	%	Rank
Material Production	49.20	32%	2	0.00	0%	6	68.508	43%	2
Distribution 1	0.48	0%	7	0.00	0%	5	0.766	0%	5
Manufacturing	21.68	14%	3	0.36	12%	3	19.275	12%	3
Distribution 2	7.23	5%	5	0.38	13%	2	7.561	5%	4
Filling	0.58	0%	6	0.00	0%	4	0.114	0%	6
Distribution 3	57.68	38%	1	2.40	84%	1	71.580	45%	1
End of Life	15.40	10%	4	-0.28	-10%	7	-8.053	-5%	7
Total	152.25	100%	N/A	2.87	100%	N/A	159.750	100%	N/A

Stonyfield Farm Master's Project - Results

General

Data Set	12
Designation	8 oz. Dist. 3 Corr. 30%
Functional Unit	1000 lb
Container Size	8 oz.

8 oz. Dist. 3 Cc

Designation	Name	Manufacturer	Process
Component 1	Cup	Polytainers	Injection Molding
Component 2	Lid	Polytainers	Injection Molding
Component 3	Seal	Clear-Lam	Extrusion

Material Inputs

Material	Weight (kg)	%	Rank	Mat. Prod.	%	Rank
Acrylic	0.000	0.0%	N/A	0.00	0.0%	N/A
Aluminum	0.000	0.0%	N/A	0.00	0.0%	N/A
Corrugated	19.084	38.4%	1	548.06	19.3%	3
Cotton Color	0.000	0.0%	N/A	0.00	0.0%	N/A
LLDPE Film	0.380	0.8%	8	34.18	1.2%	6
LDPE	0.273	0.5%	9	22.33	0.8%	9
LLDPE	7.931	16.0%	3	658.15	23.2%	2
Paper Board	0.163	0.3%	10	7.89	0.3%	10
PE	1.101	2.2%	5	87.44	3.1%	4
PET	0.510	1.0%	7	36.98	1.3%	5
PP	18.507	37.3%	2	1385.78	48.9%	1
White Color	0.540	1.1%	6	22.50	0.8%	8
Wood	1.165	2.3%	4	33.14	1.2%	7
Total	49.65	100%	N/A	2836.45	100%	N/A

Energy

Phase Allocation - Energy

Phase	Energy (MJ)	%	Rank	Renewable %
Material Production	2190.85	58%	1	0.76%
Distribution 1	5.74	0%	5	0.09%
Manufacturing	523.54	14%	3	28.08%
Distribution 2	164.08	4%	4	39.24%
Filling	0.12	0%	6	0.00%
Distribution 3	1100.61	29%	2	31.77%
End of Life	-175.82	-5%	7	3.43%
Total	3809.12	100%	N/A	N/A

Component Allocation - Energy

Component	Energy (MJ)	%	Rank	Renewable %
Cup	1702.94	65%	1	6.75%
Lid	799.99	31%	2	5.53%
Seal	111.59	4%	3	6.80%
Total	2614.52	100%	N/A	N/A

Segment Allocation - Energy

Segment	Energy (MJ)	%	Rank	Renewable %
Feedstock	1491.11	39%	1	N/A
Material Production	699.74	18%	2	N/A
D1 Transport	5.74	0%	11	0.09%
D1 Pkg. Transport	0.00	0%	N/A	0.09%
Manufacturing	523.54	14%	4	28.08%
D2 1Pkg. Transport	34.01	1%	8	0.09%
D2 2Pkg. Production	123.94	3%	6	51.92%
D2 2Pkg. Transport	6.13	0%	10	0.09%
Filling	0.12	0%	12	0.00%
D3 Product Transport	501.15	13%	5	0.09%
D3 1Pkg. Transport	29.45	1%	9	0.09%
D3 2Pkg. Production	532.09	14%	3	65.61%
D3 2Pkg. Transport	37.92	1%	7	0.09%
End of Life	-175.82	-5%	14	3.43%
Total	3809.12	100%	N/A	N/A

Scenario J

Solid Waste

Phase Allocation - Solid Waste

Phase	Waste (kg)	%	Rank	Recycled (kg)
Material Production	0.7685	3%	6	0.0000
Distribution 1	0.0215	0%	7	0.0000
Manufacturing	1.5153	5%	3	0.9776
Distribution 2	0.9841	4%	5	3.1529
Filling	0.9963	4%	4	0.0000
Distribution 3	4.9360	18%	2	15.9908
End of Life	18.6151	67%	1	0.0000
Total	27.8368	100%	N/A	20.1212

Component Allocation - Solid Waste

Component	Waste (kg)	%	Rank	Recycled (kg)
Cup	14.6613	65%	1	2.6533
Lid	6.1946	27%	2	1.4641
Seal	1.7963	8%	3	0.0130
Total	22.6523	100%	N/A	4.1305

Segment Allocation - Solid Waste

Segment	Waste (kg)	%	Rank	Recycled (kg)
Feedstock	0.5230	2%	7	0.0000
Material Production	0.2455	1%	8	0.0000
D1 Transport	0.0215	0%	13	0.0000
D1 Pkg. Transport	0.0000	0%	N/A	0.0000
Manufacturing	1.5153	5%	4	0.9776
D2 1Pkg. Transport	0.1276	0%	10	0.0000
D2 2Pkg. Production	0.8335	3%	6	0.0000
D2 2Pkg. Transport	0.0230	0%	12	3.1529
Filling	0.9963	4%	5	0.0000
D3 Product Transport	1.8802	7%	3	0.0000
D3 1Pkg. Transport	0.1105	0%	11	0.0000
D3 2Pkg. Production	2.8031	10%	2	0.0000
D3 2Pkg. Transport	0.1423	1%	9	15.9908
End of Life	18.6151	67%	1	0.0000
Total	27.8368	100%	N/A	20.1212

Air Emissions

Phase Allocation - Air Emissions

Phase	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Material Production	1014.04	44%	1	31.43	386.59	273.42	52.81	257.87	1002.12
Distribution 1	7.67	0%	7	1.14	0.50	4.92	0.26	0.52	7.34
Manufacturing	234.57	10%	3	9.76	4.36	61.08	38.69	63.63	177.53
Distribution 2	92.46	4%	4	10.34	12.52	42.16	3.78	12.03	80.83
Filling	10.32	0%	6	1.57	0.02	0.21	0.05	0.03	1.89
Distribution 3	869.83	38%	2	113.70	69.14	501.75	34.54	82.88	802.00
End of Life	89.87	4%	5	29.29	-1.03	-17.77	-26.73	-39.68	-55.93
Total	2318.75	100%	N/A	197.23	472.10	865.78	103.40	377.29	2015.78

Component Allocation - Air Emissions

Component	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Cup	973.84	69%	1	48.74	253.09	258.19	47.10	222.23	829.34
Lid	339.54	24%	2	21.10	117.84	94.86	13.28	30.08	277.16
Seal	90.75	6%	3	5.89	25.68	21.30	5.48	17.94	76.29
Total	1404.14	100%	N/A	75.72	396.61	374.35	65.85	270.25	1182.78

Air Emissions (Cont'd)

Segment Allocation - Air Emissions

Segment	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Feedstock	690.16	30%	1	21.39	263.12	186.09	35.94	175.51	682.05
Material Production	323.88	14%	3	10.04	123.47	87.33	16.87	82.36	320.07
D1 Transport	7.67	0%	13	1.14	0.50	4.92	0.26	0.52	7.34
D1 Pkg. Transport	0.00	0%	N/A	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing	234.57	10%	4	9.76	4.36	61.08	38.69	63.63	177.53
D2 1Pkg. Transport	43.48	2%	8	5.90	2.97	27.92	1.60	3.08	41.47
D2 2Pkg. Production	41.14	2%	9	3.38	9.02	9.21	1.89	8.39	31.89
D2 2Pkg. Transport	7.83	0%	12	1.06	0.53	5.03	0.29	0.56	7.47
Filling	10.32	0%	11	1.57	0.02	0.21	0.05	0.03	1.89
D3 Product Transpor	640.84	28%	2	86.96	43.69	411.23	23.62	45.41	610.91
D3 1Pkg. Transport	37.66	2%	10	5.11	2.57	24.17	1.39	2.67	35.90
D3 2Pkg. Production	142.85	6%	5	15.04	19.57	35.25	7.75	31.36	108.97
D3 2Pkg. Transport	48.49	2%	7	6.58	3.31	31.11	1.79	3.44	46.22
End of Life	89.87	4%	6	29.29	-1.03	-17.77	-26.73	-39.68	-55.93
Total	2318.75	100%	N/A	197.23	472.10	865.78	103.40	377.29	2015.78

Water Emissions

Phase Allocation - Water Emissions

Phase	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Material Production	76.89	9%	2	2.08	1.82	12.08	6.78	11.63
Distribution 1	4.62	1%	5	0.00	0.05	0.42	0.00	0.00
Manufacturing	14.26	2%	4	0.00	0.15	1.18	0.00	-0.40
Distribution 2	70.89	8%	3	0.02	1.68	12.79	0.04	0.15
Filling	0.12	0%	6	0.00	0.02	0.09	0.00	0.00
Distribution 3	719.40	81%	1	0.03	42.10	130.44	0.07	0.61
End of Life	-3.47	0%	7	0.00	0.42	1.40	0.00	0.00
Total	882.71	100%	N/A	2.13	46.23	158.40	6.89	11.98

Component Allocation - Water Emisssions

Component	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Cup	92.23	62%	1	1.68	1.92	12.74	5.59	5.73
Lid	39.88	27%	2	0.33	0.44	4.78	1.06	5.64
Seal	16.44	11%	3	0.08	0.77	6.90	0.11	-0.07
Total	148.55	100%	N/A	2.09	3.13	24.43	6.76	11.30

Water Emissions (Cont'd)

Segment Allocation - Water Emissions

Segment	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Feedstock	52.33	6%	3	1.417	1.236	8.222	4.617	7.912
Material Production	24.56	3%	7	0.665	0.580	3.859	2.166	3.713
D1 Transport	4.62	1%	11	0.000	0.050	0.425	0.000	0.003
D1 Pkg. Transport	0.00	0%	N/A	0.000	0.000	0.000	0.000	0.000
Manufacturing	14.26	2%	9	0.000	0.147	1.178	0.000	-0.402
D2 1Pkg. Transport	27.40	3%	6	0.000	0.298	2.518	0.001	0.017
D2 2Pkg. Production	38.56	4%	4	0.020	1.328	9.822	0.035	0.127
D2 2Pkg. Transport	4.94	1%	10	0.000	0.054	0.454	0.000	0.003
Filling	0.12	0%	12	0.000	0.023	0.086	0.000	0.000
D3 Product Transpor	403.74	46%	1	0.000	4.383	37.087	0.010	0.255
D3 1Pkg. Transport	23.73	3%	8	0.000	0.258	2.180	0.001	0.015
D3 2Pkg. Production	261.38	30%	2	0.028	37.124	88.364	0.062	0.318
D3 2Pkg. Transport	30.55	3%	5	0.000	0.332	2.806	0.001	0.019
End of Life	-3.47	0%	14	0.000	0.418	1.395	0.001	-0.001
Total	882.71	100%	N/A	2.130	46.229	158.396	6.893	11.981

Water Use

Phase Allocation - Water Use

Phase	Use (liter)	%	Rank
Material Production	129.04	18%	2
Distribution 1	2.79	0%	5
Manufacturing	69.39	10%	3
Distribution 2	63.65	9%	4
Filling	0.00	0%	6
Distribution 3	448.23	63%	1
End of Life	-2.59	0%	7
Total	710.52	100%	N/A

Impact Categories

Phase Allocation - Impact Categories

Phase	GWP(kg CO_2)	%	Rank	ODP (mg CFC-11)	%	Rank	MAC (m^3)	%	Rank
Material Production	41.76	31%	2	0.00	0%	6	57.354	40%	2
Distribution 1	0.41	0%	7	0.00	0%	5	0.653	0%	5
Manufacturing	18.03	13%	3	0.30	13%	3	15.896	11%	3
Distribution 2	6.14	5%	5	0.34	15%	2	6.370	4%	4
Filling	0.43	0%	6	0.00	0%	4	0.085	0%	6
Distribution 3	54.40	41%	1	1.88	82%	1	69.638	49%	1
End of Life	12.80	10%	4	-0.23	-10%	7	-6.692	-5%	7
Total	133.96	100%	N/A	2.29	100%	N/A	143.304	100%	N/A

Stonyfield Farm Master's Project - Results

General

Data Set	13
Designation	6 oz. Dist. 3 Corrugated
Functional Unit	1000 lb
Container Size	6 oz.

6 oz. Dist. 3 Cc

Designation	Name	Manufacturer	Process
Component 1	Cup	Polytainers	Injection Molding
Component 2	Lid	Polytainers	Injection Molding
Component 3	Seal	Clear-Lam	Extrusion

Material Inputs

Material	Weight (kg)	%	Rank	Mat. Prod.	%	Rank
Acrylic	0.000	0.0%	N/A	0.00	0.0%	N/A
Aluminum	0.000	0.0%	N/A	0.00	0.0%	N/A
Corrugated	3.407	8.6%	3	97.83	3.4%	4
Cotton Color	0.971	2.4%	5	45.34	1.6%	6
LLDPE Film	0.327	0.8%	8	29.41	1.0%	7
LDPE	0.305	0.8%	9	25.01	0.9%	9
LLDPE	10.467	26.3%	2	868.58	30.6%	2
Paper Board	0.217	0.5%	10	10.52	0.4%	10
PE	1.467	3.7%	4	116.59	4.1%	3
PET	0.680	1.7%	7	49.31	1.7%	5
PP	20.935	52.7%	1	1567.59	55.2%	1
White Color	0.000	0.0%	N/A	0.00	0.0%	N/A
Wood	0.969	2.4%	6	27.58	1.0%	8
Total	39.75	100%	N/A	2837.76	100%	N/A

Energy

Phase Allocation - Energy

Phase	Energy (MJ)	%	Rank	Renewable %
Material Production	2647.40	69%	1	0.73%
Distribution 1	6.73	0%	5	0.09%
Manufacturing	630.02	16%	2	28.00%
Distribution 2	188.45	5%	4	38.73%
Filling	0.16	0%	6	0.00%
Distribution 3	601.15	16%	3	3.55%
End of Life	-211.57	-5%	7	3.43%
Total	3862.34	100%	N/A	N/A

Component Allocation - Energy

Component	Energy (MJ)	%	Rank	Renewable %
Cup	1939.48	62%	1	6.77%
Lid	1063.48	34%	2	5.54%
Seal	148.78	5%	3	6.80%
Total	3151.74	100%	N/A	N/A

Segment Allocation - Energy

Segment	Energy (MJ)	%	Rank	Renewable %
Feedstock	1824.69	47%	1	N/A
Material Production	822.71	21%	2	N/A
D1 Transport	6.73	0%	11	0.09%
D1 Pkg. Transport	0.01	0%	13	0.09%
Manufacturing	630.02	16%	3	28.00%
D2 1Pkg. Transport	41.28	1%	7	0.09%
D2 2Pkg. Production	140.06	4%	5	52.08%
D2 2Pkg. Transport	7.10	0%	10	0.09%
Filling	0.16	0%	12	0.00%
D3 Product Transport	501.15	13%	4	0.09%
D3 1Pkg. Transport	35.44	1%	8	0.09%
D3 2Pkg. Production	48.36	1%	6	43.07%
D3 2Pkg. Transport	16.20	0%	9	0.09%
End of Life	-211.57	-5%	14	3.43%
Total	3862.34	100%	N/A	N/A

Scenario K

Solid Waste

Phase Allocation - Solid Waste

Phase	Waste (kg)	%	Rank	Recycled (kg)
Material Production	0.9153	3%	6	0.0000
Distribution 1	0.0253	0%	7	0.0000
Manufacturing	1.8318	6%	3	1.1731
Distribution 2	1.1561	4%	5	3.4930
Filling	1.3284	4%	4	0.0000
Distribution 3	2.6054	9%	2	0.6326
End of Life	22.4000	74%	1	0.0000
Total	30.2622	100%	N/A	5.2987

Component Allocation - Solid Waste

Component	Waste (kg)	%	Rank	Recycled (kg)
Cup	16.7241	61%	1	2.6966
Lid	8.2604	30%	2	1.9521
Seal	2.3951	9%	3	0.0174
Total	27.3796	100%	N/A	4.6661

Segment Allocation - Solid Waste

Segment	Waste (kg)	%	Rank	Recycled (kg)
Feedstock	0.6308	2%	6	0.0000
Material Production	0.2844	1%	8	0.0000
D1 Transport	0.0252	0%	13	0.0000
D1 Pkg. Transport	0.0000	0%	14	0.0000
Manufacturing	1.8318	6%	3	1.1731
D2 1Pkg. Transport	0.1549	1%	9	0.0000
D2 2Pkg. Production	0.9745	3%	5	0.0000
D2 2Pkg. Transport	0.0266	0%	12	3.4930
Filling	1.3284	4%	4	0.0000
D3 Product Transport	1.8802	6%	2	0.0000
D3 1Pkg. Transport	0.1330	0%	10	0.0000
D3 2Pkg. Production	0.5315	2%	7	0.0000
D3 2Pkg. Transport	0.0608	0%	11	0.6326
End of Life	22.4000	74%	1	0.0000
Total	30.2622	100%	N/A	5.2987

Air Emissions

Phase Allocation - Air Emissions

Phase	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Material Production	1219.19	49%	1	39.41	468.33	328.58	63.32	303.83	1203.46
Distribution 1	8.99	0%	7	1.34	0.59	5.77	0.31	0.61	8.61
Manufacturing	284.07	11%	3	11.80	5.46	73.74	46.87	77.69	215.56
Distribution 2	109.14	4%	4	12.42	14.50	50.24	4.48	13.95	95.59
Filling	13.76	1%	6	2.10	0.02	0.28	0.07	0.04	2.51
Distribution 3	738.55	30%	2	101.99	55.46	459.53	28.26	56.05	701.28
End of Life	108.14	4%	5	35.24	-1.24	-21.39	-32.16	-47.75	-67.30
Total	2481.84	100%	N/A	204.29	543.12	896.76	111.13	404.43	2159.72

Component Allocation - Air Emissions

Component	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Cup	1108.93	66%	1	55.56	288.22	294.05	53.71	252.51	944.05
Lid	452.49	27%	2	28.07	156.80	126.29	17.78	40.39	369.33
Seal	121.00	7%	3	7.85	34.24	28.40	7.30	23.92	101.71
Total	1682.41	100%	N/A	91.49	479.26	448.73	78.79	316.82	1415.08

Air Emissions (Cont'd)

Segment Allocation - Air Emissions

Segment	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Feedstock	840.32	34%	1	27.16	322.79	226.47	43.64	209.41	829.47
Material Production	378.88	15%	3	12.25	145.54	102.11	19.68	94.42	373.99
D1 Transport	8.98	0%	13	1.33	0.59	5.76	0.31	0.61	8.60
D1 Pkg. Transport	0.01	0%	14	0.00	0.00	0.01	0.00	0.00	0.01
Manufacturing	284.07	11%	4	11.80	5.46	73.74	46.87	77.69	215.56
D2 1Pkg. Transport	52.79	2%	6	7.16	3.60	33.89	1.95	3.74	50.34
D2 2Pkg. Production	47.26	2%	7	4.02	10.28	10.52	2.20	9.57	36.60
D2 2Pkg. Transport	9.08	0%	12	1.23	0.62	5.83	0.33	0.64	8.66
Filling	13.76	1%	11	2.10	0.02	0.28	0.07	0.04	2.51
D3 Product Transpor	640.84	26%	2	86.96	43.69	411.23	23.62	45.41	610.91
D3 1Pkg. Transport	45.32	2%	8	6.15	3.09	29.08	1.67	3.21	43.20
D3 2Pkg. Production	31.69	1%	9	6.06	7.27	5.93	2.21	5.95	27.42
D3 2Pkg. Transport	20.71	1%	10	2.81	1.41	13.29	0.76	1.47	19.74
End of Life	108.14	4%	5	35.24	-1.24	-21.39	-32.16	-47.75	-67.30
Total	2481.84	100%	N/A	204.29	543.12	896.76	111.13	404.43	2159.72

Water Emissions

Phase Allocation - Water Emissions

Phase	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Material Production	93.51	15%	2	2.44	2.20	14.63	7.93	14.42
Distribution 1	5.42	1%	5	0.00	0.06	0.50	0.00	0.00
Manufacturing	17.30	3%	4	0.00	0.19	1.48	0.00	-0.54
Distribution 2	83.19	13%	3	0.02	2.00	15.53	0.04	0.17
Filling	0.16	0%	6	0.00	0.03	0.12	0.00	0.00
Distribution 3	446.80	70%	1	0.02	4.92	41.46	0.06	0.28
End of Life	-4.18	-1%	7	0.00	0.50	1.68	0.00	0.00
Total	642.21	100%	N/A	2.49	9.89	75.40	8.03	14.33

Component Allocation - Water Emisssions

Component	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Cup	104.79	58%	1	1.91	2.17	14.44	6.34	6.56
Lid	52.83	29%	2	0.44	0.58	6.34	1.40	7.49
Seal	21.91	12%	3	0.10	1.03	9.20	0.15	-0.09
Total	179.53	100%	N/A	2.45	3.78	29.98	7.89	13.96

Water Emissions (Cont'd)

Segment Allocation - Water Emissions

Segment	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Feedstock	64.45	10%	2	1.683	1.514	10.086	5.465	9.936
Material Production	29.06	5%	5	0.759	0.683	4.547	2.464	4.480
D1 Transport	5.42	1%	10	0.000	0.059	0.498	0.000	0.003
D1 Pkg. Transport	0.01	0%	13	0.000	0.000	0.001	0.000	0.000
Manufacturing	17.30	3%	7	0.000	0.186	1.481	0.000	-0.537
D2 1Pkg. Transport	33.26	5%	4	0.000	0.361	3.056	0.001	0.021
D2 2Pkg. Production	44.21	7%	3	0.023	1.572	11.943	0.040	0.143
D2 2Pkg. Transport	5.72	1%	9	0.000	0.062	0.526	0.000	0.004
Filling	0.16	0%	12	0.000	0.030	0.115	0.000	0.000
D3 Product Transpor	403.74	63%	1	0.000	4.383	37.087	0.010	0.255
D3 1Pkg. Transport	28.55	4%	6	0.000	0.310	2.623	0.001	0.018
D3 2Pkg. Production	1.46	0%	11	0.023	0.085	0.555	0.050	0.003
D3 2Pkg. Transport	13.05	2%	8	0.000	0.142	1.199	0.000	0.008
End of Life	-4.18	-1%	14	0.000	0.503	1.679	0.001	-0.001
Total	642.21	100%	N/A	2.487	9.891	75.395	8.031	14.333

Water Use

Phase Allocation - Water Use

Phase	Use (liter)	%	Rank
Material Production	167.14	28%	2
Distribution 1	3.28	1%	5
Manufacturing	83.87	14%	3
Distribution 2	76.50	13%	4
Filling	0.00	0%	6
Distribution 3	276.50	46%	1
End of Life	-3.11	-1%	7
Total	604.17	100%	N/A

Impact Categories

Phase Allocation - Impact Categories

Phase	GWP(kg CO_2)	%	Rank	ODP (mg CFC-11)	%	Rank	MAC (m^3)	%	Rank
Material Production	49.20	36%	1	0.00	0%	6	68.508	46%	1
Distribution 1	0.48	0%	7	0.00	0%	5	0.766	1%	5
Manufacturing	21.68	16%	3	0.36	73%	2	19.275	13%	3
Distribution 2	7.23	5%	5	0.38	78%	1	7.561	5%	4
Filling	0.58	0%	6	0.00	0%	4	0.114	0%	6
Distribution 3	41.43	30%	2	0.02	5%	3	61.823	41%	2
End of Life	15.40	11%	4	-0.28	-56%	7	-8.053	-5%	7
Total	136.00	100%	N/A	0.49	100%	N/A	149.993	100%	N/A

Stonyfield Farm Master's Project - Results

General

Data Set	14
Designation	8 oz. Dist. 3 Corrugated
Functional Unit	1000 lb
Container Size	8 oz.

8 oz. Dist. 3 Cc

Designation	Name	Manufacturer	Process
Component 1	Cup	Polytainers	Injection Molding
Component 2	Lid	Polytainers	Injection Molding
Component 3	Seal	Clear-Lam	Extrusion

Material Inputs

Material	Weight (kg)	%	Rank	Mat. Prod.	%	Rank
Acrylic	0.000	0.0%	N/A	0.00	0.0%	N/A
Aluminum	0.000	0.0%	N/A	0.00	0.0%	N/A
Corrugated	3.084	9.2%	3	88.57	3.7%	3
Cotton Color	0.000	0.0%	N/A	0.00	0.0%	N/A
LLDPE Film	0.380	1.1%	8	34.18	1.4%	6
LDPE	0.273	0.8%	9	22.33	0.9%	9
LLDPE	7.931	23.6%	2	658.15	27.7%	2
Paper Board	0.163	0.5%	10	7.89	0.3%	10
PE	1.101	3.3%	5	87.44	3.7%	4
PET	0.510	1.5%	7	36.98	1.6%	5
PP	18.507	55.0%	1	1385.78	58.3%	1
White Color	0.540	1.6%	6	22.50	0.9%	8
Wood	1.165	3.5%	4	33.14	1.4%	7
Total	33.65	100%	N/A	2376.96	100%	N/A

Energy

Phase Allocation - Energy

Phase	Energy (MJ)	%	Rank	Renewable %
Material Production	2190.85	66%	1	0.76%
Distribution 1	5.74	0%	5	0.09%
Manufacturing	523.54	16%	3	28.08%
Distribution 2	164.08	5%	4	39.24%
Filling	0.12	0%	6	0.00%
Distribution 3	611.30	18%	2	4.34%
End of Life	-175.82	-5%	7	3.43%
Total	3319.81	100%	N/A	N/A

Component Allocation - Energy

Component	Energy (MJ)	%	Rank	Renewable %
Cup	1702.89	65%	1	6.75%
Lid	799.97	31%	2	5.53%
Seal	111.59	4%	3	6.80%
Total	2614.45	100%	N/A	N/A

Segment Allocation - Energy

Segment	Energy (MJ)	%	Rank	Renewable %
Feedstock	1491.11	45%	1	N/A
Material Production	699.74	21%	2	N/A
D1 Transport	5.74	0%	11	0.09%
D1 Pkg. Transport	0.00	0%	N/A	0.09%
Manufacturing	523.54	16%	3	28.08%
D2 1Pkg. Transport	34.01	1%	7	0.09%
D2 2Pkg. Production	123.94	4%	5	51.92%
D2 2Pkg. Transport	6.13	0%	10	0.09%
Filling	0.12	0%	12	0.00%
D3 Product Transport	501.15	15%	4	0.09%
D3 1Pkg. Transport	29.45	1%	8	0.09%
D3 2Pkg. Production	60.46	2%	6	43.07%
D3 2Pkg. Transport	20.24	1%	9	0.09%
End of Life	-175.82	-5%	14	3.43%
Total	3319.81	100%	N/A	N/A

Scenario L

Solid Waste

Phase Allocation - Solid Waste

Phase	Waste (kg)	%	Rank	Recycled (kg)
Material Production	0.7685	3%	6	0.0000
Distribution 1	0.0215	0%	7	0.0000
Manufacturing	1.5153	6%	3	0.9776
Distribution 2	0.9841	4%	5	3.1529
Filling	0.9963	4%	4	0.0000
Distribution 3	2.7310	11%	2	0.7908
End of Life	18.6151	73%	1	0.0000
Total	25.6319	100%	N/A	4.9212

Component Allocation - Solid Waste

Component	Waste (kg)	%	Rank	Recycled (kg)
Cup	14.6611	65%	1	2.6533
Lid	6.1945	27%	2	1.4641
Seal	1.7963	8%	3	0.0130
Total	22.6520	100%	N/A	4.1305

Segment Allocation - Solid Waste

Segment	Waste (kg)	%	Rank	Recycled (kg)
Feedstock	0.5230	2%	7	0.0000
Material Production	0.2455	1%	8	0.0000
D1 Transport	0.0215	0%	13	0.0000
D1 Pkg. Transport	0.0000	0%	N/A	0.0000
Manufacturing	1.5153	6%	3	0.9776
D2 1Pkg. Transport	0.1276	0%	9	0.0000
D2 2Pkg. Production	0.8335	3%	5	0.0000
D2 2Pkg. Transport	0.0230	0%	12	3.1529
Filling	0.9963	4%	4	0.0000
D3 Product Transport	1.8802	7%	2	0.0000
D3 1Pkg. Transport	0.1105	0%	10	0.0000
D3 2Pkg. Production	0.6644	3%	6	0.0000
D3 2Pkg. Transport	0.0760	0%	11	0.7908
End of Life	18.6151	73%	1	0.0000
Total	25.6319	100%	N/A	4.9212

Air Emissions

Phase Allocation - Air Emissions

Phase	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Material Production	1014.04	46%	1	31.43	386.59	273.42	52.81	257.87	1002.12
Distribution 1	7.67	0%	7	1.14	0.50	4.92	0.26	0.52	7.34
Manufacturing	234.57	11%	3	9.76	4.36	61.08	38.69	63.63	177.53
Distribution 2	92.46	4%	4	10.34	12.52	42.16	3.78	12.03	80.83
Filling	10.32	0%	6	1.57	0.02	0.21	0.05	0.03	1.89
Distribution 3	743.99	34%	2	103.17	57.11	459.42	28.72	57.36	705.77
End of Life	89.87	4%	5	29.29	-1.03	-17.77	-26.73	-39.68	-55.93
Total	2192.91	100%	N/A	186.70	460.07	823.44	97.58	351.77	1919.55

Component Allocation - Air Emissions

Component	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Cup	973.78	69%	1	48.73	253.08	258.14	47.09	222.22	829.27
Lid	339.51	24%	2	21.09	117.84	94.84	13.28	30.08	277.13
Seal	90.75	6%	3	5.89	25.68	21.30	5.48	17.94	76.28
Total	1404.04	100%	N/A	75.71	396.60	374.28	65.85	270.24	1182.69

Air Emissions (Cont'd)

Segment Allocation - Air Emissions

Segment	Emissions (g)	%	Rank	CO	Hydrocarbons	NOX	Particulates	SOX	Criteria
Feedstock	690.16	31%	1	21.39	263.12	186.09	35.94	175.51	682.05
Material Production	323.88	15%	3	10.04	123.47	87.33	16.87	82.36	320.07
D1 Transport	7.67	0%	13	1.14	0.50	4.92	0.26	0.52	7.34
D1 Pkg. Transport	0.00	0%	N/A	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing	234.57	11%	4	9.76	4.36	61.08	38.69	63.63	177.53
D2 1Pkg. Transport	43.48	2%	6	5.90	2.97	27.92	1.60	3.08	41.47
D2 2Pkg. Production	41.14	2%	7	3.38	9.02	9.21	1.89	8.39	31.89
D2 2Pkg. Transport	7.83	0%	12	1.06	0.53	5.03	0.29	0.56	7.47
Filling	10.32	0%	11	1.57	0.02	0.21	0.05	0.03	1.89
D3 Product Transpor	640.84	29%	2	86.96	43.69	411.23	23.62	45.41	610.91
D3 1Pkg. Transport	37.66	2%	9	5.11	2.57	24.17	1.39	2.67	35.90
D3 2Pkg. Production	39.61	2%	8	7.58	9.08	7.41	2.76	7.44	34.28
D3 2Pkg. Transport	25.89	1%	10	3.51	1.76	16.61	0.95	1.83	24.68
End of Life	89.87	4%	5	29.29	-1.03	-17.77	-26.73	-39.68	-55.93
Total	2192.91	100%	N/A	186.70	460.07	823.44	97.58	351.77	1919.55

Water Emissions

Phase Allocation - Water Emissions

Phase	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Material Production	76.89	13%	2	2.08	1.82	12.08	6.78	11.63
Distribution 1	4.62	1%	5	0.00	0.05	0.42	0.00	0.00
Manufacturing	14.26	2%	4	0.00	0.15	1.18	0.00	-0.40
Distribution 2	70.89	12%	3	0.02	1.68	12.79	0.04	0.15
Filling	0.12	0%	6	0.00	0.02	0.09	0.00	0.00
Distribution 3	445.61	73%	1	0.03	4.92	41.46	0.07	0.28
End of Life	-3.47	-1%	7	0.00	0.42	1.40	0.00	0.00
Total	608.92	100%	N/A	2.13	9.06	69.42	6.89	11.66

Component Allocation - Water Emisssions

Component	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Cup	92.19	62%	1	1.68	1.92	12.74	5.59	5.73
Lid	39.87	27%	2	0.33	0.44	4.78	1.06	5.64
Seal	16.44	11%	3	0.08	0.77	6.90	0.11	-0.07
Total	148.49	100%	N/A	2.09	3.13	24.42	6.76	11.30

Water Emissions (Cont'd)

Segment Allocation - Water Emissions

Segment	Emissions (g)	%	Rank	Acid	BOD	COD	TDS	Metals
Feedstock	52.33	9%	2	1.417	1.236	8.222	4.617	7.912
Material Production	24.56	4%	5	0.665	0.580	3.859	2.166	3.713
D1 Transport	4.62	1%	10	0.000	0.050	0.425	0.000	0.003
D1 Pkg. Transport	0.00	0%	N/A	0.000	0.000	0.000	0.000	0.000
Manufacturing	14.26	2%	8	0.000	0.147	1.178	0.000	-0.402
D2 1Pkg. Transport	27.40	4%	4	0.000	0.298	2.518	0.001	0.017
D2 2Pkg. Production	38.56	6%	3	0.020	1.328	9.822	0.035	0.127
D2 2Pkg. Transport	4.94	1%	9	0.000	0.054	0.454	0.000	0.003
Filling	0.12	0%	12	0.000	0.023	0.086	0.000	0.000
D3 Product Transpor	403.74	66%	1	0.000	4.383	37.087	0.010	0.255
D3 1Pkg. Transport	23.73	4%	6	0.000	0.258	2.180	0.001	0.015
D3 2Pkg. Production	1.83	0%	11	0.028	0.107	0.694	0.062	0.003
D3 2Pkg. Transport	16.31	3%	7	0.000	0.177	1.498	0.000	0.010
End of Life	-3.47	-1%	14	0.000	0.418	1.395	0.001	-0.001
Total	608.92	100%	N/A	2.130	9.058	69.418	6.892	11.657

Water Use

Phase Allocation - Water Use

Phase	Use (liter)	%	Rank
Material Production	129.04	24%	2
Distribution 1	2.79	1%	5
Manufacturing	69.39	13%	3
Distribution 2	63.65	12%	4
Filling	0.00	0%	6
Distribution 3	277.39	51%	1
End of Life	-2.59	0%	7
Total	539.68	100%	N/A

Impact Categories

Phase Allocation - Impact Categories

Phase	GWP(kg CO_2)	%	Rank	ODP (mg CFC-11)	%	Rank	MAC (m^3)	%	Rank
Material Production	41.76	34%	1	0.00	0%	6	57.354	42%	2
Distribution 1	0.41	0%	7	0.00	0%	5	0.653	0%	5
Manufacturing	18.03	15%	3	0.30	69%	2	15.896	12%	3
Distribution 2	6.14	5%	5	0.34	79%	1	6.370	5%	4
Filling	0.43	0%	6	0.00	0%	4	0.085	0%	6
Distribution 3	41.68	34%	2	0.02	5%	3	62.002	46%	1
End of Life	12.80	11%	4	-0.23	-53%	7	-6.692	-5%	7
Total	121.24	100%	N/A	0.43	100%	N/A	135.668	100%	N/A