

Phase IV: Waste Management	Glass		Plastic Pouches	
Recycling Percent	Energy Consumption*		Energy Consumption*	
100%	501.67		4.56	
80%	401.34		3.65	
60%	301.00		2.74	
50%	250.83		2.28	
Reuse (Including Transportation)	Energy Consumption	Water Consumption	Energy Consumption	Water Consumption
95%	277.8	509.1	143.4	25.6
80%	457.5	675.4	(New Plastic Pouches)	(New Plastic Pouches)
60%	697.0	897.2		
Incineration	Energy Recovered		Energy Recovered	
100%	Not Applicable		20.73	
80%			16.58	

*Units: Energy (GJ), Water (Thousand Litres), Fuel (Litres)

Table II: Emissions during Phase I and Phase II for One Lakh Litres of Milk

		Glass	LDPE
Air Emissions			
CO	kg	54.3	0.6
CO ₂	kg	6610.2	760.0
SO _x	kg	134.8	5.2
NO _x	kg	68.1	4.8
CH ₄	kg	39.5	3.2
HCl	kg	5.3	0.0
Dust	kg	67.6	1.4
Water Emission			
Suspended Solids	kg	352.3	0.2
Chlorides	kg	4535.5	0.1

Table III: Emissions during Phase III for One Lakh Litres of Milk

Emissions	gm/km	kg/lakh litres		Excess for Glass Bottles
		Bottles	Pouches	
CO ₂	781	4881.3	2668.7	2212.6
CO	4.5	28.1	15.4	12.7
HC	1.1	6.9	3.8	3.1
NO _x	8	50.0	27.3	22.7
HC+ NO _x	9.1	56.9	31.1	25.8
Particulates	0.36	2.3	1.2	1.1
Total Regulated Tail Pipe Emission	13.96	87.3	47.7	39.6

are organised in two categories: resource utilisation and atmospheric emission.



Emission to Air

The emission of CO₂ for the materials has approximately the same profile. However, the analysis of input effects indicates remarkably high emission of CH₄ emission in case of production of Glass. The comparative study on emission during transportation also shows significantly excess generation of CO, CO₂ and NO_x as compared to that in case of plastic pouches.



Plastic Bag vis-à-vis Jute Bag for 'Atta' Packaging

The study discloses that for producing packaging with plastic film bags for one lakh tons of 'Atta', the raw material required for packaging is only 680 MT. But for the same quantity of packaging with jute bags require 1960 MT of packaging material. The results of this analysis are organized in two categories: resource utilization, water and atmospheric emission.

