



Table 4: Environmental factors related to warehousing

Warehousing				CO ₂	CH ₄	N ₂ O	Total Direct GHG	Usage/Generation Per Year	Total Direct GHG			38460 cubes
Metric	Section	Units	x	Kg CO ₂ per unit	Kg CO ₂ e per unit	Kg CO ₂ e per unit	Kg CO ₂ e per unit	Units	Total Kg CO ₂ e per year	Total Kg CO ₂ e per Day	Capacity (cubes)	Total kg CO ₂ e per cube per day
Carbon and Air Pollutant Emissions	Unit 1	kWh	x	1.03	0	0	1.03	643935.6	663253.6	1817.133	38460	0.0472
	Unit 2	kWh	x	1.03	0	0	1.03	643935.6	663253.6	1817.133	38460	0.0472
	Cool room	kWh	x	1.03	0	0	1.03	131400	135342	370.8	343	1.081
	Freezer	kWh	x	1.03	0	0	1.03	87600	90228	247.2	75	3.296
Liquid Waste generated	Unit 1	Kilolitres	x	1.7807	0	0	1.7807	50	89.035	0.2439	38460	0
	Unit 2	Kilolitres	x	1.7807	0	0	1.7807	50	89.035	0.2439	38460	0
	Cool room	Kilolitres	x	1.7807	0	0	1.7807	5	8.9035	0.0244	343	0
	Freezer	Kilolitres	x	1.7807	0	0	1.7807	5	8.9035	0.0244	75	0.003
Solid Waste Generated	Already Accounted for in Material Handling											
Recyclable Waste	Already Accounted for in Material Handling											



Table 5: Environmental metrics related to distribution

Distribution - Diesel Trucks				CO ₂	CH ₄	N ₂ O	Total Direct GHG	km/litre consumed			38460 cubes
Metric	Vehicle	Truck Percent Utilised	Units	Kg CO ₂ per unit	Kg CO ₂ e per unit	Kg CO ₂ e per unit	Kg CO ₂ e per unit	kilometre	Total Kg CO ₂ e per km	Capacity (cubes)	Total kg CO ₂ e per cube per km
Carbon and Air Pollutant Emissions	1-ton	0	Litre	2.6413	0.0015	0.0292	2.67	10.04	0.266135	3	0.0887
		100	s					8.8	0.303636		0.1012
	4-ton	0	Litre	2.6413	0.0015	0.0292	2.67	5.08	0.525984	12	0.0438
		100	s					4.33	0.61709		0.0514
	8-ton(open)	0	Litre	2.6413	0.0015	0.0292	2.67	5.08	0.525984	36	0.0146
		100	s					4.33	0.61709		0.0171
	8-ton(closed)	0	Litre	2.6413	0.0015	0.0292	2.67	5.08	0.525984	37	0.0142
		100	s					4.33	0.61709		0.0167
18-ton(open)	0	Litre	2.6413	0.0015	0.0292	2.67	3.43	0.779009	102	0.0076	
	100	s					2.38	1.122689		0.011	
Liquid Waste generated											
Solid Waste Generated	Already Accounted for in Material Handling										
Recyclable Waste	Already Accounted for in Material Handling										



Table 6: Transactional data of XYZ Pharmaceuticals

XYZ Pharmaceuticals Warehousing Account															
Month	Inbound Shipment		Warehousing				Distribution orders		Vehicle Selection					Delivery Distance	
	Volume (m ³)	Cube Quantity	Unit 1	Unit 2	Cool Room	Freezer	Volume (m ³)	Cube Quantity	1-ton	4-ton	8-ton closed	8-ton open	18-ton open	Average Delivery Distance (km)	Average Return Distance (km)
Jan	6057.48	4589	2381	1611	85	9	2623	1987	2	3	15	13	12	15.2	15.9
Feb	4711.08	3569	2202	1253	66	7	6057	4589	0	8	20	25	37	16.9	22.6
Mar	7641.48	5789	3572	2032	107	12	6765	5125	3	8	25	26	41	15.2	20.2
Apr	6031.08	4569	2819	1604	85	9	7521	5698	2	11	24	25	49	14.5	14.2
May	8610.36	6523	4025	2290	121	13	8253	6252	0	13	29	20	56	19.5	18.5
Jun	5621.88	4259	2628	1495	79	9	5970	4523	2	8	18	25	37	12.6	19.2
Jul	8610.36	6523	4025	2290	121	13	7859	5954	0	14	28	21	52	22.8	18.9
Aug	6031.08	4569	2819	1604	85	9	7422	5623	0	2	28	18	51	19.4	14.2
Sep	6879.84	5212	3216	1829	96	10	5941	4501	0	2	28	18	51	12.6	15
Oct	5621.88	4259	2628	1495	79	9	6067	4596	2	3	15	19	43	15	20.2
Nov	6021.84	4562	2815	1601	84	9	5577	4225	0	1	14	17	40	15	15
Dec	2620.2	1985	1225	697	37	4	4402	3335	2	1	9	6	36	15	14
Total	74458.6	56408	34804	19799	1044	113	74459	56408	13	74	253	233	505	194	208
Average	11455.2	4701	2900	1650	87	9	6205	4701	1	6	21	19	42	16	17