

# Life Cycle Inventory Data for a Refrigerator

To sum up all the impacts of your product's life cycle, you must create an inventory of everything within your chosen boundaries that causes an environmental impact. This is done after you've spent some time understanding the product and the system(s) that it's a part of. Be sure to document your assumptions and sources.

## Refrigerator Data<sup>1</sup>:

Material	kg	lbs	%	Where used
Steel, primary	47.6	104.8	56%	Refrigerator exterior paneling, structural
Iron	4.5	10	5%	Compressor housing
Aluminum, primary	2.1	4.7	3%	Equipment for refrigeration cycle
Copper, primary	2.7	6	3%	Equipment for refrigeration cycle
Rubber, synthetic	0.2	0.4	0.2%	Seals and gaskets
Polystyrene, primary	6.3	13.8	7%	Shelving, drawers, and interior surfaces
ABS	5.1	11.2	6%	Shelving, drawers, and interior surfaces
PVC	0.5	1.2	1%	Shelving, drawers, and interior surfaces
Polyurethane foam	5.6	12.3	7%	Insulation
Glass	2.9	6.3	3%	Shelving
Refrigerant "R-410A"	0.1	0.2	0%	Refrigerant cycle
Other materials	7.0	15.3	8%	Misc.
<b>TOTALS</b>	<b>84.6</b>	<b>186.2</b>	<b>100%</b>	

Manufacturing
Steel - Cold Rolled
Plastic - Injection molding (except PU foam)
Aluminum - extruded
Iron (compressor) - cast
Copper – wire drawing
Rubber – cast
Glass – sheet

Use	
Lifetime	15 years
Hours / Day Use	24
Power Required (Avg.)	70.0 Watts
Yearly Power Use	613.2 kWh / year

Transport	
Ocean Freight	10,000 km (6,000 mi)
Rail	800 km (500 mi)
Truck	80 km (50 mi)

Disposal
Landfill

<sup>1</sup> SOURCE: Horie, Yuhta Alan. "Life Cycle Optimization of Household Refrigerator-Freezer Replacement." Center for Sustainable Systems, University of Michigan. August 14, 2004. [http://css.snre.umich.edu/css\\_doc/CSS04-13.pdf](http://css.snre.umich.edu/css_doc/CSS04-13.pdf)  
 (+ other assumptions on lifetime and transport methods)