

Environmental Declaration

AC 800M Controller





Figure 1:
The AC 800M
controller

ABB and the Environment

ABB's has been concerned with environmental issues for a long time. Consequently, the group was an early adopter of ISO 14001-based environmental management systems and has formally been certified to that standard for years.

An important component of those systems is Life-cycle Assessments (LCA's) of the group's products. These involve studying the environmental impact of products over their lifetimes by quantifying the input of energy and raw materials needed and the emissions and waste generated throughout the products' lifecycles. These studies are carried out according to the ISO 14040-43 standard and then condensed into environmental performance declarations like this one.

Consequently, the environmental management systems specify how the group's environmental work shall be carried out while the environmental performance declarations describe the results of that work.

The Product Covered by this Declaration

This environmental declaration covers a programmable industrial controller, designated by ABB as AC 800M (figure 1), consisting of a plastic case, containing printed circuit boards, connectors, electrical conductors and fasteners. The product is made for fitting onto a horizontal, metallic, mounting rail.

The gross weight of the unit is approximately 1.2 kg (2.7 lbs.), excluding a 7.5 g (0.3 oz.) lithium battery, and the distribution across constituent materials is illustrated by diagram 1.

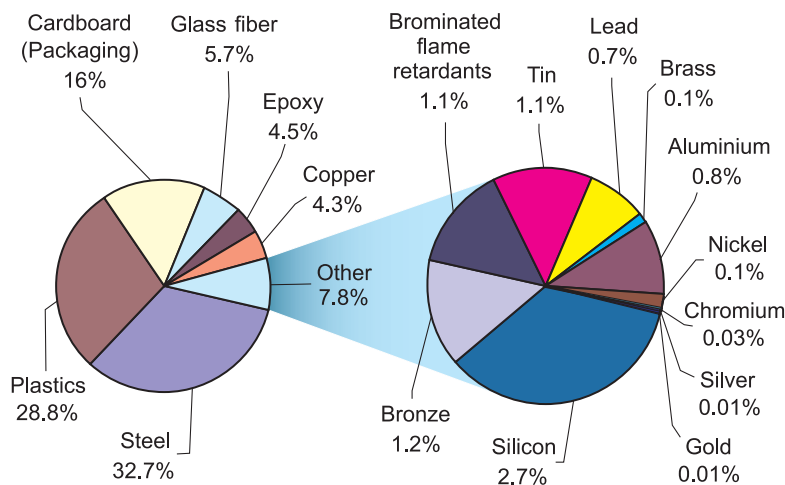


Diagram 1:
Materials make-up of the
AC 800M controller.

Environmental Performance

The lifecycle of AC 800M studied covers the process from raw materials extraction to the end of use, including transport both of the constituent materials to the place of assembly and of the finished product to the place of use.

Table 1 shows the environmental impact of the AC 800M controller on the basis of the following assumptions:

- 1) an average product transport distance of 1,000 km (620 miles),
- 2) a period of continuous operation of ten years,
- 3) an average (European) electricity mix of 10 % gas, 15 % hydro, 36 % nuclear, 10 % oil, 19 % coal and 10 % lignite.

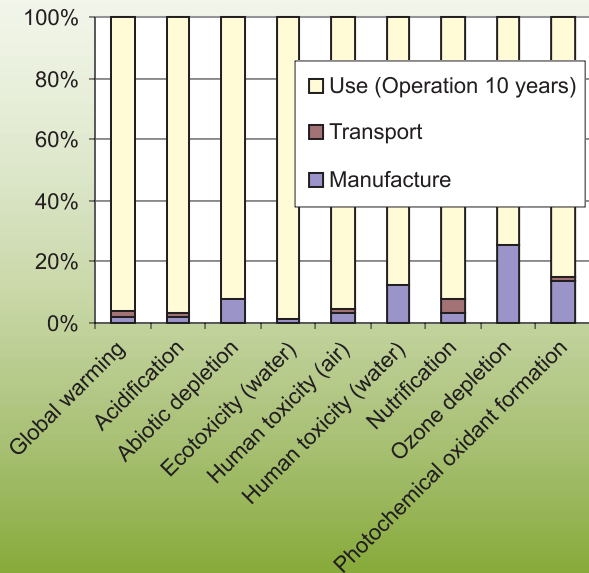
For comparison's sake, the various contributing factors to each impact category are converted to equivalents of a single substance, in accordance with the LCA method.

Diagram 2 shows the distribution of impact by category over the three phases: use, manufacture, and transport:

Environmental impact categories	Amount	Units (equivalents)
Global warming	277 kg (610 lbs.)	Carbon dioxide
Acidification	1.7 kg (3.8 lbs.)	Sulphur dioxide
Abiotic depletion	1.0 kg (2.2 lbs.)	Silver
Nutrification	0.1 kg (0.2 lbs.)	Phosphate
Ozone depletion	2E-5 kg (7E-4 oz.)	CFC-11
Photochemical oxidant formation	0.1 kg (0.2 lbs.)	Ethylene
Ecotoxicity (water)	6E-3 m ³ (366 in ³)	Polluted water exposed to the toxicological acceptable limit
Human toxicity (air)	2.5 kg (5.5 lbs.)	Human body exposed to the toxicological acceptable limit
Human toxicity (water)	3E-3 kg (0.1 oz.)	Human body exposed to the toxicological acceptable limit

Table 1: The environmental impact of AC 800M by category.

Diagram 2: The distribution of environmental impact by category and life-cycle phase.



As can be seen, the dominant impact is related to use of the product, in turn due to its consumption of electrical energy.

Recycling and Disposal

Much of the product can easily be recycled thanks to the facts that:

- 1) it can easily be dismantled using ordinary hand tools,
- 2) mechanical plastic parts are grade-marked,
- 3) the mechanical plastic parts do not contain any metal inlays,
- 4) batteries are easily removed.

Recycling would improve the environmental performance as specified in Table 1 due to recovery of the materials involved.

References

- Life-cycle assessment (LCA), AC 800M, ID No.: 3BSE019674.



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