



Supply of recycled cartridges for printers, PC, copiers and fax

Metropolitan City of Rome Capital

- Supply of recycled (refilled) cartridges for printers, PC, copiers and fax;
- Adoption of minimum environmental criteria developed by the Italian Ministry of Environment for the purchase of recycled cartridges



Imaget: Metropolitan City of Rome Capital

Benchmark

Original toner cartridge

- 0.48 t CO₂e produced in the production phase
- 0.13 toe

GPP 2020 tender

Recycled toner cartridge

- 0.13 t CO₂e produced in the production phase
- 0.04 toe

Results

- 0.35 t CO₂e saved
- 0.1 toe saved

Contract tendered

- Negotiation on Public Administration Electronic Market (MEPA) for the supply of recycled (refilled) cartridges for printers, PC, copiers and fax machines for the offices of the Metropolitan City of Rome Capital;
- The purchase includes 39 Black/White recycled cartridges and 9 colored recycled cartridges;
- The service of collection of used cartridges in compliance with current legislation is included.

Procurement approach

A direct transaction on MEPA was realized, dividing the supply in 2 lots: purchase of recycled cartridges for printers, PC, copiers and fax machines (€ 3,000), and purchase of compatible consumables for printers, PC, copiers and fax machines (€ 4,000);

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Technical specifications	Award Criteria
<p>The shells of the cartridges (refill toner modules or inkjet) must come from the recover of original cartridges.</p> <p>The product must bear an environmental label (Nordic Ecolabel, Der Blaue Engel, Umweltzeichen) or an EPD (Environmental Product Declaration).</p> <p>The powder toner or ink must not contain azo dyes, nor shall it contain mercury, cadmium, lead, hexavalent chromium. Heavy metals may be present only in the form of contamination derived from the production process and must not exceed 100 ppm.</p> <p>The toner or ink must not contain substances classified as carcinogenic, mutagenic, toxic for reproduction.</p> <p>It must not be classified with the following hazardous statements or risk phrases:</p> <p>H 400 (R50); H413 (R53); H410 (R50/53); H412 (R52/53); H411 (R51-53); EUH059 (R59).</p>	<p>Lowest price</p>

Criteria development

The environmental minimum criteria developed within the Italian National Action Plan for Green Public Procurement were used. The criteria were adopted with a Decree of the Ministry on 5 February 2015.

Results

	CO ₂ e Emissions	Energy consumption
Low emissions solution (recycled/refilled cartridge)	133 Kg CO ₂ e	0.04 toe
“Original Equipment Manufacturer” cartridge (Benchmark)	478 Kg CO ₂ e	0.13 toe
Savings	345 Kg CO₂e	0.10 toe

Calculation basis

The following studies and datasets have been examined in order to compare CO₂ emissions of a recycled cartridge with those of a “virgin” one (OEM-Original Equipment Manufacturer):

- Data related to the emissions of the OEM cartridge were extracted from the Ecoinvent dataset (“toner module, laser jet, at plant”):
- Data that refer to the **recycled cartridge** are taken from an EPD (From the Swedish program: The International EPD System), with third party verification according to UNI EN ISO 14025 and compliant with PCR “Parts and accessories of computing machines” (see <http://www.environdec.com/en/Detail/epd497p>);

In both cases greenhouse gas emissions are expressed in terms of global warming potential (GWP) with reference to a 100 year time period.

The functional unit is a single cartridge and LCA borders are constituted by the upstream processes (Upstream module) and the manufacturing processes (Core module), where main savings in terms of GHGs are realised.

Emission factor for an OEM black/white cartridge: 9.947 kg CO₂e

Emission factor for an OEM color cartridge: 10.015 kg CO₂e

Emission factor for a recycled black/white cartridge: 2.690 kg CO₂e

Emission factor for a recycled color cartridge: 3.120 kg CO₂e

Because data for energy consumption is missing, we calculated the energy consumption ourselves by using the following scenario: 50 % of the CO₂e-emissions from the production process derive from electricity consumption (emission factor: 0.405 kg CO₂e/kWh) and 50 % from the consumption of natural gas (emission factor: 0.247 kg CO₂e/kWh).

Lessons Learned

Main benefits to be obtained by the use of recycled cartridges are:

- Reduction of CO₂ emissions;



- o Reduced extraction of raw materials and energy savings from transport;
- o Discharged parts of the original cartridge are recycled and contribute to the implementation of circular economy principles.

Purchases/rental services of IT equipment must include provisions for the use of recycled cartridges so as to avoid compatibility problems.

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About GPP 2020

GPP 2020 aims to mainstream low-carbon procurement across Europe in support of the EU's goals to achieve a 20% reduction in greenhouse gas emissions, a 20% increase in the share of renewable energy and a 20% increase in energy efficiency by 2020.

To this end, GPP 2020 will implement more than 100 low-carbon tenders, which will directly result in substantial CO₂ savings. Moreover, GPP 2020 is running a capacity building programme that includes trainings and exchange. – www.gpp2020.eu

About PRIMES



Across six countries in Europe; Denmark, Sweden, Latvia, Croatia, France and Italy, PRIMES project seeks to help municipalities overcome barriers in GPP processes, many of which lack capacity and knowledge.

PRIMES aims to develop basic skills and provide hands-on support for public purchasing organisations in order to overcome barriers and implement Green Public Purchasing. This will consequently result in energy savings and CO₂ reductions. – www.primes-eu.net



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