

EPD

MICRORAPID CLEANING SERVICES

Validated Environmental Product Declaration



VALIDATION N°

S-P-00287

UN CPC CODE

853 Professional
Cleaning Services for
Buildings

PROGRAMME

The International
EPD[®] System
www.environdec.com

PROGRAMME OPERATOR

EPD International AB

GEOGRAPHICAL AREA

Europa



PUBLICATION DATE

25/08/2011

DATE OF REVISION

28/09/2020

DATE OF VALIDITY

28/09/2025

REVISION

14

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PRESENTATION OF THE COMPANY AND THE SERVICE



► È COSÌ SRL



Headquarters of
È COSÌ



È COSÌ produces **DETERGENTS** and **DISINFECTANTS** and designs effective and cutting-edge **CLEANING SYSTEMS**. High quality and respect for the environment are the characteristics of a company that can count on over 120 products. Founded in 1998 in Forlì, È COSÌ has a branch in Trento, one in Hungary and has activated an internationalization process to export to Spain, the Netherlands, Germany, Austria, Switzerland and Eastern Europe.

Leading the professional hygiene sector towards a complete ecological revolution is the main goal. The company has developed an **ECO-SUSTAINABLE** ECOLABEL line and an ICEA certified **ECO-DETERGENCY** line. The packaging and the bottles are made with completely **RECYCLED MATERIALS**.

The Forlì site is equipped with 636 solar panels with a total production capacity of 150 kW / h which covers 40% of the annual energy requirement. In addition, the purifiers treat 1600 cubic meters of industrial waste per year, re-balancing the pH and isolating substances that are hazardous to the environment.

È COSÌ also adopts the **LIFE CYCLE THINKING** (LCT) thanks to which it can evaluate the set of interactions with the environment. It is the only company in Europe to produce EPD (Environmental Product Declaration) certified detergents. It has also acquired the EU Ecolabel license for some chemicals. È COSÌ systems and products are applicable in all sectors, with particular reference to the healthcare, welfare, hotel, catering, production and civil sectors.

È COSÌ has implemented and **CERTIFIED** the following management systems to date: **QUALITY SYSTEM** (ISO9001), **ENVIRONMENTAL MANAGEMENT SYSTEM** (ISO14001), **OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM** (ISO 45001), **ETHICS MANAGEMENT SYSTEM CORPORATE SOCIAL**, **ENERGY MANAGEMENT SYSTEM** (ISO50001) and **FOOD SAFETY MANAGEMENT SYSTEM** (ISO2200).

► FALPI SRL



Headquarters of
FALPI



Established in 1987 and located in Trivero (Valdilana), FALPI has quickly established itself as one of the most dynamic and innovative companies in the field of the production of items for industrial cleaning. Wide product range, production **FLEXIBILITY**, **QUALITY** of the service and **QUICK** delivery times are the principal features that characterise the company.

In the complex of the two production lines, **TEXTILE** and **MECHANICS**, FALPI makes available to companies, hospitals and public areas, more than 1.500 items that cover all areas and meet all the requirements of industrial cleaning: from complete cleaning trolleys to spare parts for use.

FALPI products are generally designed and manufactured **IN-HOUSE** using automated production lines, supported by manual activities in the finishing phase and quality controls.

Customizable according to the customer's needs, FALPI products are mainly made with recyclable materials and the **ENVIRONMENTAL REQUIREMENTS** are taken into account right from the design stages, both in the choice of materials and in the organization of the production process. The environmental policy and good company practice imply that all new processes and / or modifications to them are introduced by carefully evaluating the type of substances and energy sources necessary in order to eliminate, where possible, or minimize the level of emissions; since 2008 FALPI has invested significant technical and economic resources by pursuing the continuous improvement of environmental efficiency through three sustainability projects: **PHOTOVOLTAIC SYSTEM**, **EPD** and **ECOLABEL**.

Up till now FALPI has implemented and certified its **QUALITY SYSTEM**, **ENVIRONMENTAL MANAGEMENT SYSTEM**, **MANAGEMENT SYSTEM FOR SOCIAL BUSINESS ETHICS**.

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► DESCRIPTION OF THE **SERVICE**

Professional cleaning service allows obtaining high water and product **SAVING**.

The **SERVICE** necessarily envisages the combination of the products, **MANUFACTURED ENTIRELY IN ITALY** by (Falpi Srl and ÈCOSÌ Srl), the use of machinery, tools, supplies and the application of specific procedures for cleaning, sanitation, security and control, considered in the LCA study.

In particular, **FALPI SRL** produces **CLEANING EQUIPMENT** consisting of the stainless steel trolley called Microrapid, which is already equipped with its own validated EPD (registration no. S-P-00153) together with the SMART series.

ÈCOSÌ produces **DETERGENTS**, or all the products needed to clean the different types of surfaces: floor, walls, windows, sanitary fixtures, etc.

Soligena Consortium is the exclusive distributor of the Microrapid system at a National level.

MICRORAPID is today the most used cleaning system adopted by over 100 hospitals, 86 RSA (care homes) and case homes and more than 100 districts.

Professional cleaning systems can be used to clean **HORIZONTAL SURFACES** (floors), **VERTICAL SURFACES** (walls and windows) and to **DUST FURNITURE**.

The Microrapid system consists of:

- Trolley without using liquid bottles (no free water and detergent solutions);
- Microfibre cloths (Microrapid-Mop);
- 2 containers with 30 pre-impregnated Mops.

The **MICRORAPID SYSTEM** has been improved over time with the fundamental aid of cleaning operators, and the development of procedures and equipments to be adopted for cleaning systems, to end up with the creation of the trolley, on which the Microrapid system is based.

Therefore, the procedures to carry out when supplying the service are standardised in order to achieve **MAXIMUM BENEFIT** from the equipments and detergents used.

The cleaning service is carried out with the aid of a **SERIES OF MACHINES** permanently kept in the hospital: washers, scrubbing machines, liquid vacuum, vacuum cleaners, floor sweeping machines, etc..., stainless steel **TROLLEYS** of FALPI SRL, cleaning **EQUIPMENT** and related accessories like buckets, gloves, brooms, etc...

The **TROLLEY** average service life is **10 YEARS**, thereafter the trolley is entirely replaced.

The expected average life of the other **MACHINES** is **7 YEARS**.

THE TOTAL POWER CAPACITY OF THE EQUIPMENTS IS 111 kW

LIST OF MATERIALS USED IN THE MACHINERY AND EQUIPMENT OF THE CLEANING SYSTEM	%
Stainless Steel	33,5%
Galvanized Iron	36,7%
Cast Iron	1,8%
Polypropylene	27,6%
Aluminium	0,4%

► SITE DESCRIPTION

The data used for the LCA study and the EPD have been collected at the **HOSPITAL G.B. MORGAGNI - L. PIERANTONI** in Forlì, in which the cleaning service is performed every day.

In detail, the hospital occupies a surface of **86.500 m²** which is the overall surface where the cleaning service object of the study is applied and to which all data have been standardised. According to the PCR, the **BUILDING** is a **MEDIUM SIZE** so that the results of this EPD can be compared only with same-size buildings.

ENVIRONMENTAL PERFORMANCE DECLARATION



► METHOD USED

This EPD has been prepared in compliance with the requirements provided for by the **GENERAL PROGRAMME INSTRUCTIONS FOR ENVIRONMENTAL PRODUCT DECLARATIONS** (version 2.5), by PCR 2011:03 vers. 2.0 of 2016-10-13, by ISO 14025 and ISO 14040 standards.

The environmental performances have been identified and quantified using the Life Cycle Analysis method (**LCA**).

Aim of the EPD is the assessment of the environmental impact associated with the cleaning service of 1 m² kept cleaned in a period of 1 year.

The EPD is destined to customers, employees, service and material suppliers, contractors and the community..

THE FUNCTIONAL UNIT, OBJECT OF THE STUDY, IS 1,00 M² KEPT CLEANED IN A PERIOD OF 1 YEAR

The **DATA** used in this study have been divided into **SPECIFIC, SELECTED GENERIC** and other **GENERIC** data. All data were obtained **DIRECTLY** through interviews and questionnaire filling in at the companies FALPI, ECOSì and the Hospital "GB Morgagni - L. Pierantoni", Forlì. The data relating to the production of the trolley have been taken from its validated **EPD** (year 2016, registration no. S-P-00153).

The LCA study was based on the Hospital "G.B. Morgagni - L. Pierantoni", Forlì that consists of a medium-sized hospital **WHERE CLEANING SERVICE IS CARRIED OUT EVERY DAY EXCLUSIVELY USING THE MICRORAPID SYSTEM** for horizontal and vertical surfaces, as well as for furniture dusting.

All the data involved refer to the **SERVICE YEAR 2019**.

The environmental impact caused by **PROXY DATA** was **LESS THAN 1,5%** of the total **ENVIRONMENTAL IMPACT** in all the categories taken into consideration in this EPD.

The calculation method used in this study is the SimaPro whose database Ecoinvent supplied data regarding the production of fuels and electric energy, the production of constituent material and transport.

► SYSTEM BOUNDARIES

The boundaries of the analysed system, in compliance with PCR 2011:03, included the following life cycle phases:

● UP-STREAM PROCESSES

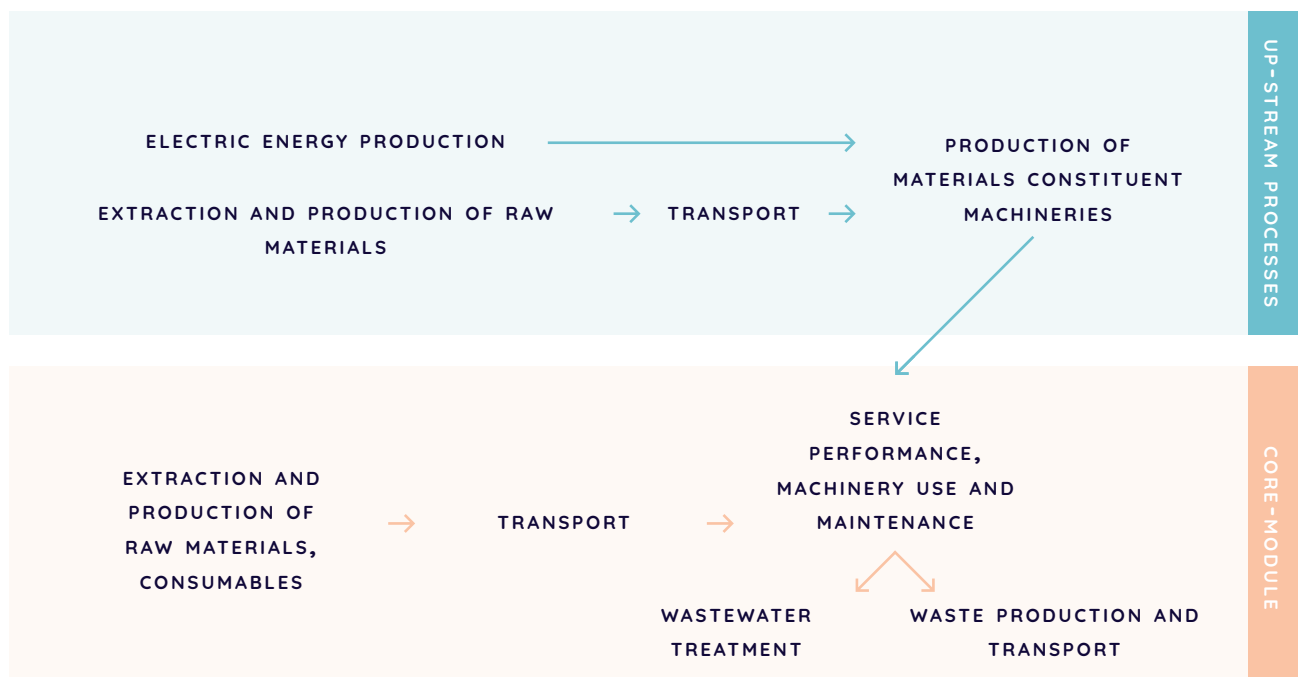
including extraction and production of raw materials necessary to manufacture machines and accessories (trolleys, washing machines, scrubbing machine, etc...), as well as the production of electric energy necessary to produce the materials and their transports.

● CORE MODULE

including:

- › Extraction and production of raw materials necessary to produce consumables like detergents, acid soaps, waxes, gloves, textiles, bags, etc;
- › Transport of products (detergents, soaps, waxes, gloves, etc ...) to the hospital;
- › Use of the machinery for service performance in terms of energy and water consumption;
- › Maintenance in terms of components replacement in order to keep the service at efficient levels;
- › Waste and wastewater treatment.

The transport of persons and machinery has been excluded because they permanently stay at the hospital. As far as the down-stream processes included in the reference PCR are concerned, their impact has been measured not in quantitative terms but only in qualitative terms in accordance with the instructions provided for in the reference PCR sheet.



The resource consumptions related to the functional unit (1 m²) in one year are reported below.

TABLE 1 - CONSUMPTION OF RESOURCES PER CLEANED M²/YEAR

PARAMETER		U.M.	UP-STREAM	CORE-MODULE	TOTAL
Primary Energy Resources - Renewables	Use as an energy carrier	MJ, net calorific value	0,129	3,636	3,765
	Use as a raw material	MJ, net calorific value	0,011	1,057	1,068
	TOTALE	MJ, net calorific value	0,140	4,693	4,833
Primary Energy Resources - Non-Renewables	Use as an energy carrier	MJ, net calorific value	0,646	64,760	65,405
	Use as a raw material	MJ, net calorific value	0,463	22,820	23,283
	TOTALE	MJ, net calorific value	1,109	87,580	88,689
Secondary material		kg	-	-	-
Renewable secondary fuels		MJ	-	-	-
Non-renewable secondary fuels		MJ	-	-	-
Net water consumption		m ³	0,001	0,028	0,029

TABLE 2 - ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE CLEANED M²/YEAR

PARAMETER		U.M.	UP-STREAM	CORE-MODULE	TOTAL
Potential Greenhouse Effect (GWP)	Fossile	kg CO ₂ eq	0,072	4,521	4,592
	Biogenico	kg CO ₂ eq	0,002	0,371	0,373
	Uso del suolo	kg CO ₂ eq	< 0,001	0,001	0,001
	TOTALE	kg CO₂ eq	0,074	4,893	4,967
Acidification (AP)		kg SO ₂ eq	< 0,001	0,013	0,014
Eutrophication (EP)		kg PO ₄ ³⁻ eq	< 0,001	0,002	0,002
Formation of photochemical oxidant (POFP)		kg NMVOC eq	< 0,001	0,010	0,010
Abiotic exhaustion - Elements		kg Sb eq	< 0,001	< 0,001	< 0,001
Abiotic exhaustion - Fossil fuels		MJ, net calorific value	0,954	71,716	72,670
Water scarcity (WSI)		m ³ eq	0,013	1,005	1,018

TABLE 3 - WASTE PRODUCTION ASSOCIATED WITH THE CLEANED M²/YEAR

PARAMETER	U.M.	UP-STREAM	CORE-MODULE	TOTAL
Hazardous waste disposed	kg	< 0,001	< 0,001	< 0,001
Non-hazardous waste disposed	kg	< 0,001	0,331	0,331
Radioactive waste disposed	kg	< 0,001	< 0,001	< 0,001

TABLE 4 - OUTPUT FLOWS ASSOCIATED WITH THE CLEANED M²/YEAR

PARAMETER	U.M.	UP-STREAM	CORE-MODULE	TOTAL
Components for reuse	kg	-	-	-
Material for recycling	kg	-	-	-
Materials for energy recovery	kg	-	-	-
Exported energy, electricity	MJ	-	-	-
Exported energy, thermal	MJ	-	-	-

THE CLEANING SERVICE DOES NOT PRODUCE HAZARDOUS AND RADIOACTIVE WASTE. The cleaning system allows a **SIGNIFICANT REDUCTION OF WATER CONSUMPTION**, because it is based on the use of the trolley, without using cans of liquids (not water nor cleaning agents).

The wastewater are managed by the sanitary structure where the service is supplied, that provides to the relevant treatment.

OTHER INFORMATION



► OTHER INFORMATION

TABLE 4 - OTHER ENVIRONMENTAL INDICATORS PER CLEANED M²/YEAR

OTHER INDICATORS	U.M.	CORE-MODULE
Direct use of toxic substances in the core process	kg/m ²	0,017
Direct use of electrical energy in the core processes	kWh/m ²	5,00

The emission factor used for the electrical energy consumption (residual mix) is 0,748 kg of fossil CO₂eq/kWh.

► END-OF-LIFE PRODUCTS

Information on product life cycle has been derived from the features of the machinery material constituents.

In particular, **FALPI SRL** has chosen to **MANUFACTURE ALMOST ENTIRELY RECYCLABLE PRODUCTS**, and for the family of stainless steel trolleys has created a withdrawal **SERVICE FOR END-OF-LIFE PRODUCTS**: the customers participating in this service can agree the delivery of their end-of-life trolleys with resellers and dealers, and FALPI SRL will provide for their withdrawal and start the reuse procedures of the trolley components.

The trolley is made using almost entirely **RECYCLABLE MATERIALS** (more of the 90% of the overall trolley weight), with the only exception of the wheels.

► INTERPRETATION

Based on the results obtained by the LCA study, one can make the following considerations:

In all impact and resource consumption categories the core module proves to be the one with greater impact;

Therefore, the greatest impact derives from the cleaning service performance rather than from the production of the machines, trolleys and accessories needed to the cleaning service itself;

The reason for the core module greater impact is due to the energy consumption of the machines, water consumption as well as of all other consumables (detergents, surfactants, clothes) used to carry out the service;

Also with regard to waste production, the higher contribution of the core module is evident compared to up-stream processes, since wastes are essentially ascribable to the packing of all consumables used;

Similar considerations can be made with regard to water consumption, which is clearly higher in the core module, principally to operate the various machines.

Since the environmental indicators have changed compared to the currently registered version of the EPD, it is not possible to make a comparison.

INFORMATION AND REFERENCES



► INFORMATION

EPDs within the same service category but from different programmes may not be comparable.

Environmental results related to cleaning services of different size (small, medium, large) should be not compared. This Environmental Product Declaration and other information thereof are available on the website of "Programme Operator EPD International AB": www.environdec.com

Programme operator of the International EPD System: EPD International AB

Product category Rules (PCR): professional cleaning services for buildings, PCR 2011:3 ver. 2.1 del 12/03/2019	
PCR review conducted by: The Technical Committee of the International EPD System. Contact via: info@environdec.com Review Chair: Maurizio Fieschi	
Independent Verification of the declaration and data, according to ISO 14025:2006 <input type="checkbox"/> EPD Process Certification	<input checked="" type="checkbox"/> EPD Verification
Independent verifier: Independent Verifier: Adriana Del Borghi, adry@unige.it Accredited by: International EPD System (www.environdec.com)	
Procedure for follow-up of data during EPD validity involves third party verifier: <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	

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► REFERENCES

- Product Category Rules for preparing an environmental product declaration for professional cleaning services for buildings (PCR 2011:3 vers. 2.1 of 2016/10/13, UN CPC 971).
- General Programme instructions for Environmental Product Declarations (versione 3.0, www.environdec.com)
- EPD Microrapid e SMART trolleys, SP-00153 of 18/04/2017 of FALPI.
- Life Cycle Analysis (LCA) applied to clearing service, rev. 19 of 18/09/2020 of È Così e Falpi
- European Reference Life Cycle Data System (ELCD) <http://lca.jrc.ec.europa.eu>
- PE Plastics Europe (former APME Association of Plastics Manufacturers in Europe) www.plasticseurope.org
- IISI (International Iron and Steel Institute) www.worldsteel.org
- EAA (European Aluminium Association) www.aluminium.org
- Sima Pro vers. 8
- Ecoinvent vers 3
- ISO 14025, ISO 14040

► GLOSSARIO

— AP ACIDIFICATION

Due to this phenomenon rainfalls have a pH lower than the standard value and may damage forests and vegetal crops as well as water ecosystems and constructions. Mainly it is the result of the emission of SO₂, NO_x and NH₃, which are included in the indicator Acidification Potential (AP) expressed in equivalent Kg SO₂-.

— EP EUTROPHICATION

The accelerate growth of plants due to the presence in the water ecosystem of excessive quantities of nourishing substances like nitrogen, phosphorus or sulphur from either natural or anthropic sources and the consequent degradation of the weak environment. The EP indicator (Eutrophication Potential) is expressed in equivalent grams kg PO₄³⁻.

— POCP PHOTOCHEMICAL OZONE FORMATION:

Production of compounds which under the light may generate an oxidation reaction that causes the production of ozone in the stratosphere. POCP Indicator (Photochemical Ozone Creation Potential) includes above all the emissions of Volatile Organic Compounds (VOC) and is expressed in equivalent ethylene grams (g C₂H₄).

— GWP 100 GLOBAL WARMING POTENTIAL

Indicator that includes first the emission of carbon dioxide, main greenhouse gas as well as other gases with minor absorption level of infrared rays, like methane (CH₄), nitrous oxide (N₂O), chlorofluorocarbide (CFC). The indicator is expressed on the base of the CO₂ (g CO₂) absorption level.

— LCA

Life Cycle Assessment.

— PCR

Product Category Rules.