



# Environmental Product Declaration



## Cleaning inox trolley of the "MICRORAPID" family

**Validated Environmental Product Declaration**

**UN CPC code:** 4993 Group 499 Other transport equipment and parts thereof

**Validation no.:** S-P-00153

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## Presentation of the Company and the Service

### Description of the Company

<b>Name</b>	FALPI SRL	<b>Headquarters</b>	13832 PONZONE (BI)
<b>Telephone</b>	015.7387777	<b>Fax</b>	015.7388226
<b>E-mail</b>	<a href="mailto:falpi@falpi.com">falpi@falpi.com</a>	<b>Website</b>	<a href="http://www.falpi.com">www.falpi.com</a>
<b>Number of employees</b>	<b>15</b>		
<b>Certifications</b>	<ul style="list-style-type: none"><li>• Certified Quality System according to UNI EN ISO 9001:2008, certification no. 10033/03/S issued by RINA SPA;</li><li>• Environmental Management System certified according to UNI EN ISO 14001, certification no. EMS-1318 issued by RINA SPA;</li><li>• Company ethical and social management system, certified according to SA 8000 standard, certification no. SA-54 issued by RINA SPA.</li></ul>		

Established in 1987 and located in Ponzone, in the Municipality of Trivero, FALPI SRL asserted itself as one of the most dynamic and innovative companies in the field of the production of items for industrial cleaning. The company is located in an industrial district mainly composed of textile businesses with special reference to the production of clothing textiles. Wide product range, production flexibility, quality of the service and quick delivery times are the principal features that characterise the company.



**Fig.1 – Headquarters of FALPI SRL)**

With its two textile and mechanical production lines FALPI SRL offers Companies, hospitals and public areas more than 1.000 items that cover all the areas and meet all the requirements of industrial cleaning: from completely equipped cleaning trolleys to spare parts. FALPI products are usually designed and realised in-house using automated production lines combined with manual activities in the finishing and quality control. FALPI products can be customised according to the customer needs and are mainly manufactured with recyclable materials; since

the initial phases the design has taken the environmental requirements into account both in the selection of the materials as well as in the organisation of the production process.

The environmental policy and appropriate company's rules imply the introduction and use of new processes and/or changes thereof only after having carefully assessed the type of substances and energy sources necessary either to eliminate (whenever possible) or to reduce the emission level to a minimum.

FALPI SRL management has chosen to improve the characteristics of its products in terms of performance and reliability applying a transparent management of the ethics, safety and environment related aspects, in order to increase the confidence of its customers, suppliers and all those concerned.

In 2002 the company started the implementation of a Quality System in compliance with UNI EN ISO 9001. In 2004 FALPI SRL decided to extend its quality system even to the social accountability principles provided for by SA 8000 technical standard and then since 2005 it has decided to integrate the company policy with consideration of the principles for a safe and environment friendly workplace through an integrated management system conforming to ISO 14001 and OHSAS 18001 standard. Since 2008 Falpi invested in technical and economic resources to obtain a continuous improvement of the environmental efficiency, through three main projects of environmental sustainability: photovoltaic installation, EPD and Ecolabel

### Description of the Product

This EPD refers to the trolleys of the Microrapid family listed below for a total of 21 models.:

- MICRORAPID 2
- MICRORAPID 1
- MICRORAPID 1 BIGFOOT
- MICROTECH MAX1
- MICROTECH MAX2
- MICRORAPID BIGFOOT MARKAS SYSTEM
- MICRORAPID i-SYSTEM
- MICRORAPID ECO SYSTEM
- MICROTECH NANO
- MICRORAPID 2 BIGFOOT
- MICRORAPID 1 with Micropensile
- MICRORAPID 1 BIGFOOT with Micropensile
- MICRORAPID 2 with Micropensile
- **MICRORAPID 2 BIGFOOT with Micropensile**
- MICRORAPID COMPACT
- MICRORAPID COMPACT BIGFOOT
- MICRORAPID COMPACT PLUS
- MICRORAPID 2012
- MICRORAPID 2012 BIGFOOT
- MICRORAPID 2012 with Micropensile
- MICRORAPID 2012 BIGFOOT with Microlift

The trolleys differ for 2 additional modules on demand and specific for the MICRORAPID family:

- MICROPENSILE
- MICROLIFT

In addition to Microrapid family, the company manufactures other types of trolley (Mop, service, chromium-plated, Rilsan, inox, hotel, Monorapid, Rapid) and a whole range of textiles (brooms).

In the LCA study, according to the PCR 2008:7 vers. 1.2, the most impacting trolley was considered as the representative of the Microrapid family: the Microrapid trolley MR2 BigFoot with micropensile (named Microrapid trolley in the following), produced at Falpi plant. In 2012 (year of reference for the data used to update the LCA study), no. 3.215 trolleys in the various range versions were constructed; of these no. 266 trolleys belong to the Microrapid family in the 21 options offered and no. 1 to the Microrapid MR2 BigFoot with Micropensile.

The stainless steel Microrapid trolley is used for industrial cleaning. This very stout trolley has been designed for the micro fibres use with low water and detergent consumption. Thanks to the applied construction methods it is specifically suitable for medical sector, for which it has been designed. It is used as "worktable" for professional cleaning operators. Thanks to its shape and accessories, it contains and transports all the necessary for any cleaning operation. Microrapid is delivered already assembled and unpacked, according to the means of transport used for delivery to the customer. The composition of the component materials of Microrapid trolley is shown in the table below.

	kg/trolley	%
stainless steel	23,43	64,46
polypropylene	8,24	22,66
nylon	2,46	6,78
polyester	1,06	2,9
galvanised iron	0,76	2,1
acetal resin (POM)	0,31	0,84
PVC	0,08	0,23
polyethylene	0,01	0,03
<b>Total</b>	<b>36,35</b>	<b>100</b>

**Table 1** – Composition of the component materials of Microrapid trolley

## Environmental Performance Declaration

### Methodology

This EPD has been prepared in compliance with the requirements provided for by the General Programme instructions for Environmental Product Declarations (The International EPD Cooperation – IEC – version 1.0 dated 2008-02-29), by PCR 2008:7 vers 1.2, by ISO 14025 and ISO 14040 standards. The environmental performance has been identified and quantified using the Life Cycle Analysis method (LCA). Aim of this EPD is the assessment of the environmental impact related to the production of a Microrapid trolley. The EPD is destined to customers, employees, service and material suppliers, contractors and the community.

The functional unit of the study is one Microrapid trolley Microrapid MR2 BF with Micropensile

The data used in this study have been divided into specific data, selected generic data and other generic data.

**Specific data** have been collected at FALPI SRL factory and refer to 2012.

The environmental impact caused by **other generic data** was less than 2% of the total environmental impact in all the categories taken into consideration in this EPD.

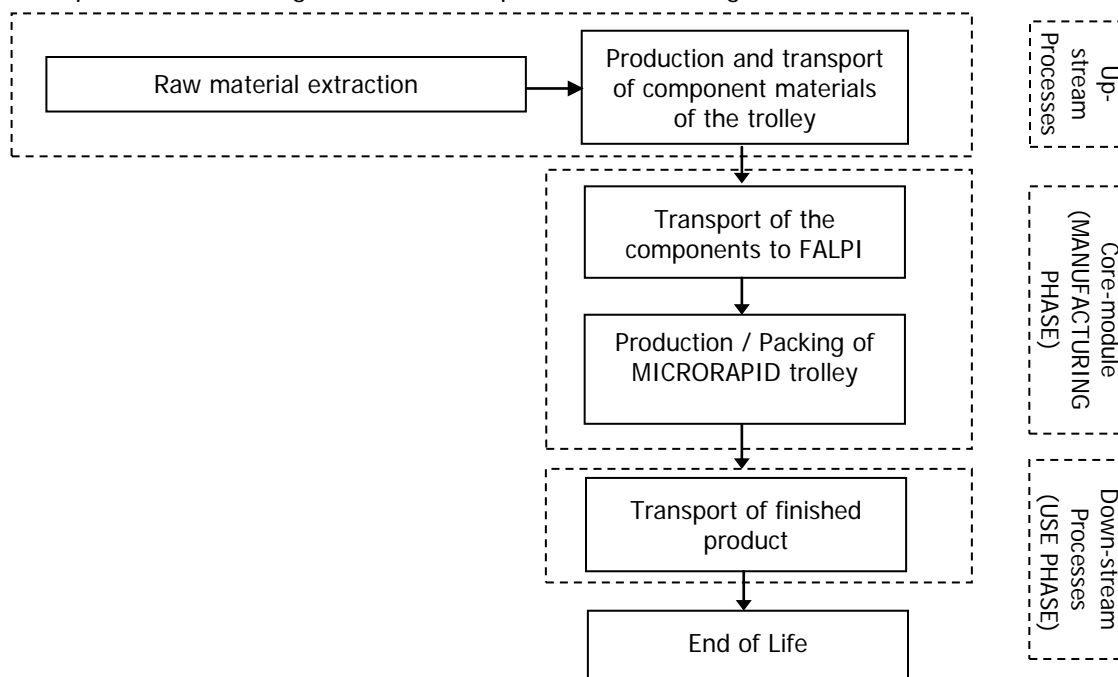
The calculation method used to produce this study is Simapro vers. 7.3.3.

## System Boundaries

The boundaries of the analysed system, in compliance with PCR 2008:7 vers 1.2, included the following life cycle phases:

- ✓ **Up-stream processes:** corresponding to the production of the component materials of the trolley (such as steel, plastic..), excluding the manufacture of the components (structure, screws, etc...). It's included the transport of the materials to the manufacturing plants, where the components are produced.
- ✓ **Core Module:** corresponding to the manufacture of Microrapid trolley at the factory, including the component transport to the assembling factory (Falpi) and the packaging, that is however removed before delivery.
- ✓ **Down-stream Processes:** corresponding to the vehicle transport of the finished product to the end customer and the maintenance of the trolley under use.

Microrapid is realised using the mechanical process shown in figure 2.



**Figure 2** – Flow chart of the Life cycle of Microrapid trolley.

The environmental results related to the functional unit (**1 Microrapid trolley**) are reported below.

## Resources Consumption

Resources Consumption	Up-Stream Processes	Core Module	Down-Stream Processes	Total
Non-renewable resources - materials	kg	kg	kg	kg
<b>Total</b>	<b>25,32</b>	<b>0,61</b>	<b>-</b>	<b>25,93</b>
of which:				
Graphite	12,14	-	-	12,14
Iron	5,77	0,04	-	5,81
Limestone	5,3	0,05	-	5,35
Dolomite	1,13	-	-	1,13

**Table 2** – Consumption of non-renewable resources - materials associated to Microrapid trolley.

Resources Consumption	Up-Stream Processes		Core Module		Down-Stream Processes		Total	
Non-renewable resources for energy purpose	kg	MJ	kg	MJ	kg	MJ	kg	MJ
<b>Total</b>	<b>30,88</b>	<b>1754,28</b>	<b>10,8</b>	<b>610,10</b>	<b>0,4</b>	<b>17,87</b>	<b>42,07</b>	<b>2382,25</b>
of which:								
Coal	12,9	361,20	-	-	-	-	12,9	361,20
Oil	11,09	499,23	0,87	38,94	0,37	16,63	12,33	554,80
Gas	6,9	372,50	9,92	535,4	0,02	0,98	16,84	908,88
Nuclear	-	74,83	-	16,63	-	0,15	-	91,61

**Table 3** – Consumption of non-renewable resources with energy content associated to Microrapid trolley.

Resources Consumption	Up-Stream Processes		Core Module	Down-Stream Processes		Total
Renewable resources - materials	kg		kg	kg		kg
<b>Total</b>	<b>-</b>		<b>-</b>	<b>-</b>		<b>-</b>

**Table 4** – Consumption of renewable resources - materials associated to Microrapid trolley.

Resources Consumption	Up-Stream Processes	Core Module	Down-Stream Processes	Total
Renewable resources for energy purpose	MJ	MJ	MJ	MJ
<b>Total</b>	<b>0,38</b>	<b>1,87</b>	<b>-</b>	<b>2,25</b>
of which:				
Photovoltaic	0,31	1,87	-	2,18
Geothermal	0,07	-	-	0,07

**Table 5** – Consumption of renewable resources with energy content associated to Microrapid trolley.

Consumption of resources	Up-Stream Processes	Core Module	Down-Stream Processes	Total
<b>Water consumption</b>	kg	kg	kg	kg
Water	1.614,13	203,82	2,64	1.820,59

**Table 6** – Consumption of water resources associated to Microrapid trolley.

Electric consumption	Up-Stream Processes	Core Module	Down-Stream Processes	Total
	Mj	Mj	Mj	Mj
Electricity	-	9,45	-	9,45

**Table 7** – Electricity consumption associated to Microrapid trolley.

## Environmental Performance

Impact category	u.m.	Up-Stream Processes	Core Module	Down-Stream Processes	Total
<b>GWP 100</b>	kg CO <sub>2</sub>	122,75	35,55	1,28	159,58
<b>AP</b>	kg SO <sub>2</sub>	0,52	0,04	<0,01	0,56
<b>POCP</b>	kg C <sub>2</sub> H <sub>4</sub>	0,08	0,01	<0,01	0,09
<b>EP</b>	kg PO <sub>4</sub> <sup>3-</sup>	0,05	<0,01	<0,01	0,059
<b>ODP</b>	kg CFC11	<0,01	<0,01	<0,01	<0,01

**Table 8** – Potential environmental impacts associated to Microrapid trolley.

## Other indicators

	Up-Stream Processes	Core Module	Down-Stream Processes	Total
<b>Waste (kg)</b>				
Hazardous waste	-	-	-	-
Other waste	42,98	3,19	-	46,17
Material subject for the recycling		3,19		3,19
<b>Other indicators</b>				
Ratio of the recycled material in the product				-
Ratio of material in the product that can be recycled in the end of life				90%

**Table 9** – Additional environmental information associated with Microrapid trolley.

The waste and materials for recycling reported in table 9 in the Core Module are those produced by FALPI SRL itself, which generates no hazardous waste. All types of waste relevant to the trolley production (iron, steel filings and chips) are sent to suitable recycling systems.

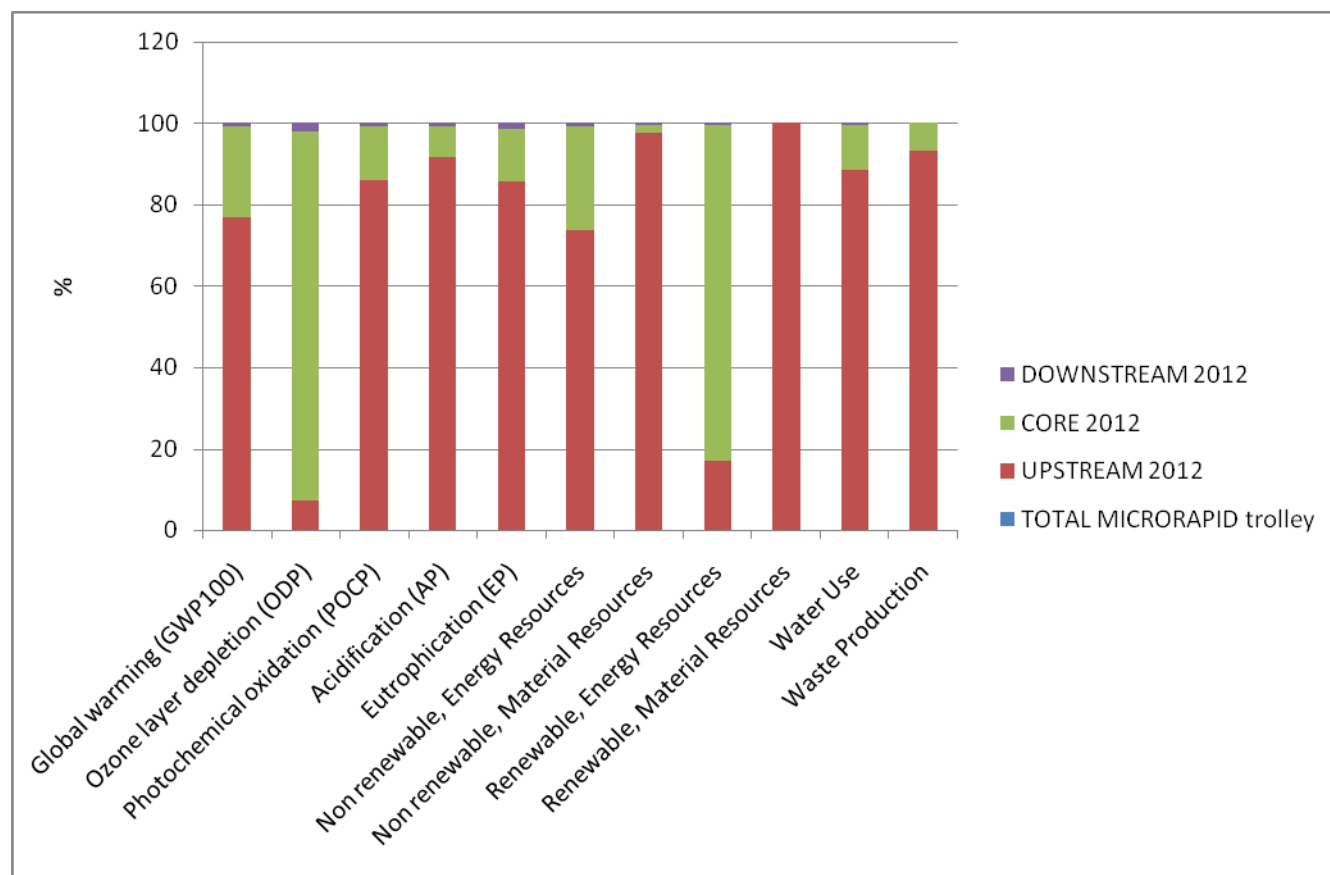
FALPI SRL chose to produce items that are almost totally recyclable and in particular, for the family of stainless steel trolleys it started a service for the collection of the product at its lifetime end: those customers who will

agree to the service, will be able to return the trolleys at the end of their lifetime, subject to prior agreement with dealers/agents, FALPI SRL will provide for the collection and start the recovery operations of the components. In particular Microrapid trolley is realised with almost exclusively recyclable materials (about 90% of the total weight of the trolley), with the exclusion of the wheels. The average trolley lifetime is 6 years, after such period the trolley is entirely replaced. As far as its maintenance is concerned, according to historical data no significant requests for spare parts are reported.

On the basis of the final results of the LCA study, most of the environmental impacts are generated by the **Up-stream Processes** in all the impact categories considered.

The **up-stream-processes** are the processes before the gate of FALPI SRL factory, related to the supply and the choice of the components used by FALPI SRL.

The environmental impacts of the Up-stream processes are due to the production of constituent material of the trolley's components and only the selection of the trolley component materials may reduce the impacts connected to this phase, while taking however the peculiar features of the trolley itself into account.



**Figure 3** – Environmental results of the LCA study, subdivided into Up-Stream Processes, Core Module and Down-Stream Processes.



The **Core Module** impacts refer to the Production phase and the relevant activities (assembling, welding, electric and raw material consumption, etc.), which are carried out directly at the factory of FALPI SRL, and include the transport of components. Considering the results, such activities have a quite relevant contribution to the environmental impacts categories. Such impacts can be minimised by adopting suitable improvement programs under the direct control of the company, including the selection of the component suppliers (in particular for the steel) and the control of the plant consumption (in particular the natural gas).

The impacts due to **Down-Stream processes** represent the activities carried out at the factory (distribution, maintenance, disposal, etc.). As this EPD has considered the disposal of the trolley at its end lifetime only from a quality point of view and the trolley maintenance (spare parts for the components) during its use has turned to be marginal, the result is that the total impacts of the Down-Stream processes is almost exclusively due to the distribution of the Microrapid trolley to FALPI SRL customers.

Therefore, a feasible improvement aimed at reducing the environmental impacts related to MICRORAPID could be obtained by optimising the trolley distribution, the number of delivery tours made by the vehicles, the number of the transported trolleys and by using transport vehicles with lower environmental impact.

## Information and References

### Information

EPD in the same category of product, but from different programs could be not comparable. This Environmental Product Declaration and other information thereof are available on the website of "The International EPD Cooperation – IEC": [www.environdec.com](http://www.environdec.com)

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**Geographic area:** Europe

**Reference person at FALPI SRL:** Andrea Loro Piana

**Headquarters:** 13832 PONZONE (BI)

**Telephone:** 015.7387777

**Fax:** 015.7388226

**E-mail:** [falpi.@falpi.com](mailto:falpi.@falpi.com)

**Website:** [www.falpi.com](http://www.falpi.com)

### References

- Product Category Rules for preparing an environmental product declaration for cleaning stainless steel trolley (PCR 2008:07), version 1.2 of 17/12/2012
- General Programme instructions for Environmental Product Declarations (The International EPD Cooperation – IEC – version 1.0 dated 2008-02-29, [www.environdec.com](http://www.environdec.com)).
- Life Cycle Analysis (LCA) applied to Microrapid 2, rev. 03 of 09/06/2010 by FALPI S.p.A.
- Updated version of Life Cycle Analysis (LCA) applied to Microrapid 2, rev. 4 of 25/05/2011 by FALPI.

- Renewal of the Life Cycle Analysis (LCA) applied to Microrapid family, Ed.2 rev.2 of 12/03/2012 by FALPI.
- Updated version of the Life Cycle Analysis (LCA) applied to Microrapid family, Ed.3 rev.1 of 06/04/2013 by 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](http://www.plasticseurope.org) IISI (International Iron and Steel Institute) [www.worldsteel.org](http://www.worldsteel.org)
- Simapro vers. 7.3.3 and databases of PCR
- ISO 14025
- ISO 14040

**PCR review conducted by:** Michela Gallo - PCR Moderator  
 CE.Si.S.P., Centre for the Development of Products Sustainability – University of Genoa  
[michela.gallo@unige.it](mailto:michela.gallo@unige.it)

**Independent Verification of the declaration and data, according to ISO 14025:**

☐ Internal ☒ External

**Third party verifier:**

**RINA Services S.p.A. Via Corsica 12, I-16128 Genova (Italy)**

**Ph: +39 010 53851 Fax: +39 010 5351000 [www.rina.org](http://www.rina.org)**

**ACCREDIA Accreditation Reg. n.: 001H**

## Glossary

**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 SO<sub>2</sub>, NO<sub>x</sub> and NH<sub>3</sub>, which are included in the indicator Acidification Potential (AP) expressed in kg SO<sub>2</sub>.

**DEPLETION OF THE OZONE LAYER:** degradation of the stratosphere ozone layer which serves to block the ultraviolet sun rays. The degradation is caused by compounds originated from chlorofluorocarbide (CFC) or chlorofluoromethane (CFM). The substance used as reference for ODP (Ozone Depletion Potential) is trichlorofluoromethane or CFC-11.

**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 kg PO<sub>4</sub><sup>3-</sup>.

**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 C<sub>2</sub>H<sub>4</sub>).

**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 (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), chlorofluorocarbide (CFC). The indicator is expressed on the base of the CO<sub>2</sub> (g CO<sub>2</sub>) absorption level.

**LCA:** Life Cycle Assessment

**PCR:** Product Category Rules