

green tube*

> 95% POST CONSUMER RECYCLED ALUMINIUM TUBES DIAMETERS: 28, 31.2 & 40mm

*Prototype awarded in 2020



THE INTERNATIONAL EPD® SYSTEM

Environmental Product Declaration

In accordance with ISO 14025:2010

EPD REGISTRATION NUMBER: S-P-05057

PUBLICATION DATE: 2022/01/14 VALIDITY DATE: 2022/12/26

REVISION DATE:

PROGRAMME: The International EPD® System

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Green tube:Something we are proud of





Alltub's **Green tube**, not yet on the market, was awarded **"Tube of the Year"** by the European Tube Manufacturers Association (ETMA) and subsequently **"WORLDSTAR WINNER 2021"** by the World Packaging Organisation (WPO) with the following motivation:

The use of PCR in no way detracts from the tube's positive properties and outstanding performance: it retains all the benefits associated with product protection and meets all other consumer requirements and expectations perfectly, regardless of the product in question. This is because the closures, internal varnishes and combinations of different printing options that are used for virgin aluminium tubes can also be used for the Green tube. A water-based transparent base lacquer was used for the Green tube prototypes to emphasise the aluminium's natural appearance. This further underlines the green orientation of the tube. A green landscape nature print complements and rounds off this design concept and, as far as the design and layout are concerned, sums up the tube's philosophy in a visually appealing manner*

The Green tube, in its various customized versions and produced in other Alltub's business units, has been launched on the market starting from the end of 2020 in partnership with our customers.

*Official Media Release "Tube of the Year 2020: the dominating themes are sustainability, consumerfriendly solutions and innovative product ideas" Düsseldorf, 12 August 2020











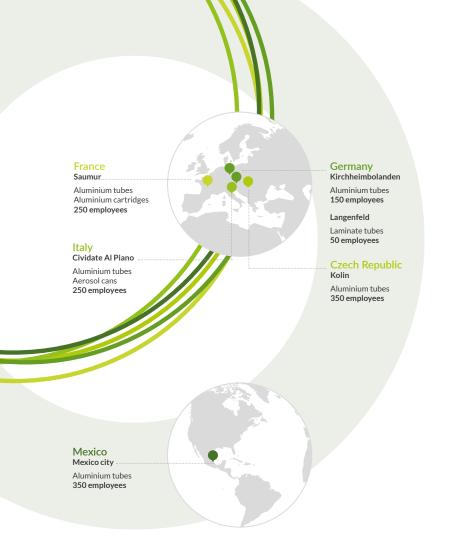




The **ALLTUB GROUP** is an integrated global aluminium packaging specialist producing aluminium tubes, laminate tubes, aluminium cans and aluminium cartridges.

With a global market share of over 10% (over 20% in Europe and North America)*, the Alltub Group is the worldwide leader in the manufacture and supply of collapsible aluminum tubes.

^{*}source : estimation based on the European Tube Manufacturers Association (ETMA) statistics.















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Company presentation

With **five production sites in Europe** and **one in Mexico** and a global sales network, ALLTUB GROUP is the perfect partner for customers requiring stylish, completely airtight and **100% recyclable packaging**.

Employing **1,350 people worldwide** and generating over 150 million Euros of annual sales, the ALLTUB GROUP has over 70 production lines manufacturing over 1.5 billion units per year.

All plants are certified ISO 9001 with additional certifications such as ISO 14001 (Alltub Central Europe s.r.o and Alltub France SAS), ISO 15378, ISO 50000 (Alltub Deutschland) and ISO 22000, BRC IoP, as well as Drug Master File registrations with the US FDA and Health Canada.

This EPD is based on primary data of the Alltub Italia's plant where the green tube was developed.

DIAMETER (mm)			11	13,5	16	19	22	25	28	30	31.2	32	35	40	50
LENGTH			55	55	65	85	90	100	120	120	125	130	130	130	150
(mm)			70	95	105	130	150	165	190	190	190	190	200	215	200
FILL VOLUME			2	5	8	15	20	27	50	50	67	70	85	115	200
(ml)			3	10	14	25	45	60	80	95	109	115	135	200	250
	56	INJ		•	•	•	•								
		INJ				•	•								
	68	OP		•	•	•									
		OR		•											
		CN	•	•	•	•									
	М7	INJ	•	•	•	•									
		OP	•	•	•	•	•								
	M8	CN													
		CN		•	•	•	•	•							
	82	INJ				•	•			•				•	
		OP			•	•		•							
		CN								•					
	M9 OP EM	INJ				•	•		•				•		
		OP		•	•	•	•	•	•		•				
		EM		•	•				•	•					
		OR				•		•	•				•		
THREAD	92	OP				•	•	•							
		EM						•							
	110	OP				•	•	•	•	•		•	•	•	•
		OR											•		
		OP				•	•	•	•	•	•	•	•	•	•
	M11	INJ						•		•					
	14111	OR						•		•					
		CN													
	M12	OR								•			•		
		EM				•	•	•							
	M13	EM					•	•		•			•	•	
	135	EM					•	•	•	•			•		
	133	OP												•	•
		EM								•			•	•	
	M15	OP							•	•	•	•	•	•	•
		OR							•	•			•	•	•
	M18	OP												•	•



Company









Company presentation: Range of products

The green tube is produced at Alltub's plants in Cividate (Italy), Saumur (France), Kirchheimbolanden (Germany), Kolin (Czech Republic) and Mexico City (Mexico).

Tube sizes range from 2ml up to 250ml fill volumes with a large variety of cap styles available.

Alltub's product data sheet provides comprehensive details of the tube sizes available, complete with corresponding thread designs/dispensing mechanisms and in accordance with the cap type to be applied onto the tube.

The reference plant for this EPD upon which data was submitted and analysed is Alltub Italia and the products considered are aluminium tubes with dimensions 28 x 150mm, 31.2 x 185mm and 40 x 195mm.











ALLTUB GROUP aluminium tube technical data sheet





Company











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Content leclaration

Environmental performance

Additional information & references

Company vision & values

ALLTUB GROUP is an **aluminium packaging** specialist, worldwide leader in **collapsible tubes**. The group provides sustainable solutions for customers in the pharmaceutical, cosmetic, food and industrial markets.

ALLTUB GROUP thrives to be the best partner in providing added value in **sustainable aluminium packaging solutions** both globally and locally, by relying on high quality standards and passionate employees.

ALLTUB GROUP has strong values:

- Respect
- Continuous improvement
- Walk the talk and be consistent
- Discipline
- Team-work
- Trust















Company

Company vision & values

Sustainability is at the core of the business of Alltub Group.

Alltub Group is inspired by the Ellen Macarthur foundation* and its case studies which present circular economy success stories from around the world, showing how businesses, governments and cities are transforming our economy into one that works for people and the environment.

Alltub Group has developed its own in-house team of experts in sustainability.

This EPD demonstrates the first results of the **strategy** and **commitment** established by Alltub.

^{*}source: https://ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview













Company

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Content declaration

Environmental performance

Additional informatio & references

ALLTUB Group has set itself the rule of respecting the environment and promoting continuous improvement in environmental protection. Alltub Group is committed to sustainably upholding the goal of environmental protection for current and future generations*.

The next decade will be critical in terms of **environmental challenges**. Decisions should be taken to limit global temperatures rise, to ensure clean air and water, stable climate and safe food for tomorrow.

As implementing sustainable solutions is a key driver, **ALLTUB GROUP** is continuously working on **finding better ways** to make its operations and products more efficient and environmentally friendly. **By respecting nature** and its exhaustible resources, by strongly believing that **recyclable and recycled aluminium** is key for the future in the packaging industry.

ALLTUB Group continuously shapes the market, challenges the industry, supports changes and trends, brings innovations to the customers.

Alltub Group is proud to measure the environmental impact and performance of its products and communicate in a transparent way for consumers and employees. The main goal of this EPD is **providing data for customers** who would like to publish their own EPD with **Alltub Group products**.

This EPD has been approved by the ALLTUB Group's Executive Committee.

*source : Alltub Group Code of Conduct support for sustainable development (6)













Product

Content eclaration

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Product: aluminium tube general information

Thanks to their **incredible properties and characteristics**, aluminium tubes can be used in many different sectors for a wide range of products and applications, and are the perfect choice for a wide range of packaging styles from vintage to trendy packaging for cosmetics.

Aluminium is a **permanent material** and can be **recycled infinitely**.

Recycling or recycled contents is more than a trend it's a company commitment, especially today.

(Re)turning to aluminium is a **pertinent solution** for many brands and producers. Before the rise of plastics, most toothpastes, creams and ointments were packed in aluminium tubes. **Lightweight and malleable**, aluminium is popular with designers, and its natural, authentic image chimes with the current consumer climate.

^{*}source: http://www.aluminium-tubes.org/history.html







Product







Content Environmenta declaration performance

Product: aluminium tube general information

The collapsible aluminium tube is a tried and tested packing solution which has existed for many decades across all continents of the world.

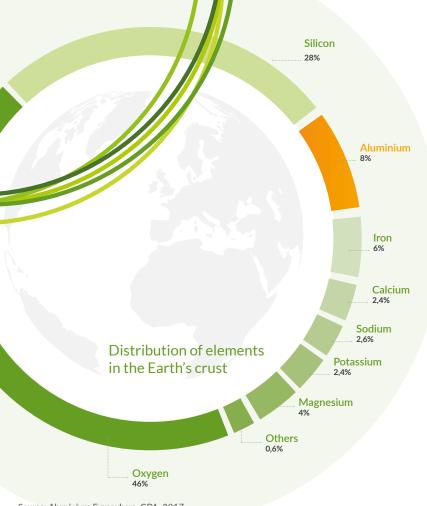
The first squeezable metal tube was born in 1841 in America for paint.

Beginning in 1886, attempts were made to fill aluminium tubes with contents other than paint such as toothpaste in 1887. The first attempts to use aluminium for the industrial production of tubes came in 1913. The first year with a high production rate was 1920, and thereafter the number rose greatly during the 1920s and 30s. In 1939, the aluminium tube celebrated its victory over the other materials used up until then. After more than 175 years ago of history as a material for high-quality packaging, the aluminium tube is still a success story.

All industries today, whether they produce pharmaceuticals, cosmetics, paint or pasty chemicals for technical use, rely on the aluminium tube as the premium packaging for their precious products, and they will continue to do so in the future*.

^{*}source: http://www.aluminium-tubes.org/history.html

^{**}source: https://www.kilmerhouse.com













Company

Product

performance

Additional informati & references

Product / general information: the material

Aluminium is everywhere

Aluminium is the third most abundant element in the Earth's crust: it accounts for as much as 8%, with oxygen accounting for 46% and silicon 28%. It means aluminium is the most abundant metal.

The source of aluminium is bauxite, which through the Bayer process is converted into alumina. In turn the alumina is converted into aluminium through electrolysis.

65 million tonnes* of primary aluminium are produced every year. In addition, more than 30 million tonnes** of recycled aluminium are produced from melted down aluminium scraps. The trend is upwards because the global demand for aluminium is increasing, the green tube is a perfect example of this trend!

Almost 75 per cent of the 1.5 billion tonnes of Aluminium ever produced is still in use today***.

Source: Aluminium Everywhere, GDA, 2017

^{*}source: *https:/international-aluminium.org.statistics/primary-aluminium-production/

^{**}https://international-aluminium.org/work_areas/recycling/

^{***}https://international-aluminium.org/work_areas/recycling/













Product

Content declaration

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Additional information & references

Product: the green tube project

While abundant, natural resources are not infinite.

It is from this awareness, shared worldwide, that Circular Economy initiatives take their cue.

Respect - for any kind of resource, human and natural, continuous improvement - in goals and technology, walk the talk and be consistent, have always been part of Alltub's philosophy and practice.

Our approach applied to the Circular Economy gave life to the Green tube project: an aluminium tube with post-consumer recycled content but with all the technical characteristics of the virgin aluminium tube.

The challenge of the project was a tube:

- Composed of the highest possible post consumer recycled aluminium content
- Suitable for all applications and for all markets
- Providing no reduction in functionality or performance for the consumer compared to a virgin aluminium tube
- Remaining perfectly recyclable at the end-of-life







Product







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Product: the green tube challenge

Aluminium is known to be totally and infinitely recyclable material. Although remelted as part of the recycling process, recycled aluminium retains the same technical and mechanical performance as virgin aluminium.

The initial primary aluminum production cycle is an energy-intensive process (electrolitical process) but being a 100% recyclable metal, the life of metals can be greatly prolonged, with a significantly reduced energy-consuming process.

In fact, recycling and subsequent remelting saves 95%* of the energy required to produce primary aluminium thus generating a "virtuous circle" of energy saving.

The material needed to manufacture aluminium slugs must have specific characteristics that allow mechanical extrusion: the slugs must have a degree of purity of aluminum greater than 99%, while the other metals in the alloy (i.e. iron, titanium, manganese, silicon) must remain below 1%.

The challenge for the green tube is having accesss to a high purity level of recycled aluminium at source.

*Sources: https://www.cial.it/riciclo-alluminio/

https://www.aluminium.org/industries/production/secondary-production













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Additional information & references

Product: the green tube recycled material

How post consumer recycled aluminium is made:

After sorting, the aluminum waste collected from the market then pressed into bales, and it's sent for recycling in the foundry. Basically here the material is pre-treated at about 500° to be purged from paints or other adhering substances and then melted around at 800° to obtain liquid aluminum from which PCR ingots and PCR slugs are obtained, destined to be processed for the production of semi-finished products and new products. Recycled aluminum has similar properties and quality as the original aluminum and is used in many sectors.

ALLTUB GROUP sends its process waste for recycling, obtaining, in return, recycled material to be used in new production.







Product







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Product: the green tube

How post consumer recycled aluminium is made:

The growing social attention to sustainability also supported by the growing number of aluminum producers who are investing in equipment to clean the material themselves, has prompted European scrap processors, to produce high-quality, high-purity aluminum ready for melting.

Thanks to solid relationships with its supply chain, Alltub Group can access recycled material of adequate quality for applications in very sensitive sectors, and thanks to a deep knowledge of processes and products, it offers its customers a 100% recycled tube with the same performance of virgin metal but containing **more than 95% post-consumer** and up to 5% post-industrial recycled material.

The Green tube is the outcome of Alltub Group's technical knowledge, close collaboration with slug suppliers and its attention to customer needs, in order to actively contribute to an effective Circular Economy.











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Product

declaration

Environmental performance

Additional informatio & references

Product description / Technical information

ALUMINIUM TUBE	TUBE DIAMETER 28 mm	TUBE DIAMETER 31.2 mm	TUBE DIAMETER 40 mm	
Diameter mm	Diameter mm 28		40	
Lenght mm	150	185	195	
Material	Recycled Aluminium*	Recycled Aluminium*	Recycled Aluminium*	
Nozzle orifice	Closed with membrane	Closed with membrane	Closed with membrane	
Shoulder	Brush-finished	Brush-finished	Brush-finished	
Thread ISO std	M11, M15	M11, M13, M15	M11, M13, M15	
	Epoxy-phenolic / BPA NI	Epoxy-phenolic / BPA NI	Epoxy-phenolic / BPA NI	
Enamel	Polyester resins	Polyester resins	Polyester resins	
Inks	Polyester resins	Polyester resins	Polyester resins	
Standard open end tube not enamelled mm	2	2	2	
	Acrylic resins	Acrylic resins	Acrylic resins	
Weight g	6.00	7.85	12.00	
PLASTIC CAP				
Material	PP plastic	PP plastic	PP plastic	
Thread ISO std	M11, M15	M11, M13, M15	M11, M13, M15	
Colour	Several colours	Several colours	Several colours	
Weight g	1.5	1.5	1.5	

^{*} PCR >95%, PIR < 5%

The product complies with the requirements for "materials and articles intended to come into contact with food" (EU Framework Regulation (EC) No. 1935/2004 and Regulation (EC) No. 2023/2006)













Additional informat & references

Content declaration: regulatory compliance

The ALLTUB Group is a downstream user and manufacturer of articles, the collapsible aluminium tubes, in the meaning of the European chemical legislation REACH (Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals).

We exclusively process at our European sites raw materials, which comply with the REACH Regulation including the CLP Regulation (EC) No 1272/2008 (Classification, labelling and packaging of substances and mixtures), and we fulfil all REACH obligations as applicable to packaging manufacturers.

The ALLTUB Group strongly avoids using raw materials containing more than 0.1% by weight of Substances of Very High Concern (SVHC) published to the Candidate List for Authorisation according to Article 59(10) of REACH. However, we will fulfil the REACH obligations to submit relevant data to ECHA via the SCIP database and will inform our customers, if different.

GHS, the Globally Harmonized System, defines the classification and labelling of chemical substances and mixtures. It does not apply to articles like aluminium collapsible tubes.

The ALLTUB products comply with the European Packaging and Packaging Waste Directive 94/62/EC. The objectives as defined in the Directive are the following:

- Reducing waste at source
- Restricting heavy metals (Sum of Cd, Cr, Hg and Pb < 100 ppm)
- Identifying packaging material (non-mandatory) in order to facilitate their collection, re-use and recovery including recycling
- Identifying and recovering waste: all states must implement a system of waste return, collection and recovery

Basically, our Green Tubes for food, cosmetic and pharmaceutical applications are developed with raw materials compliant to the EU Framework Regulation (EC) No. 1935/2004 on materials and articles intended to come into contact with food and Regulation (EC) No. 2023/2006 on good manufacturing practice for materials and articles intended to come into contact with food. Furthermore, requirements applying to specific groups of materials are fulfilled as following:

- PCR Aluminium → CoE Resolution CM/Res(2013)9 on metals and alloys used in food contact materials and articles
- Plastic materials (exempt PCR) → Regulation (EU) No. 10/2011 on plastic materials and articles intended to come into contact with food
- Colorants → CoE Resolution AP (89) 1 on the use of colorants in plastic materials coming into contact with food







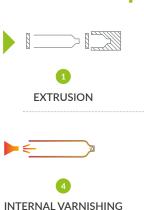






Content declaration

Process description: general overview



















EXTERNAL LACQUER PRINTING



CAPPING











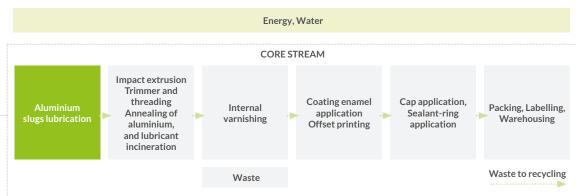






declaration Environmental performance

System diagram of the processes included in the LCA, divided into the life cycle stages



Aluminium slugs lubrication: During the first phase of the core process, aluminium' slugs are lubricated into tumbling machines adding solid lubricant. This process facilitate the next production phase of impact extrusion. The lubricant is subsequently completely removed by incineration in the annealing oven.











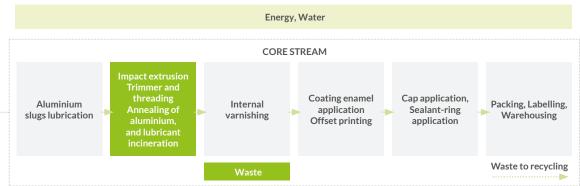


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Additional information & references

System diagram of the processes included in the LCA, divided into the life cycle stages



Impact extrusion: The slug is positioned in the die and hit by a mandrel; the aluminium, compressed between the mandrel and the matrix, forms the shoulder shape and flows back along the surface of the mandrel creating the cylindrical shape.

Dimensional and threading operation: The trimming machine removes the surplus to obtain the nominal length and it machines the thread on the nozzle. The aluminium scraps generated by these operations are eliminated and collected for recycling.

Annealing of aluminium: To give to the trimmed tube the requested mechanical properties and remove any residue of the lubricant, the tubes have to come into an annealing oven at a temperature above 300° C.













Content declaration

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System diagram of the processes included in the LCA, divided into the life cycle stages



Internal varnishing: At the exit of the annealing oven the tube is coated internally by spraying with 2 or 3 passes. This is necessary to ensure the protection of aluminum to the chemical product contained therein. During the passage through the curing oven, generally at 280-300°C, the internal coating cures and becomes solid and homogeneous. The complete protection of the aluminum must be guaranteed by the thickness, the temperature of polymerization, flexibility and uniformity of the internal film.

Printing: The first phase of the printing process is the application of the enamel which consists of applying a coating on the external surface of the tube with a roller. The enamel can be transparent, white or colored, glossy or matt. The next step in the drying oven at a temperature between 120 and 140°C allows the partially cured enamel to improve the adhesion of the printing inks.

The printing technology is indirect offset wet on wet. The ink, through a series of rubber and metal rollers, is uniformly distributed and transferred to the photopolymer plate. Then the colour is transferred, one by one, without drying, onto a printing blanket. The complete image is transferred from the blanket onto the tube. The enamel and inks are completely dry after passing in the curing oven at a temperature of 170° C.







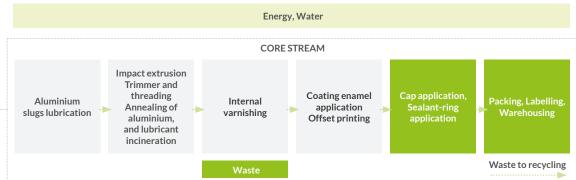








System diagram of the processes included in the LCA, divided into the life cycle stages



Finishing: This phase consists into three operations:

- Plastic Cap application;
- Sealant-ring application near the open end of the tube;
- Packing and positioning of the tubes into boxes and then onto pallets, wrapped with stretch plastic film, suitable for transport and shipping.







declaration





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Description of the EPD approach

Geographical scope of the EPD: Global

Decleared unit: One aluminium tube with a plastic cap, at gate. The data reported relate to a product not yet on the market divided into the raw material supply (upstream processes) and the production phase, including cap application (core processes). The prevalent cap for the declared tubes is intended as standard and used for impact assessment.

Declaration of the year(s) covered by the data used for the LCA calculation: year 2020

Main database for generic data: Ecoinvent 3.7.1

LCA Software: Simapro 9.2

System boundary: "cradle to gate"

Cut-off rules: Data for elementary flows to and from the product system contributing to a minimum of 99% of the declared environmental impacts are included (not including processes that are explicitly outside the system boundary as described in Section 4.3 of the PCR).

Excluded processes: Production and transport of inks, production of rollers' rubber, transport of plastic cap, transport of aluminium ingot to slugs' production facility were excluded because under the cut-off.

LCA modeling description: Product environmental performance was assessed using the Life Cycle Assessment (LCA) method, from the extraction of the raw materials to the production of the finished product. The study was conducted in accordance with the ISO 14040 standard and the product category rules set forth in PCR 2019:13 Packaging (1.1), approved by the International EPD® System technical committee.

Data Quality: the Product is a « sibling » product to the ones in EPD S-P-05056. The data quality rules followed for this EPD are those defined in the relevant PCR. In accordance with such rules, both specific data gathered directly from the Aluminium Tubes production site during the year 2020 and generic data extracted from the commercial database (Ecoinvent 3.7.1) were used.













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Additional information & references

Sources and version of the characterization model used in the epd

Global warming potential (kg CO2 eq.)

GWP100, CML 2001 baseline. Version: January 2016

Acidification potential (kg SO2 eq.)

AP, CML 2001 non-baseline (fate not included), Version: January 2016

Eutrophication potential (kg PO4--- eq.)

EP, CML 2001 baseline (fate not included), Version: January 2016.

Photochemical oxidant formation potential (kg NMVOC eq.)

POFP, LOTOS-EUROS as applied in ReCiPe 2008

Abiotic depletion potential - Elements (kg Sb eq.)

ADPelements, CML 2001, baseline

Abiotic depletion potential - Fossil fuels (MJ, net calorific value)

ADPfossil fuels, CML 2001, baseline

Water Scarcity Footprint (WSF) (m3 H2O eq)

AWARE Method: WULCA Recommendations on characterization model for WSF 2015, 2017.









performance



Environmental impacts: 28x150mm tube, max fill capacity 65ml, with standard opening**

IM	IMPACT CATEGORY		UPSTREAM PROCESSES	CORE PROCESSES	TOTAL*
	Fossil	kg CO₂ eq.	2.72*10-2	1.87*10-2	4.59*10-2
Global warming	Biogenic	kg CO₂ eq.	7.51*10-4	0.94*10-4	8.45*10-4
potential	Land use and land trasformation	kg CO₂ eq.	5.89*10-4	0.02*10-4	5.91*10-4
	Total	kg CO₂ eq.	2.86*10-2	1.88*10-2	4.74*10-2
Acidification poter	ntial	kg SO ₂ eq.	1.39*10-4	0.39*10-4	1.78*10-4
Eutrophication po	tential	kg PO ₄ eq.	5.43*10-5	0.97*10-5	6.40*10-5
Formation potenti	al of tropospheric ozone	kg NMVOC	0.90*10-4	0.29*10-4	1.19*10-4
Abiotic depletion	Abiotic depletion potential – Elements		7.76*10-7	0.21*10-7	7.97*10 ⁻⁷
Abiotic depletion potential - Fossil fuels		MJ, net calorific value	4.24*10 ⁻¹	2.58*10 ⁻¹	6.82*10 ⁻¹
Water scarcity pot	tential	m³ eq.	1.44*10-2	0.16*10-2	1.60*10-2

^{*1.5}g plastic cap intended as standard included **Product composition: Aluminium 71%, Polymeric Coatings 11%, PP 18%











Use of resources: 28x150mm tube, max fill capacity of 65ml, with standard opening**

IN	MPACT CATEGORY	UNIT	UPSTREAM PROCESSES	CORE PROCESSES	TOTAL*
D .	Use as energy carrier	MJ, net calorific value	0.85*10-1	0.14*10-1	0.99*10-1
Primary energy resources -		MJ, net calorific value	0.00	0.00	0.00
Renewable	Total	MJ, net calorific value	0.85*10-1	0.14*10-1	0.99*10-1
Primary energy	Used as energy material	MJ, net calorific value	5.30*10-1	3.05*10-1	8.35*10-1
resources -	Used as raw material	MJ, net calorific value	0.00	0.00	0.00
Non renewable	Total	MJ, net calorific value	5.30*10-1	3.05*10-1	8.35*10-1
Secondary materi	ial	Kg	6.00*10-3	0.00	6.00*10-3
	Non - renewable secondary fuels		0.00	0.00	0.00
Renewable secondary fuels		MJ, net calorific value	0.00	0.00	0.00
Net use of fresh w		m ³	4.34*10-4	2.32*10-4	6.66*10 ⁻⁴

^{*1.5}g plastic cap intended as standard included **Product composition: Aluminium 71%, Polymeric Coatings 11%, PP 18%











Waste production and output flows 28x150mm tube, max fill capacity of 65ml, with standard opening**

IMPACT CATEGORY	UNIT	UPSTREAM PROCESSES	CORE PROCESSES	TOTAL*
Hazardous waste	kg	9.59*10-6	0.30*10-6	9.89*10-6
Non-hazardous waste	kg	5.38*10-3	2.01*10 ⁻³	7.39*10 ⁻³
Radioactive waste	kg	1.53*10-6	0.40*10-6	1.93*10-6

IMPACT CATEGORY	UNIT	UPSTREAM PROCESSES	CORE PROCESSES	TOTAL*
Components for reuse	kg	0.00	0.00	0.00
	kg	0.00	1.22*10-3	1.22*10-3
material for energy recovery	kg	0.00	3.00*10-4	3.00*10-4
Exported energy, eletricity	kg	0.00	0.00	0.00
Exported energy, thermal	kg	0.00	0.00	0.00

^{*1.5}g plastic cap intended as standard included **Product composition: Aluminium 71%, Polymeric Coatings 11%, PP 18%









performance



Environmental impacts: 31.2x185mm tube, max fill capacity of 103ml, with standard opening**

IM	IMPACT CATEGORY		UPSTREAM PROCESSES	CORE PROCESSES	TOTAL*
	Fossil	kg CO₂ eq.	3.43*10-2	2.45*10-2	5.88*10-2
Global warming	Biogenic	kg CO₂ eq.	0.99*10-3	0.12*10-3	1.11*10-3
potential		kg CO₂ eq.	8.12*10-4	0.03*10-4	8.15*10-4
	Total	kg CO ₂ eq.	3.61*10-2	2.46*10-2	6.07*10-2
Acidification poter		kg SO₂ eq.	1.77*10-4	0.51*10-4	2.28*10-4
Eutrophication po	tential	kg PO ₄ eq.	6.97*10 ⁻⁵	1.26*10-5	8.23*10-5
		kg NMVOC eq.	1.14*10-4	0.38*10-4	1.52*10-4
Abiotic depletion potential – Elements		kg Sb eq.	1.01*10-6	0.03*10-6	1.04*10-6
Abiotic depletion potential – Fossil fuels		MJ, net calorific value	5.18*10-1	3.37*10-1	8.55*10-1
Water scarcity pot	ential	m³ eq.	1.83*10-2	0.21*10-2	2.04*10 ⁻²

^{**}Product composition: Aluminium 74%, Polymeric Coatings 12%, PP 14%









performance



Use of resources: 31.2x185mm tube, max fill capacity of 103ml, with standard opening**

IM	IPACT CATEGORY	UNIT	UPSTREAM PROCESSES	CORE PROCESSES	TOTAL*
Primary energy	Use as energy carrier	MJ, net calorific value	1.13*10-1	0.19*10-1	1.32*10-1
resources -		MJ, net calorific value	0.00	0.00	0.00
Renewable	Total	MJ, net calorific value	1.13*10-1	0.19*10-1	1.32*10-1
Primary energy	Used as energy material	MJ, net calorific value	0.65	0.40	1.05
resources -	Used as raw material	MJ, net calorific value	0.00	0.00	0.00
Non renewable	Total	MJ, net calorific value	0.65	0.40	1.05
Secondary materi	al	Kg	7.85*10 ⁻³	0.00	7.85*10 ⁻³
Non - renewable s	Non - renewable secondary fuels		0.00	0.00	0.00
Renewable secondary fuels		MJ, net calorific value	0.00	0.00	0.00
Net use of fresh w	vater	m ³	5.57*10-4	3.03*10-4	8.60*10-4

^{*1.5}g plastic cap intended as standard included **Product composition: Aluminium 74%, Polymeric Coatings 12%, PP 14%











Waste production and output flows 31.2x185mm tube, max fill capacity of 103ml, with standard opening**

IMPACT CATEGORY	UNIT	UPSTREAM PROCESSES	CORE PROCESSES	TOTAL*
Hazardous waste	kg	1.25*10-5	0.04*10-5	1.29*10-5
Non-hazardous waste	kg	6.95*10 ⁻³	2.63*10 ⁻³	9.58*10 ⁻³
Radioactive waste	kg	1.97*10-6	0.52*10-6	2.49*10-6

IMPACT CATEGORY	UNIT	UPSTREAM PROCESSES	CORE PROCESSES	TOTAL*
Components for reuse	kg	0.00	0.00	0.00
material of recycling	kg	0.00	1.59*10-3	1.59*10-3
material for energy recovery	kg	0.00	3.93*10-4	3.93*10-4
Exported energy, eletricity	kg	0.00	0.00	0.00
Exported energy, thermal	kg	0.00	0.00	0.00

^{*1.5}g plastic cap intended as standard included **Product composition: Aluminium 74%, Polymeric Coatings 12%, PP 14%











Company

Product

Content declaration

Environmental performance

Environmental impacts: 40x195mm tube, max filling capacity of 185ml, with standard opening**

IM	IPACT CATEGORY	UNIT	UPSTREAM PROCESSES	CORE PROCESSES	TOTAL*
	Fossil	kg CO ₂ eq.	4.82*10-2	3.74*10-2	8.56*10-2
Global warming	Biogenic	kg CO ₂ eq.	1.47*10-3	0.19*10-3	1.66*10-3
potential	Land use and land trasformation	kg CO ₂ eq.	1.10*10-3	0.00*10-3	1.10*10-3
	Total	kg CO ₂ eq.	5.07*10-2	3.76*10 ⁻²	8.83*10-2
Acidification poter		kg SO ₂ eq.	2.48*10-4	0.77*10-4	3.25*10-4
Eutrophication po	tential	kg PO ₄ eq.	1.00*10-4	0.19*10-4	1.19*10-4
Formation potenti		kg NMVOC eq.	1.59*10-4	0.58*10-4	2.17*10-4
Abiotic depletion	Abiotic depletion potential - Elements		1.51*10-6	0.04*10-6	1.55*10-6
Abiotic depletion potential – Fossil fuels		MJ, net calorific value	0.70	0.52	1.22
Water scarcity po	tential	m³ eq.	2.61*10-2	0.32*10-2	2.93*10-2

^{*1.5}g plastic cap intended as standard included **Product composition: Aluminium 79%, Polymeric Coatings 11%, PP 10%











Use of resources: 40x195mm tube, max fill capacity of 185ml, with standard opening**

IM	IPACT CATEGORY	UNIT	UPSTREAM PROCESSES	CORE PROCESSES	TOTAL*
D :	Use as energy carrier	MJ, net calorific value	1.58*10-1	0.29*10-1	1.87*10-1
Primary energy resources -		MJ, net calorific value	0.00	0.00	0.00
Renewable	Total	MJ, net calorific value	1.58*10-1	0.29*10-1	1.87*10-1
Primary energy	Used as energy material	MJ, net calorific value	0.89	0.61	1.50
resources -	Used as raw material	MJ, net calorific value	0.00	0.00	0.00
Non renewable	Total	MJ, net calorific value	0.89	0.61	1.50
Secondary materia	al	Kg	1.20*10-2	0.00	1.20*10-2
Non - renewable s	Non - renewable secondary fuels		0.00	0.00	0.00
Renewable secondary fuels		MJ, net calorific value	0.00	0.00	0.00
		m ³	0.80*10-3	0.46*10-3	1.26*10 ⁻³

^{*1.5}g plastic cap intended as standard included **Product composition: Aluminium 79%, Polymeric Coatings 11%, PP 10%











Waste production and output flows 40x195mm tube, max fill capacity of 185ml, with standard opening**

IMPACT CATEGORY	UNIT	UPSTREAM PROCESSES	CORE PROCESSES	TOTAL*
Hazardous waste	kg	1.91*10-5	0.06*10-5	1.97*10-5
Non-hazardous waste	kg	0.99*10-2	0.40*10-2	1.39*10-2
Radioactive waste	kg	2.87*10-6	0.80*10-6	3.67*10-6

IMPACT CATEGORY	UNIT	UPSTREAM PROCESSES	CORE PROCESSES	TOTAL*
Components for reuse	kg	0.00	0.00	0.00
material of recycling	kg	0.00	2.43*10 ⁻³	2.43*10-3
material for energy recovery	kg	0.00	6.01*10-4	6.01*10-4
Exported energy, eletricity	kg	0.00	0.00	0.00
Exported energy, thermal	kg	0.00	0.00	0.00

^{*1.5}g plastic cap intended as standard included **Product composition: Aluminium 79%, Polymeric Coatings 11%, PP 10%













Environmental performance



Additional information & references

Other environmental indicators

IMPACT CATEGORY		UNIT	TUBE 28X150 mm TOTAL WITHOUT CAP	PLASTIC CAP 1.5 g
	Fossil	kg CO₂ eq.	0.40*10-1	5.53*10-3
Clabal	Biogenic	kg CO ₂ eq.	0.84*10-3	1.00*10-5
Global warming potential		kg CO ₂ eq.	0.59*10-3	4.33*10-6
	Total	kg CO ₂ eq.	0.42*10-1	5.54*10 ⁻³
Acidification potential		$kg SO_2 eq.$	1.53*10-4	2.45*10-5
Eutrophication potential		kg PO4 eq.	0.57*10-4	0.70*10-5
Formation potential of tropospheric ozone		kg NMVOC eq.	1.01*10-4	1.83*10 ⁻⁵
Abiotic depletion potential - Elements		kg Sb eq.	0.77*10-6	2.84*10 ⁻⁸
		MJ, net calorific value	0.55	1.36*10 ⁻¹
Water scarcity potential		m³ eq.	1.38*10-2	2.26*10-3

Detailed information are offered to the customers in order to encourage possible eco-design activities for the closing system (caps) of the tubes.















Environmental Additional informa performance & references

Other environmental indicators

IMPACT CATEGORY		UNIT	TUBE 31.2X185 mm TOTAL WITHOUT CAP	PLASTIC CAP 1.5 g
	Fossil	kg CO₂ eq.	0.53*10-1	5.53*10 ⁻³
Clabal	Biogenic	kg CO ₂ eq.	1.10*10-3	1.00*10-5
Global warming potential		kg CO ₂ eq.	0.81*10-3	4.33*10-6
	Total	kg CO ₂ eq.	0.55*10-1	5.54*10 ⁻³
		$kg SO_2 eq.$	2.03*10-4	2.45*10-5
Eutrophication potential		kg PO ₄ eq.	0.75*10-4	0.70*10-5
Formation potential of tropospheric ozone		kg NMVOC eq.	1.33*10-4	1.83*10 ⁻⁵
Abiotic depletion potential - Elements		kg Sb eq.	1.01*10-6	2.84*10 ⁻⁸
Abiotic depletion potential – Fossil fuels		MJ, net calorific value	0.72	1.36*10 ⁻¹
Water scarcity potential		m³ eq.	1.82*10-2	2.26*10-3

Detailed information are offered to the customers in order to encourage possible eco-design activities for the closing system (caps) of the tubes.













Environmental performance



Additional information & references

Other environmental indicators

IMPACT CATEGORY		UNIT	TUBE 40X195 mm TOTAL WITHOUT CAP	PLASTIC CAP 1.5 g
	Fossil	kg CO ₂ eq	0.80*10-1	5.53*10-3
Clabalyyamaina	Biogenic	kg CO ₂ eq.	1.65*10-3	1.00*10-5
Global warming potential		kg CO ₂ eq	1.10*10-3	4.33*10-6
	Total	kg CO ₂ eq	0.83*10-1	5.54*10 ⁻³
Acidification potential		$kg SO_2 eq.$	3.01*10-4	2.45*10-5
Eutrophication potential		kg PO ₄ eq.	1.12*10-4	0.70*10 ⁻⁵
Formation potential of tropospheric ozone		kg NMVOC eq.	1.99*10-4	1.83*10 ⁻⁵
Abiotic depletion potential – Elements		kg Sb eq.	1.53*10-6	2.84*10 ⁻⁸
Abiotic depletion potential – Fossil fuels		MJ, net calorific value	1.08	1.36*10 ⁻¹
Water scarcity potential		m³ eq.	2.71*10-2	2.26*10-3

Detailed information are offered to the customers in order to encourage possible eco-design activities for the closing system (caps) of the tubes.











Company

roduct

Content leclaration

vironmental erformance

Additional information & references

Additional information



Aluminium is a permanent material and can be recycled infinitely.



Aluminium packaging preserves more resources than it uses itself avoiding spoilage and product losses.



75% of the aluminium ever produced is still in use.



Recycling saves 95% of the energy required to produce primary aluminium.



Aluminium is the third most abundant element present on earth and Bauxite, the raw material for aluminium production, is widely available with known resources for more than 200 years.



Aluminium is multi-functional packaging material for utmost product protection, safety, convenience and resource efficiency.



Aluminium enjoys high recycling rates, for example a rate of 60% for packaging in Europe.



Aluminium is recycled in a closed material loop and is widely used in new applications.



Continuous weight reduction of aluminium packaging has been achieved without compromising functionality and performance.



Aluminium has the highest scrap value of all packaging materials.

 $Source: \textit{GDA} \ (Gesamt verband \ der \ Aluminium in dustrie \ e.V.$



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Rapporto di Ispezione n° 1111059-001

Ente Certificatore: Name of Certification Body: Not A	pplicable		
Ispettore: Inspector: R- Tosi	Data dell'Ispez Inspection Date: 0		Data Ispezione precedente: Date of Previous Inspection. Not applicable
Azienda Ispezionata: Company Name: Alltub Italia S.r.	ı		
Indirizzo: Viale Rimembranze Address:	, 23		
Cap: Postcode: 24050 Cividate Al Piano I	9G	Nazione: Country: Itali	a
Tel. No. +39 0363 946011		Fax. No	

Scopo dell'Ispezione

Surveillance o

PRODUCT: Aluminium slugs for production of collapsible tubes and aerosol cans

PROCESS: Purchase process and use of recycled aluminum in the production of fubes and cans of the ALLTUB Group. Application of the Altho Enrops specification designed to investigate the traceability in the production chain of slugs (raw materials) and the management of chains of custody starting from the management of aluminium waste.

AUDIT CRITERIA (set of policies, procedures or requirements used as a reference), audit criteria applicable from the waste management phase, refining and or remetting up to the use in production of the slags delivered to the Alfab Group by the suppliers. The Alfab Group specifications contain the applicable requirements of the following standards: BRG SP lackaging Materials – ISO 20059 – ASI Chain of Clustody (CoC) Standard.

Inspector Ing Tosi Esclusioni / Note:

Persone di riferimento Qualifica Presenza durante l'ispezione Job title Company Reference During Inspectio Pierangelo Bonati Assicurazione Anertura Rev doc Chiusura Procedure Closing Meeting Qualità Lewis Rigamont Responsabile Acquisti di Gruppo Inspection Frequency: N.A. Preliminary Evaluation | Next Evaluation Date expected: Not Applicable

Firma Ispettore: Inspector's Signature:	Roberto Tosi	alent	Zni,	End Date: 09/11/2021	
Approvazione Direttore Checked an Approved:	Tecnico			Date:	19/11/2021

Pag. 1 di 21

Revisione 2 del 19/07/2021











roduct

Content declaration

Environmental performance

Additional informatio & references

Additional information: Chain of custody

The development of the green tube was based on the selection and collaboration with suppliers who offered specific guarantees on the origin and quality of their post-consumer recycled aluminium.

The green tube was developed thanks to the contribution of Alltub's global aluminium purchasing department based in Italy, which created a qualified supply chain to support prototyping and subsequent industrialization.

Once the prototyping activity was completed, the supply chain was certified by a third party as it meets the requirements of the chains of custody for recycled materials.

The audit was performed by an accredited body for this specific a ctivity with the following results*:

... The method used for the implementation of the traceability system for recycled aluminum supplies is documented in the ALLTUB Group procedures. During the verification, the method used was found to comply with the requirements of the chains of custody as provided for in the ISO 22095:2020 standard for the «Identity Preserved Model» (Chain Custody model without mixing) and the other specific requirements fixed in the scope of the audit (BRC GS Packaging Materials – ASI Chain of Custody (CoC) Standard) ...

^{*}The first three pages of the audit's report are available on request.















Product

Content declaration

Additional information

Today, CSR (corporate and social responsibility) is an integral part of corporate operations and ALLTUB provides products to its customers compliant with our CSR approach.

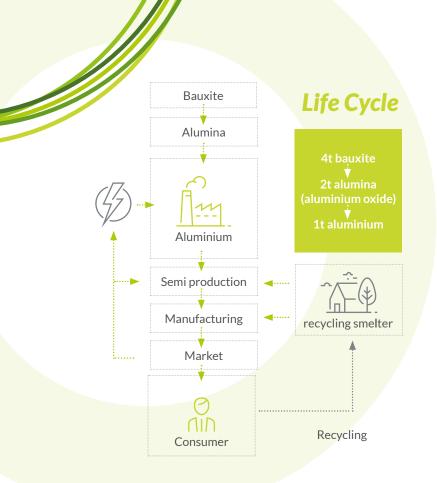
In concrete terms, ALLTUB's commitment reflects the various policies implemented across companies to participate towards environmental protection, greenhouse gas emission reduction but also the improvement of product quality, social inclusion and economic development... If CSR was historically associated with environmental protection, today it also involves other areas whether economic, social, cultural or even educational.

The ALLTUB Group participates in the Ecovadis CSR programme (platform to assess social and environmental performance of global supply chains). Twenty-one criteria among 4 topics as follows (social, ethics, supply chain, environment) are assessed. ALLTUB obtained a "silver" rating and is among the 30% of the companies best rated by Ecovadis.

In parallel of Ecovadis programme, ALLTUB GROUP also participates in the Carbon Disclosure Project (CDP) since 2014. The CDP organization encourages investors, businesses and cities to take action to build a truly sustainable economy, measuring and understanding their impact on the environment.

















Company

Product

Content declaration

nvironmental performance

Additional information

Aluminium faces an important challenge: lots of energy is required to produce it. Aluminium is therefore too valuable to throw it away after it has only been used once. The energy used to produce aluminium is not lost: it remains "stored" in the metal. Aluminium is thus approvingly referred to as an "energy bank".

In other words, beside saving energy, recycling also conserves raw materials and makes an important contribution to environmental protection.

Today, Alltub is able to produce tubes made from >95% post-consumer recycled aluminium as well as from virgin aluminium.

















Additional information

ALLTUB GROUP Associative Environmental Activities

ALLTUB Group contributes actively to the promoting the increase in recycling of lightweight aluminum packaging.

In France, as a member of the CELAA/Projet Metal Club (Recycling and Lightweight Packaging Club), founded in 2009 by Nespresso and France Aluminium Recyclage.

In Europe, Alltub Group is an active member of the ETMA (European Tube Manufacturers Association) and has won the Tube of the Year prize in 2020 for one of its latest innovations: the Green tube, made from >95% Post-Consumer Recycled aluminium.

In North America, as a member of **The Tube Council of North America**.











Environmental



Additional information

Additional information & references

PROGRAMME INFORMATION



THE INTERNATIONAL EPD® SYSTEM

Environmental Product Declaration

The international EPD® System

EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com info@environdec.com

In accordance with ISO 14025:2010

Product category rules (PCR): PCR 2019:13 Packaging (1.1), UN CPC CODE 4293
PCR review was conducted by: The Technical Committee of the International EPD® System.
Chair: Maurizio Fieschi. Contact via: info@environdec.com.

Independent third-party verification of the declaration and data, according to ISO 14025:2006:

□ EPD process certification ✓ EPD verification

Third party verifier: SGS Italia SpA

In case of accredited certification bodies:

Accredited by: ACCREDIA (Certificate nr. 006H)

Procedure for follow-up of data during EPD validity involves third party verifier:

✓Yes □No

Contact person: Dr. Lewis Rigamonti - Email address: sustainability@alltub.com



LCA AUTHOR

Dr. Lewis Rigamonti (ALLTUB GROUP)

Dr. Anna Bortoluzzi (QUOTA SETTE SRL)



EPD OWNER

ALLTUB GROUP SAS

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ALLTUB GROUP SAS has the sole ownership, liability and responsibility of the EPD

The environmental impacts of diffeent EPDs can be compaed only taking into account all the technical information supporting the declared/functional unit definition as requested by the PCR.

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