



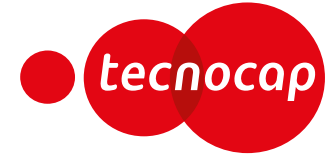
# EPD<sup>®</sup>

## ENVIRONMENTAL PRODUCT DECLARATION compliant with ISO 14025:2006 for:

TINPLATE CLOSURES:  
» 63 RTS TWIST/LUGGED CAPS



PRODUCED BY



At Tecnocap SpA  
in the plant of  
Cava de' Tirreni,  
Salerno, Italy

**Program:**  
The International EPD<sup>®</sup> System  
[www.environdec.com](http://www.environdec.com)

**Program Operator:**  
EPD<sup>®</sup> International AB

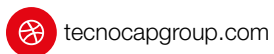
**EPD<sup>®</sup> Registration number:**  
S-P-02312

**Registration date:**  
2021/02/03

**Valid until:**  
2026/02/02

**Last revision date:**  
2024/03/08

*An EPD must provide current information and can be updated if conditions change.  
The declared validity is therefore subject to continued registration and publication on [www.environdec.com](http://www.environdec.com)*



## PROGRAM INFORMATION

### PROGRAM

The International EPD® System  
EPD International AB Box 210 60  
SE-100 31 Stockholm Sweden

www.environdec.com  
info@environdec.com



### ACCOUNTABILITIES FOR PCR, LCA AND INDEPENDENT, THIRD-PARTY VERIFICATION

#### Product category rule (PCR)

PCR: PACKAGING PRODUCT CATEGORY CLASSIFICATION:  
MULTIPLE CPC PCR 2019:13 VERSION 1.1 VALID UNTIL: 2023-11-08

PCR review conducted by:  
Anna Bortoluzzi on 17-12-2020, Università degli Studi di Milano  
Dipartimento di chimica – anna.bortoluzzi@unimi.it

#### Life cycle assessment (LCA)

LCA accountability: Tecnocap SpA

Via Starza 4, bis  
84013 Cava de' Tirreni (Salerno), Italy

#### Third party verification

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

EPD VERIFICATION BY INDIVIDUAL VERIFIER:

STUDIO FIESCHI  
& SOCI  
sostenibilità su misura



Dr. Ugo Pretato  
Studio Fieschi & Soci, s.r.l.  
Turin (Italy)

#### Approved by

The International EPD® System

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

YES  NO

## COMPANY INFORMATION

OWNER OF THE EPD:

### TECNOCAP SPA

Via Starza, 4 bis - 84013 - Cava de' Tirreni

Main Phone: +39 089 441522

VAT: IT 02865960658



As EPD owner, Tecnocap has the sole ownership, liability and responsibility for this EPD.

CONTACTS:

For additional information about Tecnocap Group or regarding this EPD, please contact:

**Ing. Alfonso Violante**

a.violante@tecnocapgroup.com

**Dr. Vittorio D'Amore**

v.damore@tecnocapgroup.com

NAME AND LOCATION OF PRODUCTION SITE:

### TECNOCAP SPA

Via Starza 4 bis

84013 - Cava de' Tirreni (Salerno) Italy

MORE INFORMATION:

The LCA study was carried out by:

**Valore Sostenibile Srls**

LCA Practitioner

**Dr. Massimo Lombardi**

massimolombardi@valoresostenibile.it



For more information about Sustainability at Tecnocap and to request a copy of the Sustainability report, visit the official page:

<https://www.tecnocapclosures.com/sustainability-recyclable-packaging-solutions/>

# TECNOCAP GROUP

Founded in Italy in 1993, Tecnocap Group is a multinational company operating in the metal packaging sector through the industrial production of Metal Closures for glass and plastic containers and Aluminum Aerosol Cans and Bottles. The Tecnocap Group operates on the global market with five production facilities in Europe (Italy, Czech Republic and Ukraine), two in the United States, one in India, one currently being completed in Brazil and one more acquisition in progress in Saudi Arabia. The Group also has two commercial and distribution companies and three promotional service companies.

## EUROPE

### ● Italy (Cava de' Tirreni, Lecco, Aprilia), Czech Republic, Ukraine

- Italy, Germany, France, Denmark, Norway, Sweden, Finland, Iceland, Greece, Slovenia, Croatia, Serbia, Bosnia & Herzegovina, Montenegro, North Macedonia, Albania, The Netherlands, Belgium, Luxemburg, Slovakia, Poland, Moldova, Ukraine, Hungary, Romania, United Kingdom, Ireland, Germany, Austria, Switzerland, Spain, Portugal

## NORTH AMERICA

### ● USA (West Virginia, Ohio)

- USA (AL, AR, AZ, CO, IA, IL, KS, LA, MS, MO, MN, MS, ND, NE, OK, SD, TN, TX, WI, CT, GA, MA, ME, NC, NH, NJ, RI, SC, VT, NY, DE, IN, MD, MI, PA, FL, KY, OH, VA, WV, AK, CA, HI, ID, MT, NV, OR, UT, WA, WY), Canada

## LATAM

### ● Brazil (São Paulo)

- Brazil, Peru, Colombia, Mexico, Argentina

## MIDDLE EAST

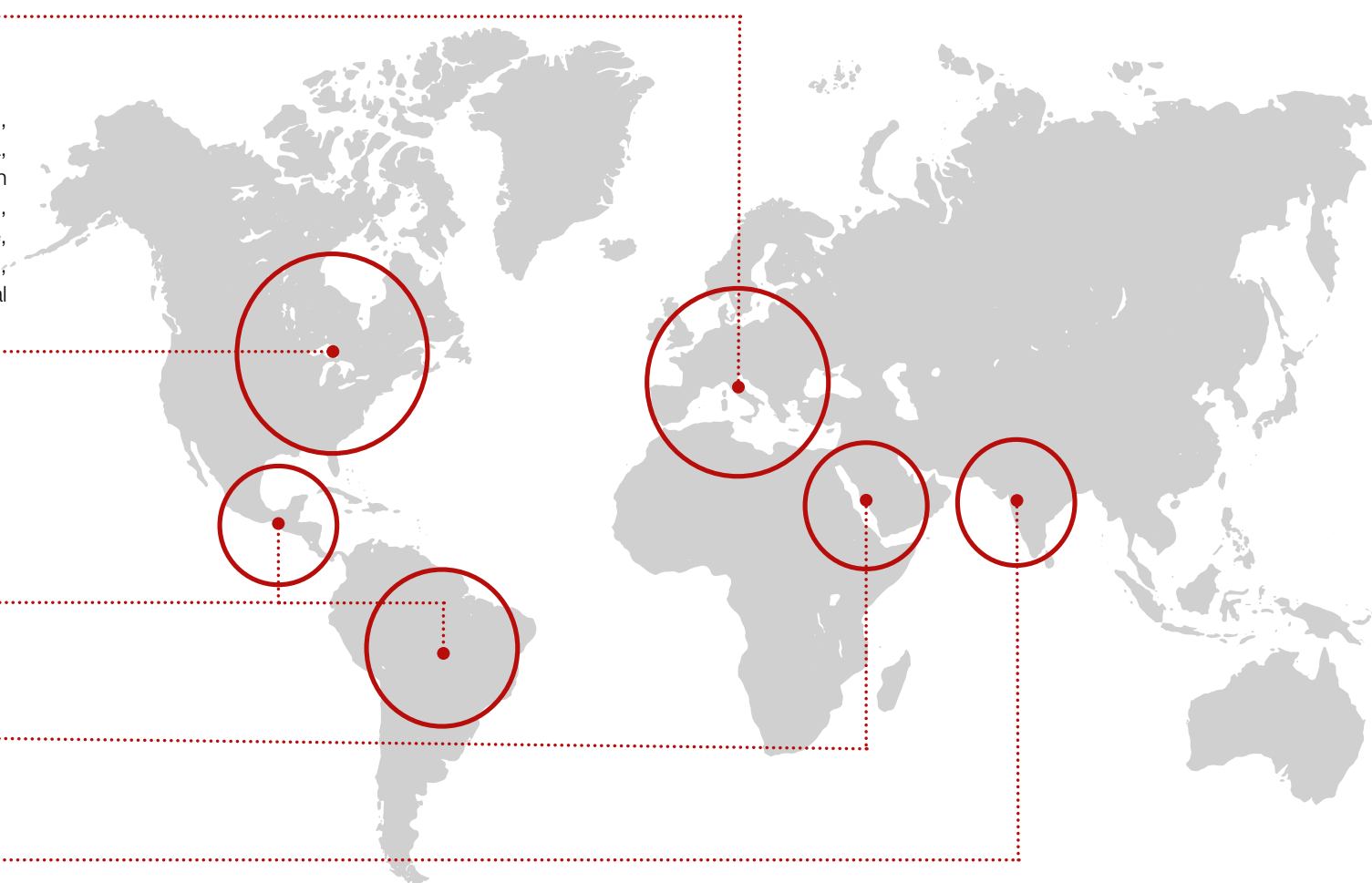
### ● Saudi Arabia (in progress)

- Saudi Arabia, Egypt

## INDIA

### ● Maharashtra (Murbad)

- Maharashtra (Mumbai)



● FACILITIES

● SALES AND REPRESENTATIVE OFFICES

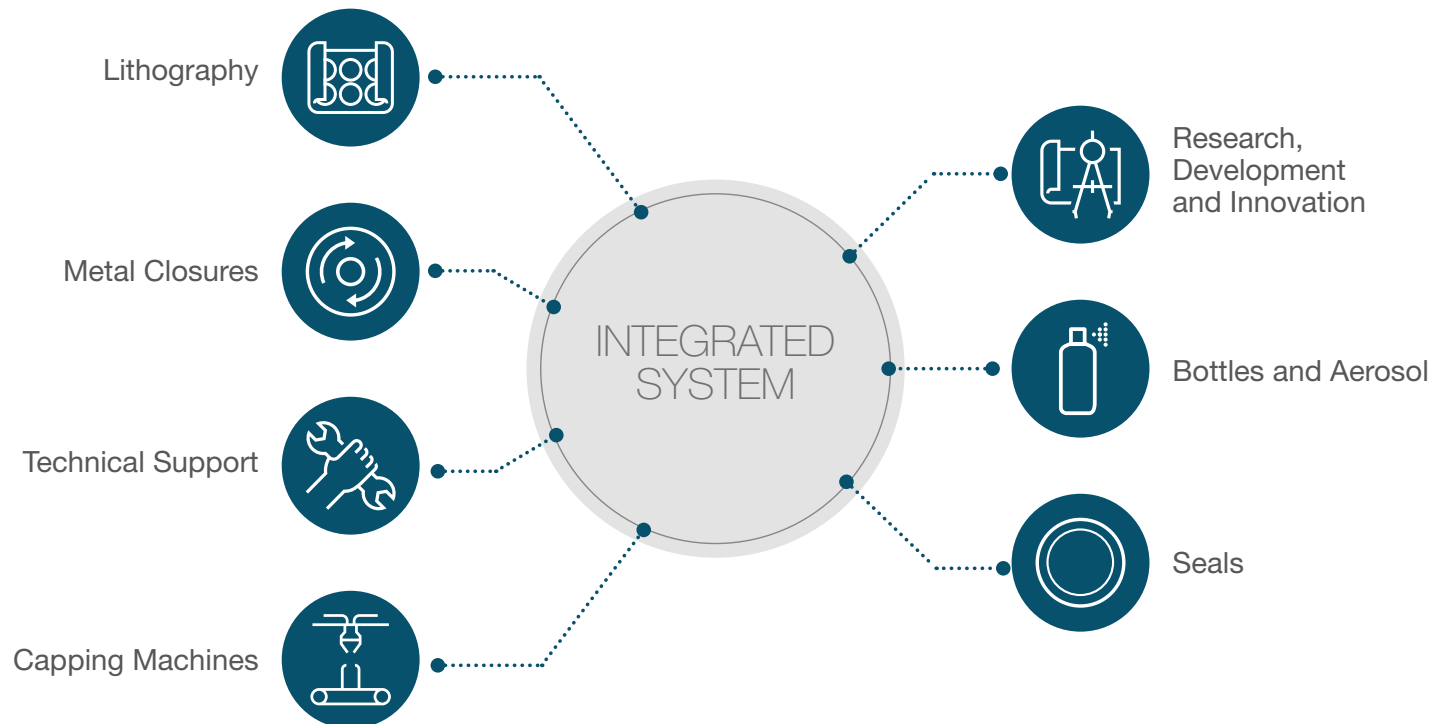
The Group's business model is founded on the seamless integration of know-how, technologies, products, and services. Tecnocap delivers metal packaging to FMCG industry brands, crafted with highly customized technical specifications crucial for ensuring maximum consumer safety, product integrity on the shelf, and the long-term preservation of its characteristics.

Additionally, the Group specializes in designing and producing machines and complete systems for the high-speed automatic closure of containers. It provides worldwide technical assistance services conducted at customer-operated sites to guarantee the continuity and perfect maintenance of the supplied machines.

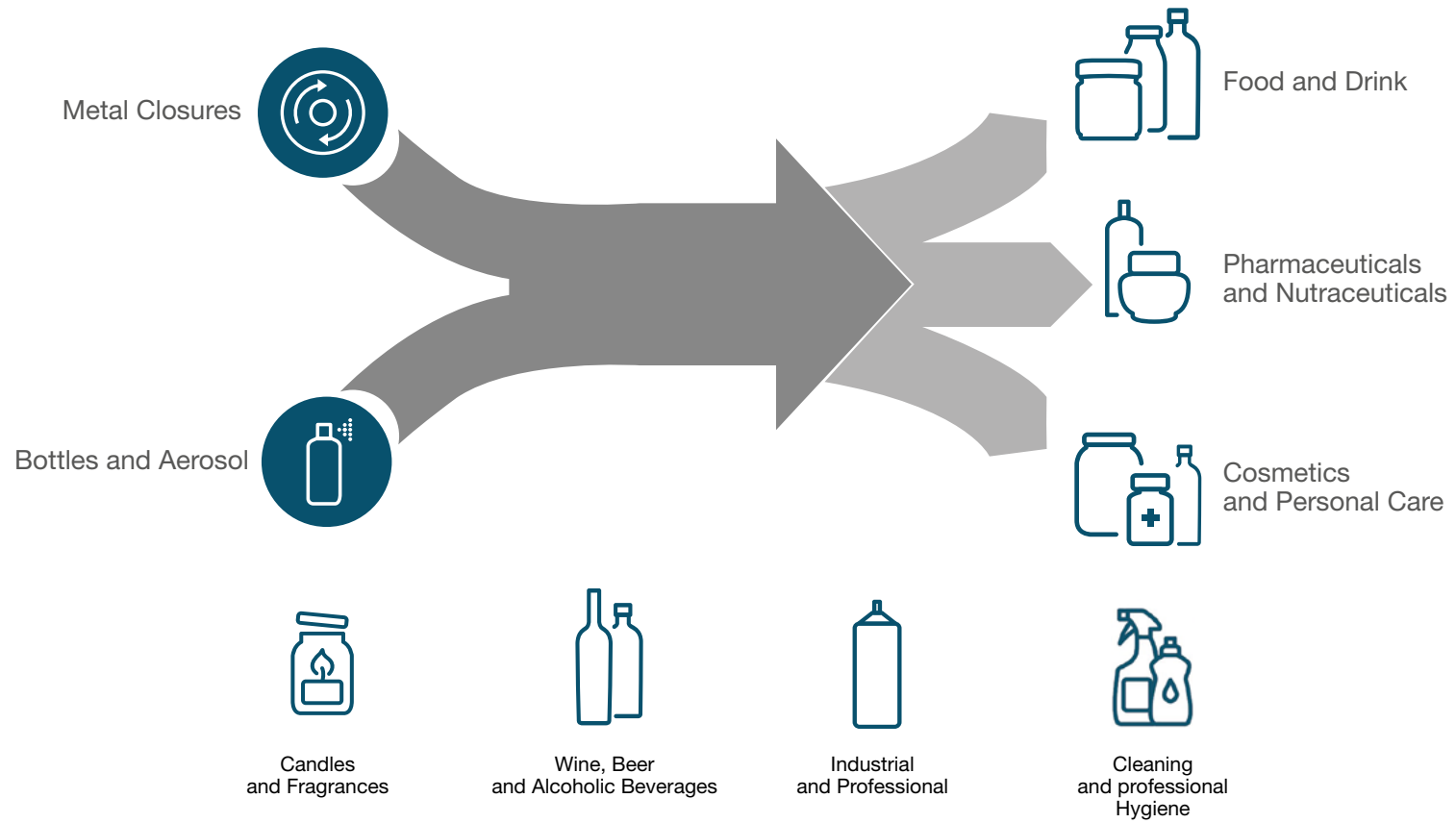
An integral component of the business model is specialized consulting aimed at researching and developing innovative solutions to meet the growing demands of global consumer brands in terms of maximum consumer safety, eco-compatibility, and visual impact.

The sustainable growth business model builds on the integration of ESG factors into the business model and the implementation of a Circular Strategy both in Manufacturing and Sourcing as well as the strengthening of strategic cooperation with all the Stakeholders.

### THE INTEGRATED METAL PACKAGING SYSTEM



PRODUCTS AND PRINCIPAL MARKETS



TECNOCAP GROUP IS MEMBER OF SECTOR ORGANIZATIONS





### Purpose driven

Together with all the actors of our Value Chain, we work towards a future where the recycling of packaging achieves perfection and is transformed into a common daily practice. In this respect more and more products on the shelf, across all markets and geographic areas, are packaged in fully “closed loop” recyclable packaging and technologies enable the industry to achieve ever more ambitious goals in terms of competitiveness and sustainability.

Annual sustainability report and ESG Rating available in pdf format, at:

<https://www.tecnocapclosures.com/sustainability-metal-packaging/>

Responsibility membership



## CERTIFICATIONS AND QUALIFICATIONS

Integrated Quality, Safety, Environment System

**ISO 9001  
Quality Management  
Standard**

Tecnocap SpA Italy  
Tecnocap TL Italy  
Tecnocap Czech Rep.  
Tecnocap USA  
Tecnocap Ukraine

**Food Safety System  
BRC/IOP  
AIB**

Tecnocap SpA Italy  
Tecnocap USA  
Tecnocap Czech Rep.  
Tecnocap India

**ISO 14001  
Environmental Standard  
and SMETA 4-Pillars**

Tecnocap SpA Italy  
Tecnocap Czech Rep.

**ISO 45001:2018**

Tecnocap SpA Italy

**EPD**®



In 2020, Tecnocap concluded the LCAs conducted on Metal Closures manufactured at the Cava de' Tirreni facility and on Aluminum Bottles and Aerosol Cans produced at the Lecco facility.

The EPD® as well as all other Certifications can be downloaded in PDF format from the following internet addresses:

[www.tecnocapclosures.com/it/capsule-metallo-aerosol-qualita](http://www.tecnocapclosures.com/it/capsule-metallo-aerosol-qualita)

[www.environdec.com/library/epd2312](http://www.environdec.com/library/epd2312)

[www.environdec.com/library/epd2313](http://www.environdec.com/library/epd2313)

## RESEARCH, DEVELOPMENT AND CIRCULAR INNOVATION

TECNOCAP IS STRONGLY DEDICATED TO SCOUTING, DEVELOPING AND TESTING INNOVATIVE SOLUTIONS WHILE IMPROVING THE SUSTAINABILITY CREDENTIALS OF CONVENTIONAL OPTIONS.

- ✓ Three Research and Development Centers for Sustainable Materials and New Product Development
- ✓ Testing Departments
- ✓ In-house EcoDesign and Engineering Teams for Prototyping and Pilot Line Capabilities
- ✓ Design, engineering and construction of customized complete sealing lines
- ✓ Installation of capping equipment at clients' facilities, training sessions and technical assistance worldwide
- ✓ Ecodesign and international food contact regulation compliance experts
- ✓ Formulation and development of eco-friendly, biodegradable, and bio-based liners and gaskets



Tecnocap is a direct supplier to major global multinationals in highly specialized segments with high technical-quality risk. To meet the growing demands the Group has made significant investments in the production of closures with no PVC and plasticizers used in the internal sealing gasket.

- ✓ PVC-NI GASKET
- ✓ ESBO-NI GASKET
- ✓ BPA-NI GASKET



## PRODUCT INFORMATION

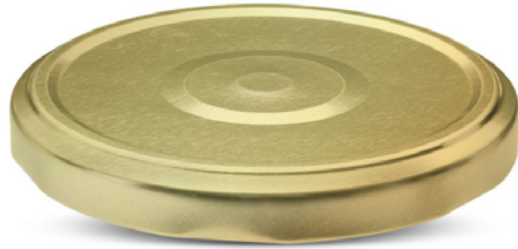
Product name	Product identification	Geographical Scope	UN CPC code
Tinplate Twist/Lugged Closure	The product under study is identified by alphanumeric codes corresponding to its technical data sheet	Global	42932

## PRODUCT DESCRIPTION

Tecnocap Group manufactures Twist/Lugged Closures with diameters ranging from 30 mm to 110 mm and various profiles and shapes. In the plant of Cava de' Tirreni, the Company manufactures Twist/Lugged Closures ranging from 30 mm to 77 mm.



# PRODUCT DESCRIPTION



## The Twist/Lugged Closure

These closures are made of tinplated steel are 100% recyclable.

Suitable for various applications, widely employed in vacuum packaging, they guarantee oxygen, light, and harmful external agents barrier.

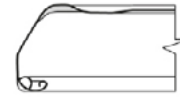
Suitable for hot, cold and aseptic filling compatible with pasteurization, retort and sterilization processes.

These closures are available in a diverse array of designs, profiles, and diameters.

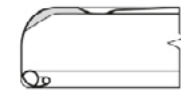
Some diameters feature a special "Easy Grip" design, and all diameters are offered with a Safety Button/ Flip (vacuum indicator).



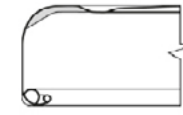
**RTS (48-110)**  
Regular Twist Open  
with Step



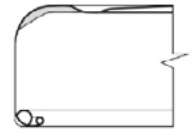
**EDGE (53-82)**



**RTO (38-43)**  
Regular Twist Open



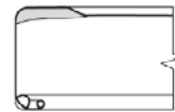
**MTO (30-38)**  
Medium Twist Open



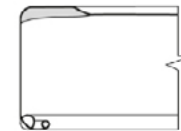
**DTO (38-43)**  
Deep Twist Open



**RTO (48-70)**  
Regular Twist Open



**DTO (58-82)**  
Deep Twist Open



**DDO (70)**  
Deep Deep Twist Open

More info at:

[www.tecnocapgroup.com](http://www.tecnocapgroup.com)

## PRODUCT DESCRIPTION

### Sealing Gasket materials

Fully customizable and developed in house, enabling seals to be created with particular properties that ensure:

- ✓ Maximum pack integrity
- ✓ Food product safety that meets the requirements of the entire range of fillers' processing and storage conditions.

Custom formulations are designed to protect food from contaminants and minimize Vitamin C degradation or discoloration.

### On-shelf differentiation options

- ✓ High quality multi-colour printing
- ✓ Specialty inks and coatings (glitter, gloss, satin, matt)
- ✓ Shaping features (embossing, debossing, perforation)
- ✓ Other options available on request

### Regulatory Compliance

Materials used to manufacture Tecnocap Twist Lugged metal Closures fully comply with the latest requirements of European food contact legislation.

### Application

All Twist-Lugged Closures can be applied using high speed in-line capping machinery designed, engineered by Tecnocap and installed in house at customers' facilities offering them the easiest set up and faster changeovers providing a complete sealing process for their products.

### Vacuum Packaging

Vacuum is applied during the capping operation to ensure minimal oxygen in the headspace of the container. Sealing Gaskets keep the closures adherent to the mouth of the jar/bottle and make it possible to keep the vacuum preserving the organoleptic properties of the packaged product after pasteurization and sterilization. Twist Lugged Caps for hermetic closure of glass containers for sterilized foods have a "safety button" (flip panel) with a snap action to provide a characteristic noise when opening the jar, reassuring the consumer that the food/beverage is safe.



SEALING GASKETS PRESERVE THE VACUUM



IF THE SAFETY BUTTON IS RAISED,  
THE PRODUCT IS NOT SUITABLE FOR CONSUMPTION

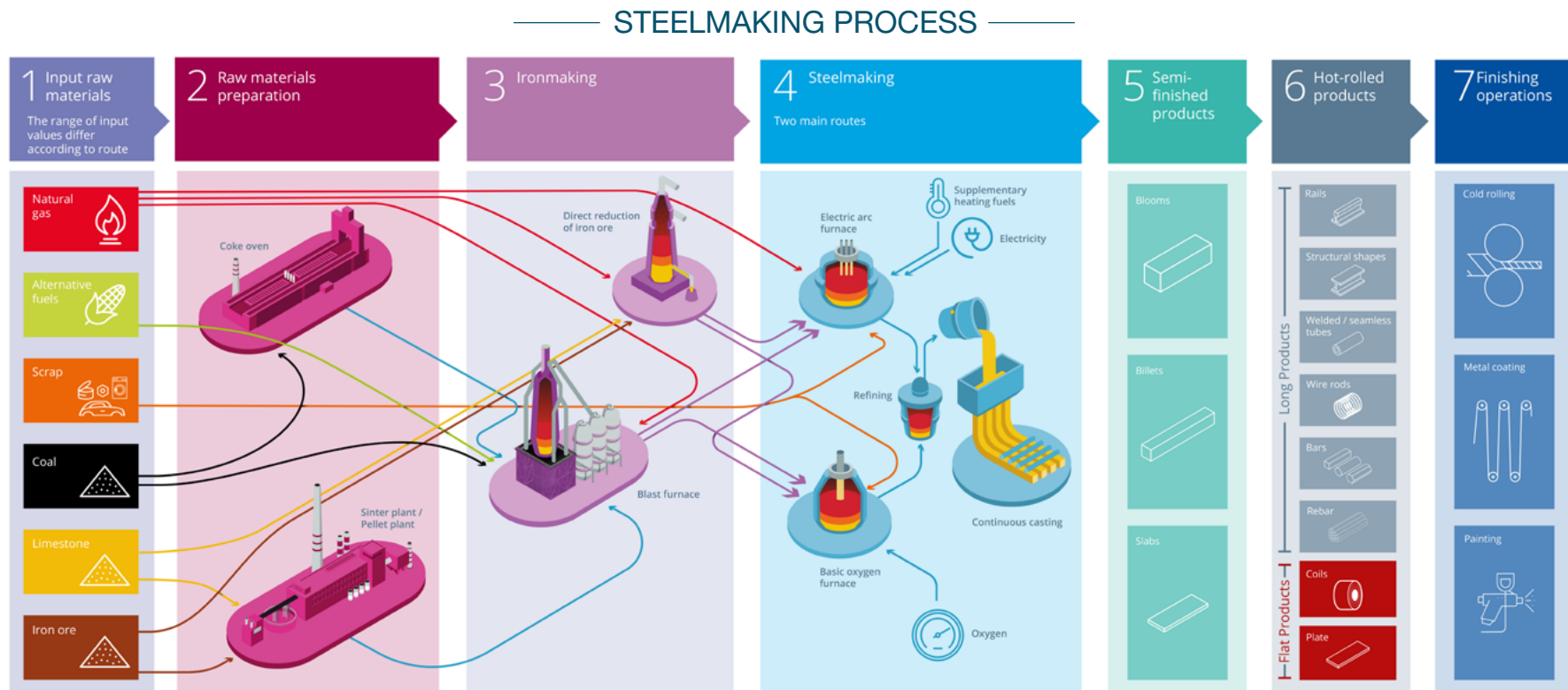


# MANUFACTURING PROCESS

Metal closures are stamped out of sheets of tinplate, sheets that generally have a thickness from 0,10 to 0,25 mm. The production process begins with the production of tinplated steel rolls which are subsequently transformed into flat sheets, painted, enameled, and finally cut and sent to the packaging manufacturer where the closure shaping process takes place.

## Steel production

The production of blast furnace steel takes place via a chemical reduction reaction. The heart of the cycle is the blast furnace, in which iron ore, coke and limestone and a variable percentage of scrap (depending on the type of steel to be produced) are loaded. After suitable heating, the production of cast iron takes place. Subsequently, the cast iron is refined in special oxygen converters, obtaining liquid steel, which is shaped through the continuous casting plant or in special ingot molds. The semi-finished products obtained can be marketed or further processed in rolling mills. From the production of integral cycle steel is possible to obtain flat rolled products, semi-finished products used to produce metal sheets for vehicles and ships, furniture, household appliances, packaging and pipes. The semi-finished product used for the production of steel packaging is a laminate that is marketed in the form of a coil.



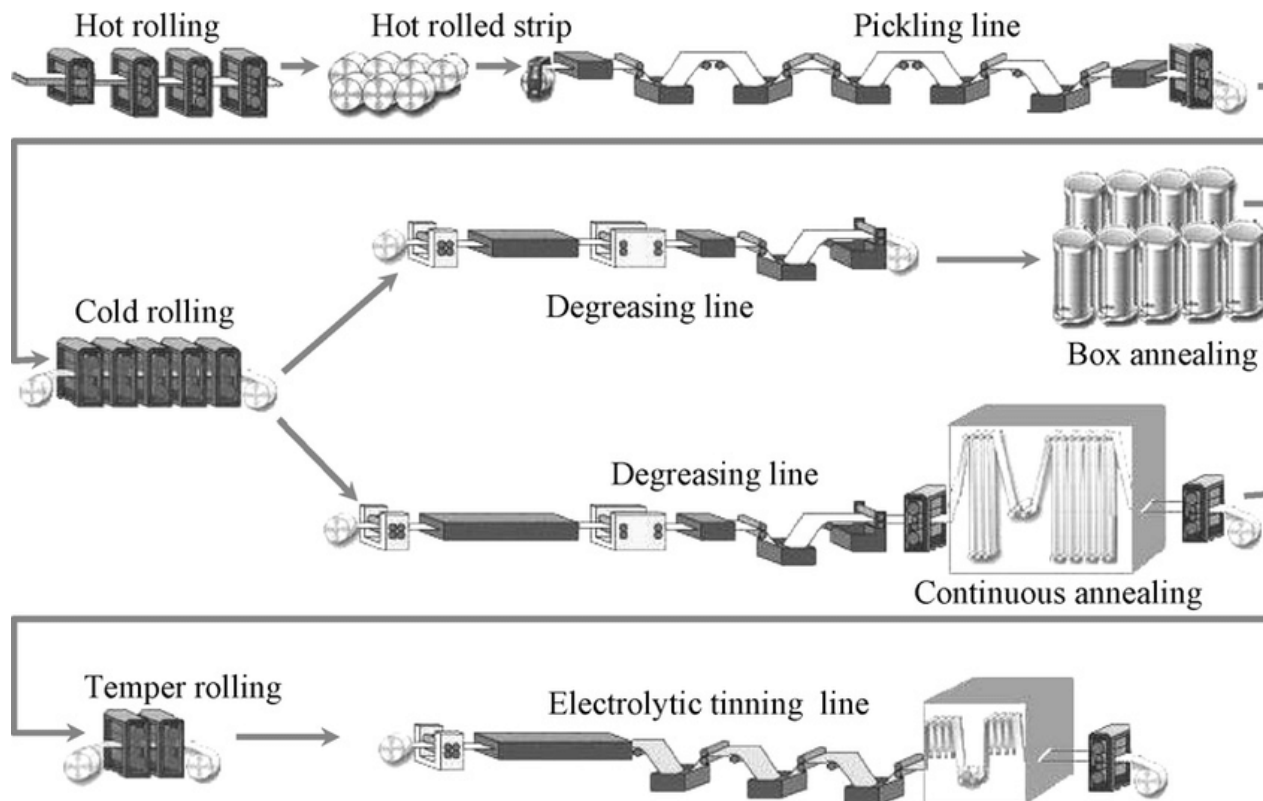
Source: [www.worldsteel.org](http://www.worldsteel.org)

# MANUFACTURING PROCESS

## Production of tinned steel

Tinning is the process of thinly coating sheets of wrought iron or steel with tin, and the resulting product is known as tinplate. It is most often used to prevent rust and the most common process is electroplating.

### TINPLATING PROCESS



In electroplating, the item to be coated is placed into a container with a solution of one or more tin salts.

The item is connected to an electrical circuit, forming the cathode (negative) of the circuit while an electrode typically of the same metal to be plated forms the anode (positive). When an electric current is passed through the circuit, metal ions in the solution are attracted to the item.

To produce a smooth, shiny surface, the electroplated sheet is then briefly heated above the melting point of tin.

Most of the tin-plated steel made today is then further electroplated with a very thin layer of chromium to prevent dulling of the surface from oxidation of the tin.

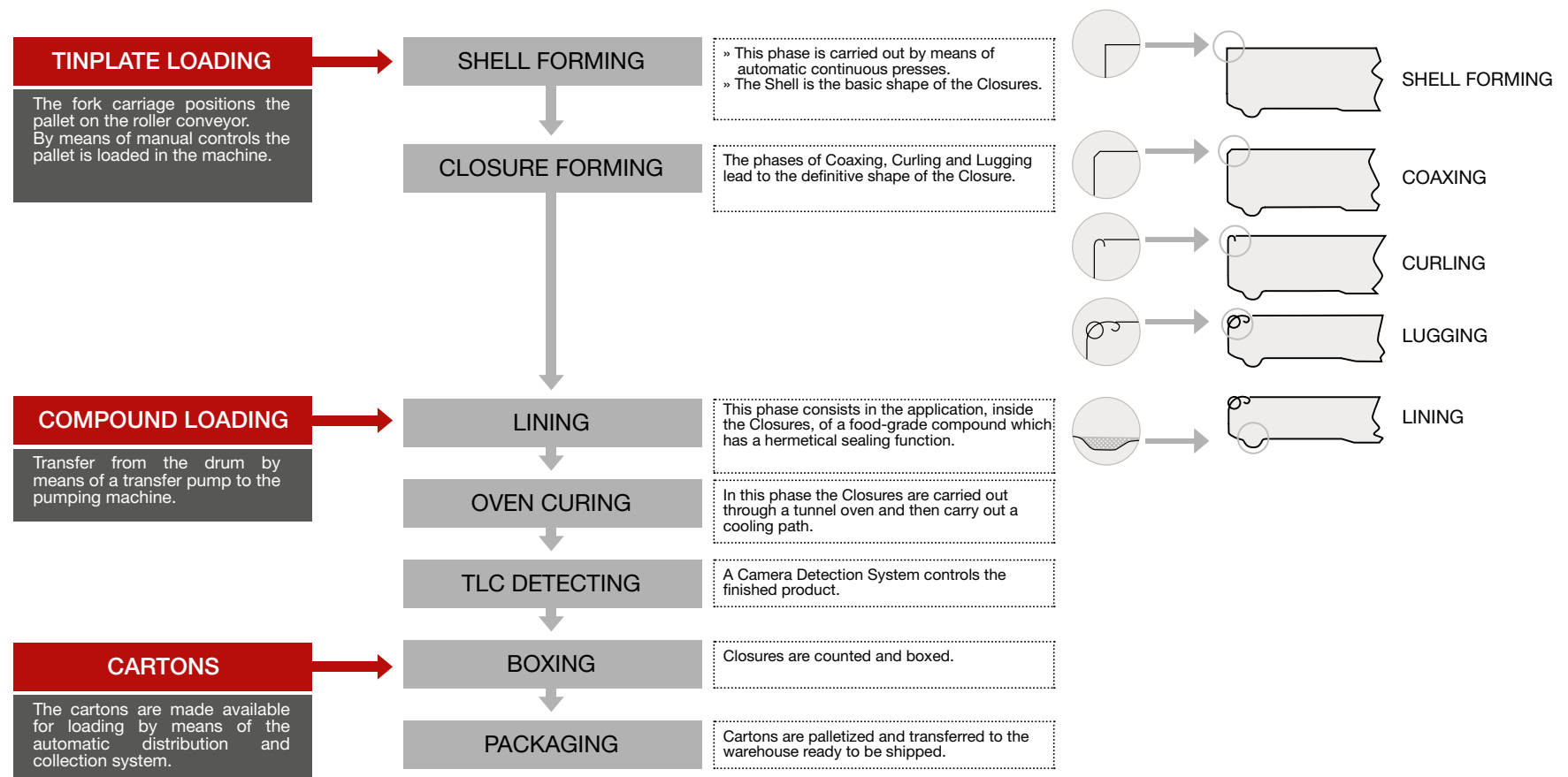
# MANUFACTURING PROCESS

## Metal decoration

Tinplate sheets are then sent to a metal decoration plant where they proceed to their opening and to the operations of painting/enamelling and cutting them in sheets according to the indications of the packaging manufacturer.

## Metal closures shaping

Tinplate sheets, intended for the production of the closures, are cut to size by guillotine shears and then sent to the presses for the next steps of the production cycle. The following table represents the production processes of twist-lug closures at Tecnocap Spa in Cava de' Tirreni. All the sequence phases take place with automatic transportation of the closures and without human intervention. The loading activities of the materials necessary for the production are shown on the left.





## LCA INFORMATION

### Functional unit / declared unit

The Declared Unit is a unit of packaging Ref. RTS 63 belonging to the product category considered in the study (Twist-Lugged Caps)

### Time representativeness

Data used in the LCA study refer to the productions made in 2021

### Database(s) and LCA software used

Ecoinvent® 3.8 - Simapro® 9.4.0.2

### System diagram

Table below shows the system diagram of the processes included in the LCA study divided into Life Cycle Stages and into Life Cycle Modules:

LIFE CYCLE STAGE	LIFE CYCLE MODULE		
UPSTREAM	A1	Raw material supply	X
CORE	A2	Transport	X
	A3	Manufacturing	X
DOWNSTREAM	A4	Transport to forming or filling	MND*
	A5	Forming	MND*
	B1	Filling operations	MND*
	B2	Distribution of filled packaging	MND*
	B3	Transport to reconditioning	MND*
	B4	Reconditioning	MND*
	B5	Transport to re-filling point	MND*
	C1	Disassembling/sorting	MND*
	C2	Transport to recovery/disposal of distribution packaging	X
	C3	Final disposal of distribution packaging	X

\* Module Not Disclosed

## Description of system boundaries

System boundaries are “cradle to gate with options” as they include the production of tinned steel coils, their subsequent cutting into sheets and painting operations, the forming of the capsules and the application of plastisol as well as the packaging operations for product’s shipping. Taking into account the relevant quantity of packaging associated with products’ shipping, an end-of-life scenario for packaging materials was also modeled and included in the study. That scenario was modeled and based on Italian data on EOL of packaging materials released by Fondazione per lo Sviluppo Sostenibile in the report “Italy of recycling 2021”. The Italian scenario was preferred as it prevails over the total of the other destinations of Tecnocap’s customers. The following table shows the reference scenario adopted:

### DISTRIBUTION PACKAGING END OF LIFE SCENARIO

Corrugated paper packaging	Recycling	87%
	Incineration	7,50%
	Landfill	5,50%
Plastic packaging	Recycling	49%
	Incineration	44,60%
	Landfill	6,40%

## Excluded lifecycle stages

Modules from A4 to C1 of the “packaging” PCR system diagram have been excluded; modules C2 and C3 have been included only for end of life scenario of the distribution packaging of metal closures (plastic bags and corrugated boxes).

## Environmental performance indicators

Below are the environmental performance indicators represented, according to the default list v. 2.0 Updated 03.29.2022 of the International EPD® System.

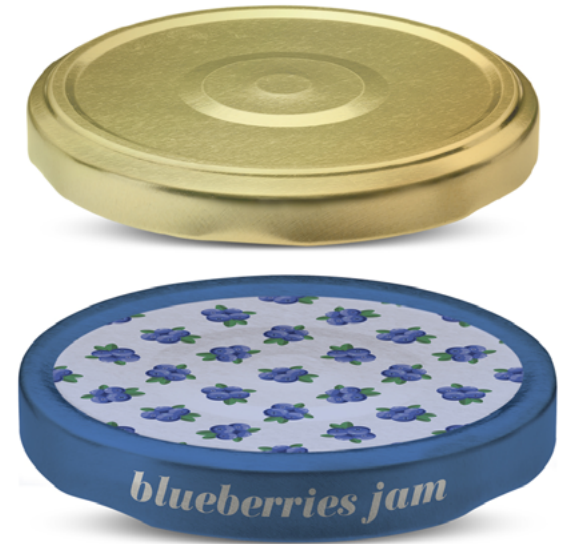
- ✓ Climate Change (kg CO<sub>2</sub>eq)  
Fossil – biogenic - land use and land use change (luluc), and total
- ✓ Acidification Potential (AP) (mol H<sup>+</sup> eq)
- ✓ Eutrophication Potential (EP);
  - EP, aquatic freshwater, (kg P eq)
  - EP aquatic marine (kg N eq)
  - EP, terrestrial, (mol N eq)
- ✓ Photochemical ozone creation potential (POCP) (kg NMVOC eq.);
- ✓ Ozone depletion potential (ODP) (kg CFC-11 eq)
- ✓ Abiotic depletion potential (ADP) for minerals/metals (non-fossil resources) (kg Sb eq)
- ✓ Abiotic depletion potential (ADP) for fossil resources (MJ)
- ✓ Water deprivation potential (WDP) (m<sup>3</sup> eq)

For the results of the impact indicators, the characterization factors of the EF v.1.01 method were used. For data processing, the SimaPro software version 9.4.0.2 and the Ecoinvent database were used.



## REF. 63 RTS TWIST / LUGGED CLOSURES

<b>Product ref.</b> 63 RTS – “Twist-Lug Closure”	<b>Diameter (cm)</b> 6,3
<b>Kind of packaging</b> Component	<b>Weight (g)</b> 8,58
<b>Material</b> Tinplate steel	<b>Number of uses</b> 1
	<b>Reference service life</b> NA



### CONTENT DECLARATION

MATERIALS PER UNIT OF PACKAGING REF. 63 RTS	WEIGHT (g)	%	ENVIRONMENTAL / HAZARDOUS PROPERTIES
Tinplate steel	7,452	86,85	100% recyclable
Paint, enamel and ink	0,211	2,46	food contact compliant
Compound	0,917	10,69	food contact compliant
Distribution packaging	100% Recycled Corrugated Board 0,727g - Plastic bag 0,033g - Plastic top 0,005g - Stretch plastic film 0,0017g		
Consumer packaging	Not available		
Recycled material	30,22% Recycled Steel from post manufacturing scraps		
REACH declaration	Declaration on the registration, evaluation, authorization and restriction of chemical substances - REACH - Regulation (EC) No. 1907/2006 of the European Parliament: metal closures produced by Tecnocap Spa do not contain substances subject to registration and therefore, as required by the standard, it will be Tecnocap Spa to ask its suppliers, in the supply chain, to fully comply with all obligations relating to pre-registration, registration, authorisation, preparation of the scenario for the disclosure of security practices, as required by articles 6,31,95 of the aforementioned regulation.		

# ENVIRONMENTAL PERFORMANCE

## POTENTIAL ENVIRONMENTAL IMPACTS - PRODUCT REF. 63 RTS TWIST/LUGGED CLOSURE

PARAMETER		UNIT	UPSTREAM	CORE	DOWNSTREAM	TOTAL
Global warming potential (GWP)	Fossil	kg CO2 eq.	3,344E-02	4,231E-03	4,669E-04	3,813E-02
	Biogenic	kg CO2 eq.	3,905E-05	1,946E-05	7,036E-08	5,858E-05
	Land use and land transformation	kg CO2 eq.	3,256E-04	8,967E-07	5,094E-08	3,266E-04
	<b>TOTAL</b>	<b>kg CO2 eq.</b>	<b>3,380E-02</b>	<b>4,251E-03</b>	<b>4,670E-04</b>	<b>3,852E-02</b>
Acidification potential (AP)		kg mol H+ eq.	1,093E-04	1,550E-05	3,454E-06	1,282E-04
Eutrophication potential (EP)	Aquatic freshwater	kg P eq.	1,827E-06	3,935E-07	1,149E-08	2,232E-06
	Aquatic marine	kg N eq.	2,379E-05	3,816E-06	1,387E-06	2,900E-05
	Aquatic terrestrial	mol N eq.	2,372E-04	4,089E-05	1,518E-05	2,933E-04
Photochemical oxidant creation potential (POCP)		kg NMVOC eq.	8,214E-05	1,250E-05	5,369E-06	1,000E-04
Ozone layer depletion (ODP)		kg CFC 11 eq.	1,257E-09	7,990E-10	1,196E-10	2,176E-09
Abiotic depletion potential (ADP)	Metals and minerals	kg Sb eq.	1,081E-07	6,300E-08	3,264E-09	1,744E-07
	Fossil resources	MJ, net cal. value	4,052E-01	6,381E-02	7,443E-03	4,764E-01
Water deprivation potential (WDP)		m <sup>3</sup> world eq.	4,530E-05	3,630E-06	-1,599E-07	4,878E-05

## USE OF RESOURCES - PRODUCT REF. 63 RTS TWIST/LUGGED CLOSURE

PARAMETER		UNIT	UPSTREAM	CORE	DOWNSTREAM	TOTAL
Primary energy resources Renewable	Use as energy carrier	MJ, net calorific value	2,523E-02	1,435E-03	3,168E-05	2,670E-02
	Used as raw materials	MJ, net calorific value	0,000E+00	0,000E+00	0,000E+00	0,000E+00
	<b>TOTAL</b>	<b>MJ, net calorific value</b>	<b>2,523E-02</b>	<b>1,435E-03</b>	<b>3,168E-05</b>	<b>2,670E-02</b>
Primary energy resources Non-Renewable	Use as energy carrier	MJ, net calorific value	4,302E-01	6,847E-02	7,902E-03	5,066E-01
	Used as raw materials	MJ, net calorific value	1,800E-03	0,000E+00	0,000E+00	1,800E-03
	<b>TOTAL</b>	<b>MJ, net calorific value</b>	<b>4,320E-01</b>	<b>6,847E-02</b>	<b>7,902E-03</b>	<b>5,084E-01</b>
Secondary material		kg	3,288E-03	0,000E+00	0,000E+00	3,288E-03

## DIFFERENCES FROM THE PREVIOUS EPD®

Compared to the 2019 LCA study relating to Tecnocap SpA productions, the following factors were considered/integrated/modified in this study:

- ✓ In accordance with the version 1.1 of the “packaging” PCR, all impacts were related to a packaging unit and not to one ton of product.
- ✓ Adopted the Ecoinvent 3.8 dataset “Steel tinplated (GLO)\* to associate the impacts of tinplated steel production. This dataset was not present in the 2019 database and therefore the impacts relating to the production of steel were added with those relating to a generic tin plating process obtaining a considerably higher impact value than that obtained from this LCA which, however, is today perfectly aligned with the impact results made available to the public by steel producers and/or their associations.
- ✓ A better and more detailed allocation of the weights of the individual materials making up the metal closure (metal, paint, compound) has been carried out.
- ✓ All data have been updated and recalculated on the basis of the production results for the year 2021.
- ✓ Updated Simapro software version (9.4.0.2) and Ecoinvent v. 3.8 were used to calculate the environmental impacts along with the EF v.1.01 method as it is more in line with the environmental performance indicators of the list v. 2.0 (updated 03/29/2022) of the International EPD® System.
- ✓ Adopted GPI 3.1 for the international EPD® System instead of version 3.0.

### \*DATASET DOCUMENTATION

Steel tinplated {GLO} | blast furnace route and electric arc furnace route | production mix, at plant | 1kg, typical thickness between 0.13 - 0.49 mm. typical width between 600 - 1100 mm | LCI result

Version: 00.00.001

Reference year: 2021

Dataset valid until: 2026

#### Description:

Based on annual data from a 12 month period between 2016 and 2020 provided by each participating site from which an annual average is calculated. High data quality. Data collected on site by steel industry experts in accordance with the Worldsteel methodology and ISO 14040 standards, and consistency-checked by worldsteel LCA-experts, ref. Life cycle inventory (LCI) study 2020 data release – World Steel Association

#### Description and included processes:

This dataset includes raw material extraction (e.g. coal, iron, ore, etc.) and processing, e.g. scrap, coke making, sinter, blast furnace, basic oxygen furnace, electric arc furnace, hot strip mill and further processing. Inputs included in the Life Cycle Inventory relate to all raw material inputs, including steel scrap, energy, water, and transport. Outputs include steel and other co-products, emissions to air, water and land. Further information is given in the 2017 worldsteel LCA Methodology Report.

**Applicability:** Obtained by electro plating a thin finished cold rolled coil with a thin layer of tin. It can be found on the market in coil or in sheets and is further processed into finished products by the manufacturers. Electrolytic tin plated steel is used primarily in food cans, industrial packaging (e.g. small drums).

This LCI does not include a credit for recycling of steel at end of life: this is the preferred approach adopted by Worldsteel, detailed in the 2017 methodology report (Appendix 2).

## REFERENCES

ISO14040: 1997	Environmental management — Life Cycle Assessment — Principles and Framework
ISO 14044: 2006	Environmental Management — Life Cycle Assessment — Requirements and Guidelines
LCA Tecnocap SpA	Tinplate Closures, 2021
WorldSteel Association	Life Cycle Inventory (LCI) study – 2020 data release
WorldSteel Association	Scrap use in the steel industry - 2020
IPCC intergovernmental Panel on Climate Change	Sixth Assessment Report, 2021
Fondazione per lo Sviluppo Sostenibile	Report “L’Italia del Riciclo 2021”, November 2021
EU COMMISSION	RECOMMENDATION 9332 of 16.12.2021 on the use of the Environmental Footprint methods to measure and communicate the life cycle environmental performance of products and organisations
Pré (Product Ecology)	Simapro 9.4.0.2: Reference Manual
GENERAL PROGRAMME INSTRUCTIONS FOR THE INTERNATIONAL EPD® SYSTEM	Version 3.1, 2019-09-18
INTERNATIONAL EPD® SYSTEM PCR (Product Category Rules)	PACKAGING PRODUCT - CATEGORY CLASSIFICATION: MULTIPLE CPC PCR 2019:13 VERSION 1.1 VALID UNTIL: 2023-11-08



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