

**STEELFORCE**  
PACKAGING

TECHNICAL DATASHEET  
**Electrolytic Tinplate**



# Electrolytic Tinplate (ETP)

## Comprehensive Technical Overview

Electrolytic Tinplate (ETP) is a high-performance material essential for the production of metal packaging. With a sophisticated, stratified structure composed of a low-carbon steel core and protective tin coatings, ETP offers exceptional strength, corrosion resistance, and surface compatibility. This datasheet provides a detailed technical insight into its composition, applications, and handling requirements to ensure optimal usage and performance.

### 1. Material Composition:

ETP consists of five distinct layers, each serving a critical function:

- 1. Steel Base:** Provides stiffness and mechanical strength while resisting corrosion through its specialized chemical properties.
- 2. Iron-Tin Alloy:** A barrier against corrosion due to its electrochemical characteristics, with continuity prioritized over volume for effectiveness.
- 3. Metallic Tin:** Enhances corrosion resistance, weldability, and surface compatibility for lithographic printing and lacquer applications. It also serves as a sacrificial layer in corrosive environments.
- 4. Passivation Film:** Improves resistance to sulphiding, oxidation, and rust, while preparing the surface for varnishes, inks, and lacquers.
- 5. Oil Film:** Prevents damage from environmental humidity and simplifies handling during processing.

### 2. Applications:

ETP is extensively used in:

- Stamped parts, lids, and ends
- Oval and cylindrical two-piece cans
- Rectangular cans
- Crown caps for beverages

Its versatility and adaptability to diverse packaging processes make it a preferred choice across industries.

### 3. Technical Specifications:

Steel Types

- 1.D:** Aluminum-killed steel ideal for deep-drawn applications like two-piece cans and aerosols.
- 2.L:** Enhanced with trace metalloids (Cu, Ni, Cr, Mo) to improve corrosion resistance for food cans.
- 3.MR:** General-purpose steel with low residual elements, commonly used for standard cans.



#### **4. Chemical Composition:**

- Carbon:  $\leq 0.13\%$
- Manganese:  $\leq 0.60\%$
- Phosphorus:  $\leq 0.02\%$
- Sulfur:  $\leq 0.05\%$
- Silicon:  $\leq 0.02\%$  (up to 0.08% accepted for certain processes)
- Copper:  $\leq 0.20\%$
- Nickel:  $\leq 0.15\%$
- Chromium:  $\leq 0.10\%$
- Molybdenum:  $\leq 0.05\%$
- Others (each):  $\leq 0.02\%$

#### **5. Surface Finishes**

- Bright: High-gloss finish for general-purpose cans.
- Matte: Non-reflective finish for crown caps.
- Silver: Specially treated finish for various applications.
- Stone: Slightly matte, scratch-resistant finish ideal for lithographic printing or can production.

#### **6. Dimensions and Coatings**

- Thickness: 0.15–0.6 mm
- Metallic Tin Coating: 1.1–13.4 g/m<sup>2</sup>
- Iron-Tin Alloy Coating: 0.4–1.2 g/m<sup>2</sup>
- Chromium Oxide (Passivation): 40–70  $\mu\text{g}/\text{dm}^2$
- Oil Coating: 0–25 mg/m<sup>2</sup>

#### **7. Handling and Storage Guidelines**

1. Store in a dry, humidity-free environment to avoid oxidation.
2. Use gloves when handling to prevent perspiration-induced corrosion.
3. Do not leave ETP exposed to outdoor conditions or store unpackaged.
4. Use promptly after opening to prevent degradation of the protective oil film.
5. Handle carefully to avoid scratches that could compromise the tin coating.
6. Dry any wetted material immediately using compressed air or an appropriate oven.
7. Avoid using abrasive materials; clean with cotton and compatible solvents.

#### **8. Why Choose Electrolytic Tinplate?**

Electrolytic Tinplate is a reliable, high-performing material suited for a wide range of metal packaging applications. Its layered design ensures unmatched strength, corrosion resistance, and adaptability to complex manufacturing processes.



### Contact Us for Technical Inquiries

For more detailed technical information or to discuss your specific requirements, reach out to our expert team. Let us help you select the optimal specifications for your project.





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