

## Chromate-free Tinplate

Tinplate is mainly used as a material for containers such as food and beverage packaging cans, as well as general cans. The basic features required include corrosion resistance, lacquer adhesion, weldability, an attractive outer appearance and safety as a material for food containers. To date, Nippon Steel has been developing, manufacturing and supplying various types of tinplate in accordance with environmental regulations around the world. In the meantime, The EU has decided to ban the use of hexavalent chromium in the manufacturing process of tinplate (chromate treatment process) as per the REACH Regulation. In order to satisfy such strict international environmental regulations and supply requests from consumers, we have developed chromate-free tinplate called “EZP™.” As for the manufacturing process, the existing chromate treatment process will be replaced with a zirconium treatment process which forms a zirconium oxide layer that has performance equivalent to that of the conventional chromate layer.

# For eco-friendly food can

# EZP

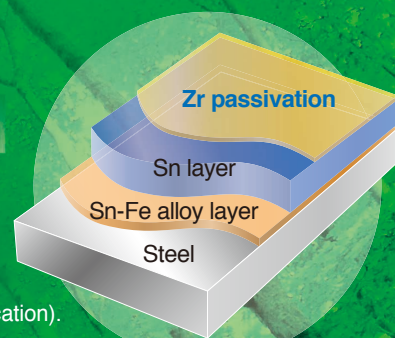
## Tinplate with zirconium passivation

### EZP™

EZP™ is the trademark for our chromate-free tinplate, which was named after the words “feel easy” and “product,” to reflect our wish that this product will make its users “feel safe.” The green leaf in the product logo indicates that it is a safe and eco-friendly product. Recognized for its high safety as a food container material, EZP™ has been officially certified as a Food Contact Substance in the USA (FDA/FCA No.1253) and in the EU.

### Features

- EZP's manufacturing process does not use chromate treatment, while ensuring that its basic performance is equivalent to that of conventional tinplate.
- The manufacturing process can meet a variety of requirements to suit various applications (such as lacquer adhesion and sulfur resistance).
- It conforms to standards of various countries (such as the ASTM tinplate specification).
- Its manufacturable range is the same as that of conventional tinplate.
- The terms of use for users are basically unchanged.



Structure of EZP™



NET ZERO  
NIPPON STEEL  
Green Transformation  
Initiative

**NIPPON STEEL CORPORATION**

(Reference) **FDA FCN No. 1253**

<https://www.cfsanappsexternal.fda.gov/scripts/fdcc/index.cfm?set=FCN&id=1253>

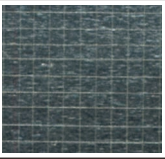
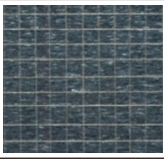
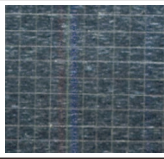
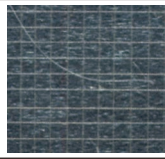
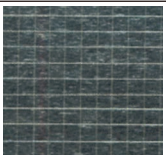
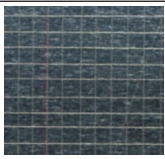
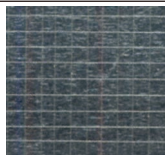
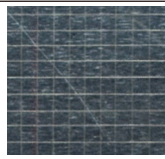




## Lacquer adhesion:

Cross-cut tests(\*) were performed with EZP™ and conventional tinplate before/after retort treatment. Both samples showed no peeling of the coating.

\* : Tape-peeling is performed on a baked-lacquered specimen, and then the peeled areas are evaluated.

	Pre-retort	Post-retort			
		NaCl sol.	Acetic acid	Citric acid	
<b>EZP™</b>					<b>No peeling</b>
<b>Conventional</b>					<b>No peeling</b>

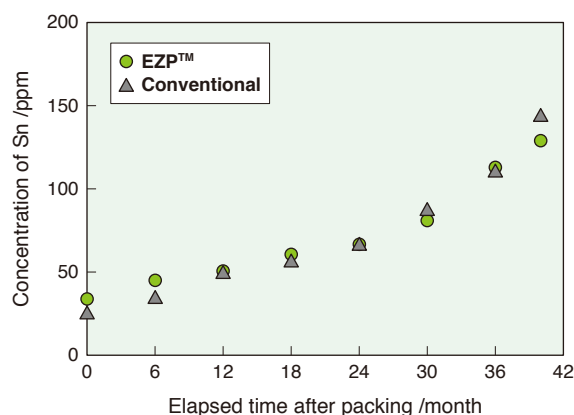
## Resistance to sulphide staining:

After retorted in a 0.6% cysteine aqueous solution at 125°C for 60 min, specimen surfaces were observed. EZP™ and conventional tinplate showed no staining. A non-passivated specimen showed blackening.

<b>EZP™</b>	<b>Conventional</b>	<b>Non-passivated</b>
		
<b>No sulphide stain</b>	<b>No sulphide stain</b>	<b>Sulphide stain</b>

## Corrosion resistance:

Uncoated cans were filled with fruits. They went through a storage test for 40 months. The elution amounts of Sn in the content syrup was measured and appearances were observed. No significant differences were found.



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**NIPPON STEEL CORPORATION**

2-6-1 Marunouchi, Chiyoda-ku, Tokyo 100-8071 Japan  
Tel: +81-3-6867-4111 Fax: +81-3-6867-5607  
www.nipponsteel.com



JR-AW-20003E



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