

# **SOLVING THE INSOLUBLE - ELECTROLYTIC TINNING LINES WITH INSOLUBLE ANODES**

**Giovanni Astengo**

Tenova, Strip Processing  
Torre Shipping, Via De Marini 53  
16149 Genova, Italy  
Tel.: 39 010 605 4591

E-mail:  
giovanni.astengo@it.tenovagroup.com

**Thomas DeLoia**

Tenova Strip Processing  
LOI Inc, 333 technology Drive,  
Pittsburgh PA, USA  
Tel.: 724 743 1120, Ext. 166

E-mail:  
thomas.deloia@us.tenovagroup.com

## **ABSTRACT**

Tenova in cooperation with CSM Centro Sviluppo Materiali has developed a new low-sludge tin dissolution process.

The application of Tenova insoluble anode technology minimizes the amount of sludge produced and hence the loss of tin. Other benefits are the reduction of manpower for anode handling and therefore increase in safety during operation, improved coating quality, better process control and elimination of phenol vapors in the working environment.

The process is based on the oxidation of metallic tin granules by the tinning electrolyte flowing in a dissolution reactor. The electrolyte is then saturated with pure oxygen.

The new tin dissolution process technology was proven on an industrial line at Ternium Siderar. The industrial campaign carried out last year at Ternium Siderar, confirmed that the developed tin dissolution process considerably reduces the quantity of generated sludge and consequently the loss of tin.

The paper describes in detail the achieved improvements as well as the very satisfactory results reached in tinplate produced with insoluble anodes.

Among the most significant results it has been possible to optimise the anode and edge mask design, and confirm the dissolution plant efficiency and productivity. Moreover, important operational and maintenance practices have been finally defined.

A new installation, using the process with insoluble anodes, will be a 250,000 TPY Electrolytic Tinning Line located in China.

## **Keywords**

Electrolytic Plating, Tinning Lines, Insoluble Anodes

## **REFERENCES**

1. G. Astengo, V. Ferrari, "Techint insoluble anodes technology with an improved tin dissolution process", Proceedings Eighth International Tinplate Conference, (2004)

2. J. Lampereur et al.; "Electrotinning at high current densities"; Proceedings 4<sup>th</sup> International Tinplate Conference, (1988)
3. B. Paramanathan, E. N. Soepenber; "A pilot plant for steel strip coating by radial jet electrolysis at high current densities", ECSC Final Report EUR 17817 EN, (1997)