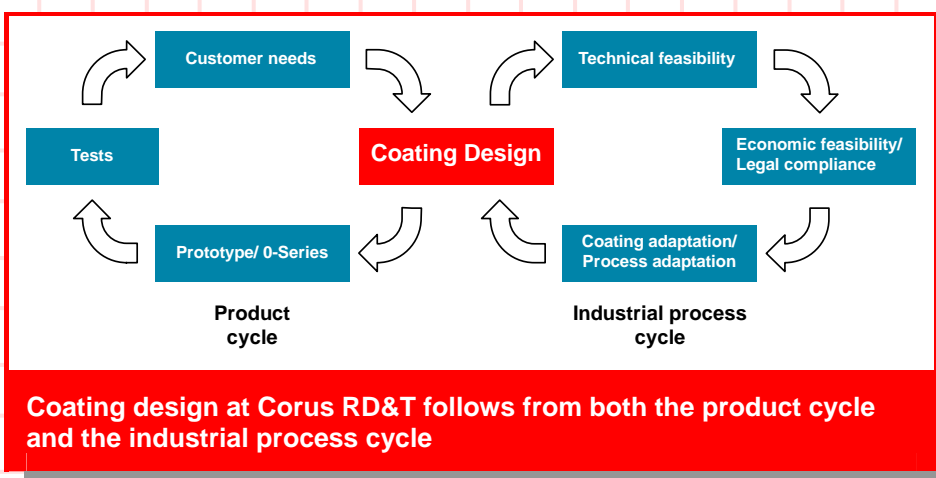


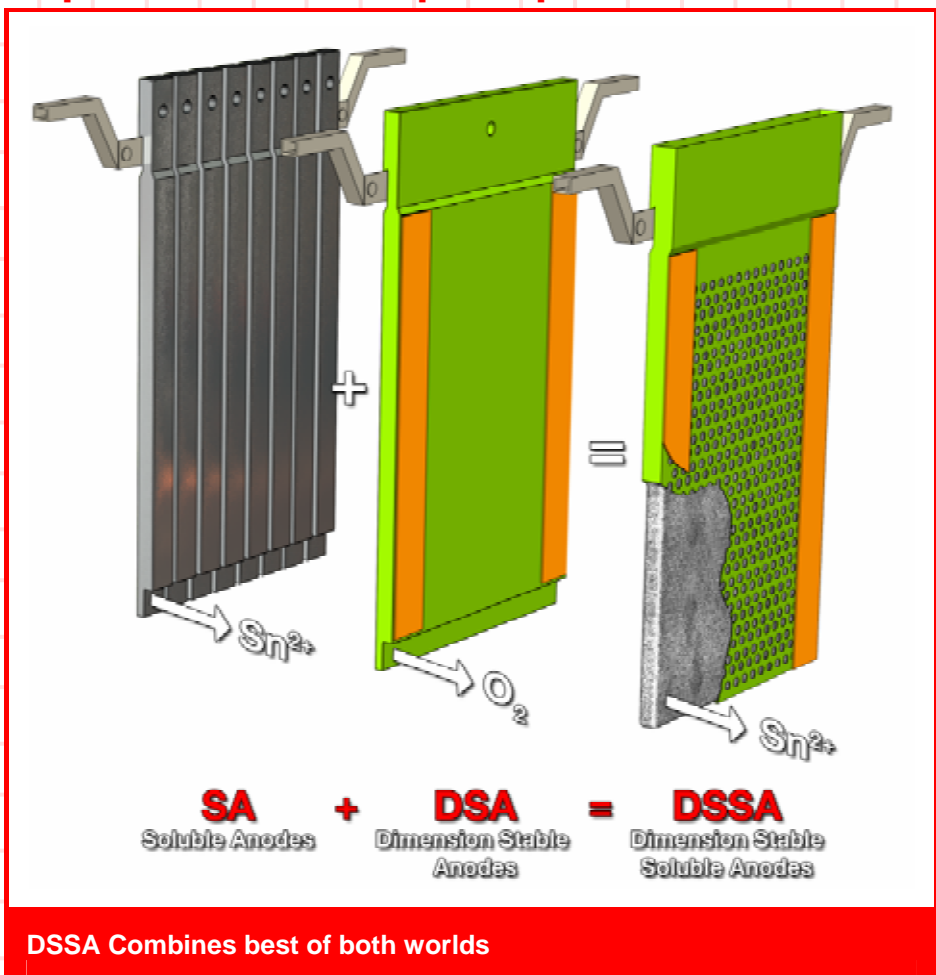
Electroplating

Coating design in continuous strip plating

Introduction



Improvement of tinplate process



SA (Soluble Anodes):

- Conventional (USS) tin bars

DSA (Dimensional Stable Anodes) (NSC):

- Inert plate (Ti/IrOx) and replenishing tower

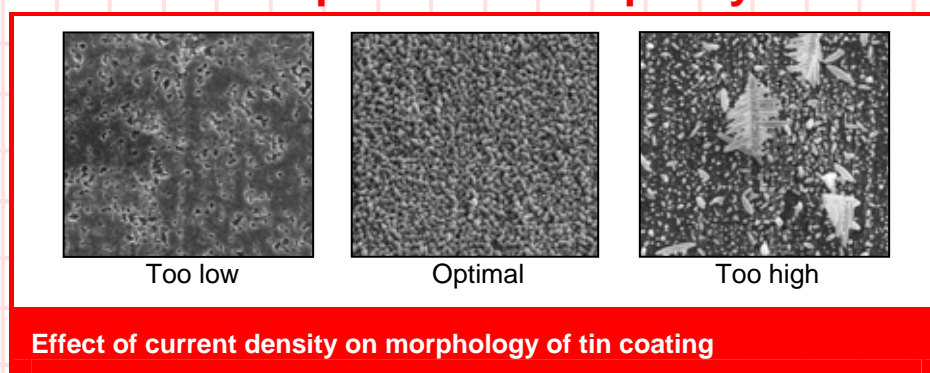
DSSA (Dimensional Stable Soluble Anodes) (Corus):

- Ti basket with tin granules

SA + DSA = DSSA: Combines best of both worlds

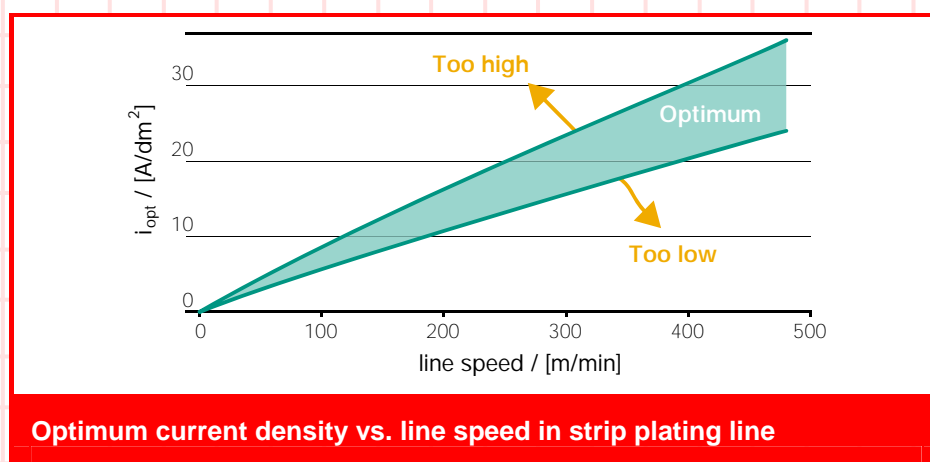
- **Health** - Less anode handling & electrolyte exposure
- **Quality** - Uniform tin coating weight distribution
- **Robust** - Consistent coating process
- **Costs** - Less energy, operational and maintenance
- **Lean** - No transport or spent anodes & tin sludge

Consistent tinplate surface quality



Quality of tin layer is determined by:

- Formation of nuclei (very small tin crystals)
- Current density at which nuclei grow
- Discontinuous character of strip plating line

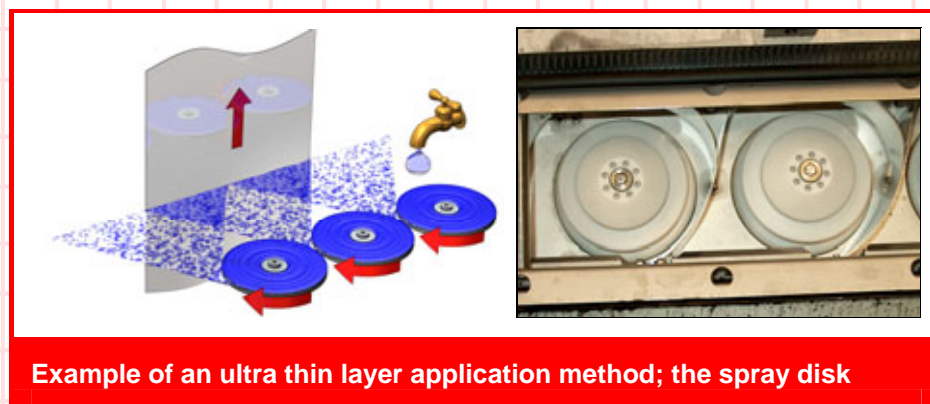


Chrome(VI) free passivation

- Currently tinplate is passivated with Cr(VI) which forms a ultra thin Cr(III) oxide layer
- Globally the use of Cr(VI) is under pressure from health, safety and environmental legislation

Therefore, Cr(VI) free processes are evaluated on:

- Occupational health and safety, food safety (EU and FDA) and environmental aspects
- Performance (lab scale and extensive pack tests)
- Application (lab and pilot scale, and line trials)



To facilitate global acceptance, packaging steel, lacquer producers and can makers have contributed in the design of a uniform test protocol.