

CFPA tinplate for packaging

The sustainable, efficient and reliable replacement for conventional tinplate

CFPA tinplate (chromium free passivation alternative) offers the same functionality as conventional tinplate and has been developed to provide an equivalent level of technical performance. Food-safe and suitable for a wide range of packaging applications, CFPA tinplate enables fast and repeatable processing.



Developed jointly by Tata Steel and other leading European steelmakers, CFPA tinplate is fully compliant with European Union regulations prohibiting the use of hexavalent chromium (chromium VI) in tinplate manufacture.

Performance benefits

- Production process is 100% free from hexavalent chromium
- Reliable quality for product performance and efficient canmaking
- Approved for food contact (including Europe and USA)
- Available in two variants compliant with new Euronorm (EN) standards

Applications

CFPA tinplate is suitable for application in all packaging market segments where tinplate has traditionally been used. These include:

- Food
- Beverage
- Aerosol
- General line
- Closures

Passivation

The passivation process provides a protective layer (1mg Ti per m² per side) on tinned steel - controlling the growth of tin oxide and enabling a long shelf life. Unchecked tin oxide growth can impair lacquer adhesion and affect welding. Hexavalent chromium is used globally in the process for passivation of tinned steel. The European Union is banning the use of hexavalent chromium in passivation under its REACH (Registration, Evaluation, Authorisation and restriction of Chemicals) regulations governing the use of chemicals.

In 2006 (when REACH was introduced) Tata Steel began working with fellow members of the Association of European Producers of Steel for Packaging (APEAL) to develop a tinplate alternative which excludes the use of hexavalent chromium in the passivation process. CFPA tinplate material for packaging – now the agreed European alternative to conventional tinplate – employs titanium and zirconium oxides in a highly homogeneous passivation process. This innovative process is 100% hexavalent chromium-free. The protective layer provided in CFPA tinplate stabilises tin oxide in a similar way to chromium passivation – demonstrating equivalent control of tin oxide growth and delivering equivalent product shelf life.

Process and product performance

Rigorous testing and trials have proved that CFPA tinplate delivers the same high levels of formability and weldability associated with conventional tinplate. Surface appearance and direct printability are also equivalent to those achieved with tinplate. CFPA tinplate is characterised by excellent wettability when compared with conventional tinplate. This makes the application of lacquers easier.

CFPA has been developed to provide good levels of lacquer adhesion, sulphide staining resistance and corrosion resistance. Tata Steel is working closely with canmakers (and their lacquer suppliers) as they execute pack testing to evaluate and optimise performance. Laboratory scale testing of laminate adhesion with CFPA shows good performance on three piece welded food cans, demonstrating that for these applications Protact®, Tata Steel's revolutionary solution for sustainable and efficient canmaking, is compatible with CFPA.

Food safety

CFPA tinplate is compliant with food contact legislation in Europe. It has also obtained an FDA Food Contact Notification (FCN) for human food and dry infant formula to cover the USA. Confirmation of compliance with food contact regulations for human food in Mercosur and China is imminent.

Variants

CFPA tinplate is available in two variants compliant with the EN 10202 standard for cold reduced tin mill products*. These are:

- Code 505 - passivation without pre-treatment step
- Code 555 - passivation with pre-treatment step giving improved sulphur staining resistance (recommended option for retorted food cans)

CFPA tinplate is available in single reduced and double reduced batch-annealed and continuous-annealed steel grades and, a choice of coating weight, surface finish and oils for transit.

Sustainability

Developed in response to REACH regulations governing improved protection of human health and the environment, CFPA tinplate is produced using a more sustainable manufacturing process when compared with traditional tinplate production. Like other steel for packaging, CFPA tinplate is a permanent material which can be infinitely recycled without any loss of its intrinsic properties.

Thickness and dimensions

CFPA tinplate is available in a range of thicknesses and full width.

Customer support

Our customer technical support team is here to support you in the selection, adoption and optimised use of CFPA tinplate in your canmaking operations.

For more information:

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* EN 10202 is agreed and updated at 2020 and will be published in 2021.

Incorporation of CFPA in the ASTM standard is currently under discussion.

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