

TATA STEEL



Protact®

Optimized, efficient and sustainable laminated steel for packaging



INTRODUCING PROTACT®

Protact laminated steel from Tata Steel is a fully approved and controlled food-safe product. It is a proven material solution across a number of high-performance canmaking applications and formats. Protact removes the need for cost-intensive operations associated with the use of lacquers. Based on a steel substrate, it is infinitely recyclable and sustainable. With expertise in coating and lamination development, Tata Steel is recognized as a leading laminated steel manufacturer. It continues to invest in multiple, high-

capacity production lines and is the only steelmaker with commercial canmaking equipment as part of its world-class research and development facilities.

Protact removes the need for cost-intensive lacquering operations – eliminating VOC emissions and cutting energy. Furthermore using Protact can significantly reduce water consumption. Its extra width allows a 10-15% increase in canmaking output. High wall ironing ratios deliver consistently reliable forming. Protact's three-layer polymer coating system can be tailored to your

operations for optimized efficiency and brand impact. Protact is suitable for all product applications and is fully recyclable. Canmaking with Protact, for example in 2-piece drawn and wall ironed (D&I) food cans, removes up to five cost-intensive unit operations related to lacquering. The canmaking process can be water-free and consumes less energy. Using Protact means there are no volatile organic compounds (VOC) emissions during canmaking.

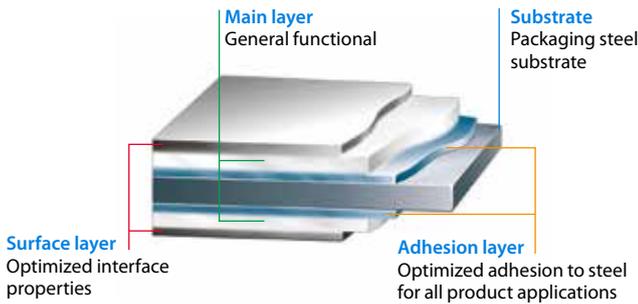


Product features

Protact comprises:

- a steel substrate
- a three-layer polymer coating system on each side of the substrate which has been optimized for food, aerosol, beer and beverage and general line product applications.

The three layers of coating on each side of the substrate comprise an adhesion layer, a main layer and a surface layer.



Protact for food cans

Tata Steel developed Protact laminated steel to not only meet market needs for an even more sustainable, reliable and safe packaging material, but also to offer canmakers an opportunity to increase yield and be more competitive by removing cost-intensive unit operations in canmaking. Technically proven in beer and beverage packaging and already commercially used for various food applications such as deep drawn cans, Protact is a fully approved and controlled food-safe product. It is BPA-free and comprises a steel substrate and a coating of thin layers of Polyethylene Terephthalate (PET) or Polypropylene (PP) to meet a variety of performance requirements.

Use of Protact for 2-piece D&I canmaking eliminates the need for operations related to lacquering. This enables a reduction in associated manning and maintenance. It also eliminates emission of VOCs in the canmaking process and significantly reduces energy consumption. Use of Protact also provides scope for reduced water consumption. To deliver further gains, Tata Steel is developing Protact laminated steel to full D&I width for optimised can line output.



Protact for food cans

Protact is well suited to be used for ends as well. It has been used for many years for baby food sanitary ends and easy open ends, demonstrating its excellent food safety profile. End making for 2-piece D&I cans can also be optimised as mentioned above as the lacquering stages and related operations can be omitted.

Although it can be supplied in cut lengths for sheet fed production lines, Protact becomes fully beneficial with an optimized coil-fed operation, improving overall line efficiency with lower inventory and intermediate stocks, the elimination of lacquer curing stages and reduced handling.

Protact for fish cans

Fish cans, often in the form of a DRD can, are being produced with material supplied from Tata Steel. For salmon cans, this implies the required salmon release properties are achieved in our coatings, for other fish and seafood packs aspects like visual appearance after sterilization, color and other aspects are important. Protact, supplied with a white internal, gold external coating for 2 piece DRD cans, has a long history of use in the South American seafood market.

Food safety

Current food contact legislation is designed to:

- safeguard human health
- protect packaged foodstuffs from unacceptable changes in composition and quality

Tata Steel maintains strict compliance to the EU and USA food contact regulatory systems and their requirements in the manufacturing of Protact. Strict adherence to all relevant legislated procedures ensures that Protact is certified compliant with food safety legislation. Certification and testing is undertaken with the Independent TNO Triskelion food safety institute in the Netherlands.

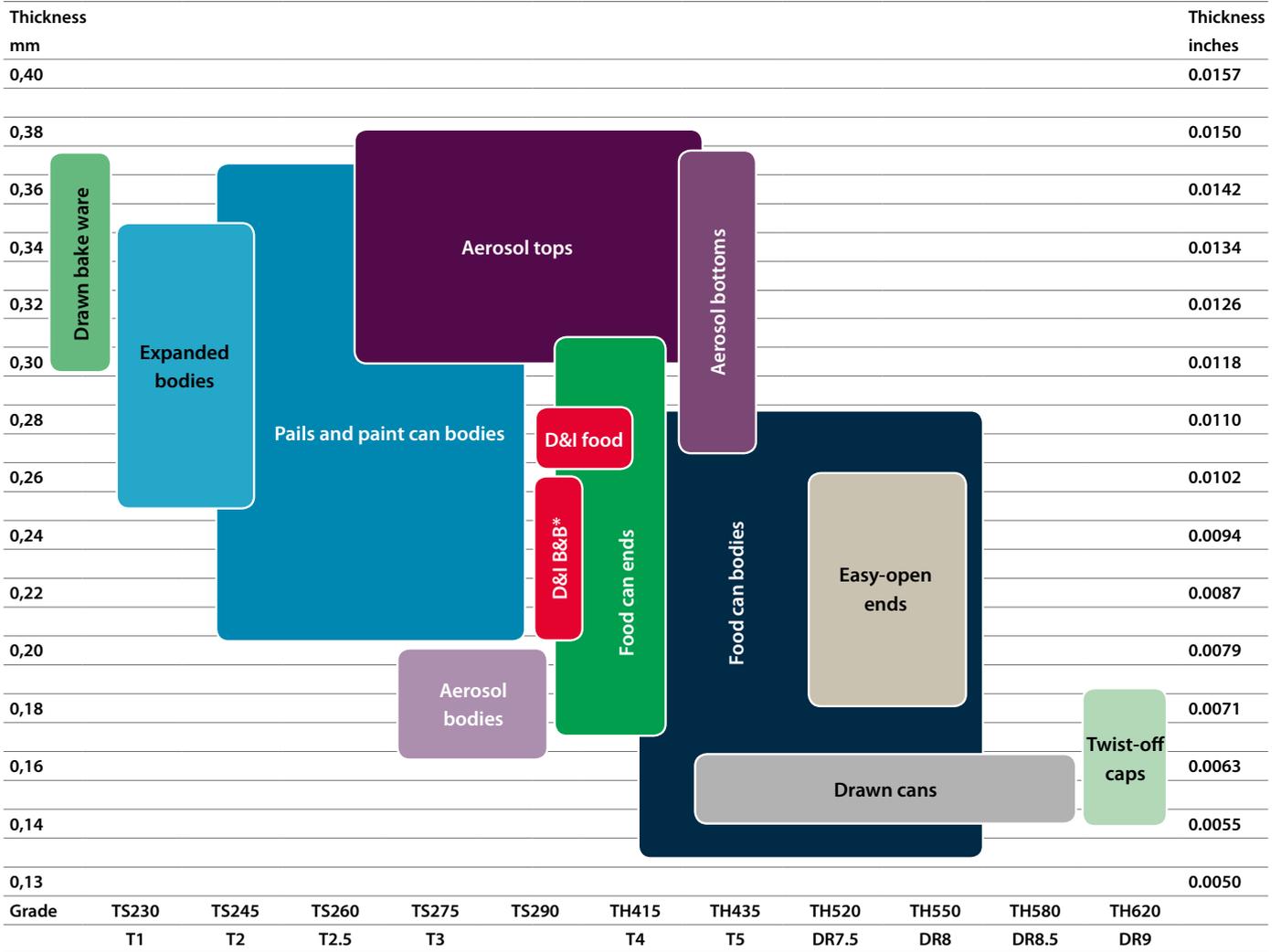
Protact for aerosols

Protact is also available for aerosol can manufacture. It offers a number of benefits over lacquered ends for components such as tops and bottoms. One benefit is the elimination of orange rust rings in humid environments such as bathrooms. More brittle lacquers tend to be susceptible to corrosion from liquids including shaving foam. Protact has a more flexible coating which means that end corrosion is eliminated. The 2-piece aerosol container has been a huge success in the market. For aerosol can manufacturers, Protact allows for production optimization and improved product performance, in the same way as it does for 2-piece D&I food cans. This makes for a significantly more



Protact for fish cans

General specification window for packaging applications



* Beer and beverage cans

Specifications shown here are typical values. For all enquiries, including outside of these specifications, please contact us.

efficient can production process with a lower environmental footprint. One additional advantage of Protact is its capability to support high quality printing. Protact is designed to work with the latest direct-to-cylinder printing, helping aerosol producers stay ahead in productivity, reliability and image quality.

Protact for general line

One longstanding application for Protact is in the general line area which includes paint cans. Protact can be used here to produce components such as lids and rings. Protact’s flexible coating makes strong deformation possible whilst still offering good pack performance with water-based paint systems.



Protact for aerosols



Protact for general line



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Tata Steel Europe Limited

Tata Steel

Packaging
PO Box 10000
1970 CA IJmuiden
The Netherlands

T: +31 (0)251 49 36 85
E: infopackaging@tatasteeleurope.com
🐦 [@TataSteelPackag](https://twitter.com/TataSteelPackag)

www.tatasteeleurope.com/packaging

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