

## Pre-finished metals for consumer products

### Non-stick and heat resistant pre-finished metals

**Suitable for use in consumer product applications where release properties and resistance to high temperatures are required.**

- Domestic bakeware such as roasting tins, cake moulds and spring forms.
- Kitchen appliances including oven interiors and wrappers, toasters, sandwich makers, coffee pot bases and deep fat fryers.
- Domestic heating applications including fires and boilers.
- Hair care products such as curling tongs and driers.

#### Non-stick and heat resistant products

The range includes non-stick, high temperature and more basic easy clean coatings, all applied to various metal substrates.

Tata Steel non-stick and heat resistant products are a blend of PES (polyethersulfone), pigments, PTFE (polytetrafluoroethylene) and other low friction polymers.

Tata Steel easy clean products are silicone or epoxy based, with or without a PTFE content.

Products differ greatly in their:

- Release properties.
- Food safety.
- Resistance to colour and gloss changes at high temperature.
- Damage resistance.
- Durability.
- Forming quality.
- Choice of colour.

#### Abrasion resistant non-stick

These are the ultimate products for applications that demand excellent release properties and high temperature resistance combined with resistance to damage. The products contain high levels of PTFE supported by an abrasion resistant base coat. The coatings can either be applied with a decorative or low cost backing coat or to both sides of the metal substrate. This product is ideal for high wear applications such as coffee pot bases, oven interiors and the most demanding bakeware applications.

#### Premium non-stick

These products have unrivalled release properties and high temperature resistance, and are ideally suited for the premium end of the bakeware market. The coatings can either be applied with a decorative or low cost backing coat or to both sides of the metal substrate. Special products that have good resistance to hot oils are also available on request.

#### Standard non-stick

Standard non-stick products have good release properties and high temperature resistance, but only limited resistance to damage. The coatings can either be applied with a decorative or low cost backing coat or to both sides of the metal substrate.

#### Easy clean

These products are designed to offer a low-cost alternative to true non-stick formulations. The release properties and temperature resistance are satisfactory but customers should assure themselves that the product is suitable for their application, particularly in roaster applications.

#### Heat resistant

These products are designed to add colour and special effects, including patterns and provide an opportunity to visually differentiate the final product. They have good temperature resistance, colour and gloss stability and low friction properties that are a benefit in the drawing process. For extremely high temperature applications (above 300°C applications), super high temperature products are available.

#### Colour range

Heat resistant products are available in a wide range of solid and metallic colours and print effects. Gloss levels can range from 10 to 70%, providing an attractive overall appearance. Non-stick coatings are available in a wide range of colours. Non standard can be available on request, please contact Tata Steel for information.

# Pre-finished metals for consumer products

## Non-stick and heat resistant pre-finished metals

Table 1. Typical properties

	Temperature stability		Resistance to temperature	Durability <sup>[1]</sup>	Flexibility ECCA T07 <sup>[2]</sup>		Film Build ECCA T01 (µm)	Release properties	Safe for food contact <sup>[3]</sup>
	Constant	Intermittent							
Abrasion Resistant non-stick	260°C	280-290°C	Good	Excellent	0-1.0 T	0-0.5T	12-22	Very Good	Yes
Premium non-stick	260°C	280-290°C	Good	Good	0-1.0 T	0-0.5T	12-18	Very Good	Yes
Standard non-stick	260°C	280-290°C	Good	Satisfactory	0-1.0 T	0-1.0T	6-12	Very Good	Yes
Easy clean	160-180°C	210-220°C	Satisfactory	Satisfactory	0.5-1.5T	0.5-1.5T	5-14	Satisfactory	Yes
Heat resistant <sup>[4]</sup>	260°C	280-290°C	Good - Excellent	Satisfactory	0-1.0T	0-1.0T	4-14	-	-

### Notes to the table

[1] Assessment based on results of laboratory abrasion-tester.

[2] No tape removal and bend free from cracks.

[3] Certified to comply fully with European Commission Directive 90/128/EC; complies with regulation US FDA 21 CFR 175.1550, providing extractability limits are met for a particular food contact article (consult Tata Steel for further details).

[4] Higher temperature products are available.

Table 2.

Substrate	Standards	Performance
Electrolytic chromium/chromium oxide coated steel (Hi Top)	EN 10202	Good corrosion resistance and adhesion at high temperatures, good food safe properties
Aluminium-silicon alloy coated steel	EN 10327	Very good corrosion and temperature resistance, with particularly good adhesion
Aluminium	EN 573/485/515	Excellent corrosion resistance and adhesion, lower damage resistance than steel based products, light-weight solution
Cold rolled steel	EN 10139	A basic product, with relatively low corrosion resistance

### Substrates

All substrates are flexible, strong and have a good surface finish. However, they differ in the amount of resistance offered against heat and humidity. Table 2 provides guidance on substrate specification.

substrates and 0.4 to 1.6mm for aluminium. The product can be supplied as wide coil, slit coil down to 6.5mm wide and blanks. For applications where damage may occur during forming or drawing, handling or transit, products are available with a protective film.

### Dimensional capability and further processing

Products come in widths ranging from 200mm up to a maximum of 640mm and in gauges from 0.15mm to 1.6mm for ferrous

Compliant with EU Directive REACH. Food approval statements provided on request.

Contact Tata Steel for more information and technical advice or to request samples.

### Tata Steel

Brockhurst Crescent  
Walsall  
West Midlands WS5 4AX  
United Kingdom  
T: +44 (0)1922 629593  
F: +44 (0)1922 648202  
E: firsteel.sales@tatasteel.com

[www.tatasteelconsumerproducts.com](http://www.tatasteelconsumerproducts.com)

Envirobond is a registered trademark of Tata Steel.

Care has been taken to ensure that the contents of this publication are accurate, but Tata Steel Europe Limited and its subsidiaries, (including Tata Steel UK Limited), do not accept responsibility or liability for errors or information that is found to be misleading. Suggestions for, or descriptions of, the end use or application of products or methods of working are for information only and Tata Steel Europe Limited and its subsidiaries accept no liability in respect thereof.

Before using products or services supplied or manufactured by Tata Steel Europe Limited and its subsidiaries, customers should satisfy themselves as to their suitability.