



TIN PLATE  
PRODUCTS

# TIN PLATE

In its Tin Plates division in Sabac the HBIS Serbia produces tin plate on the ETL and TSL production lines through the processes of side trimming, tin plate plating, cutting and packing whereas such tin plate as a final product in a form of coil or sheet is than being used for further processing and final application by the end users. Tin plates produced in HBIS Serbia have various applications depending on chemical composition, mechanical properties, dimensions, tin coating and passivation. Tin plate is used in packing industry for tin can production, and its further application is found in various areas: nutrition, chemical, pharmaceutical and other industries.

## TIN PLATE COIL

### SINGLE REDUCED (SR)

For materials annealed under annealing bell (BA):  
Thickness: 0.17 -0.49 mm  
Width: 685 - 955 mm  
For continuous annealed materials (CA):  
Thickness: 0.17 -0.49 mm  
Width: 700 -976 mm

### DOUBLE REDUCED (DR)

For materials annealed under annealing bell (BA):  
Thickness: 0.14 -0.26 mm  
Width: 700 -950 mm  
For continuous annealed materials (CA):  
Thickness: 0.14 - 0.39 mm \*  
Width: 700- 975 mm

\* Maximum thickness depends on steel quality

## TIN PLATE SHEETS

### SINGLE REDUCED (SR)

For materials annealed under annealing bell (BA):  
Thickness: 0.17 -0.49 mm  
Width: 685 - 955 mm  
For continuous annealed materials (CA):  
Thickness: 0.17 -0.49 mm  
Width: 700 -976 mm

### DOUBLE REDUCED (DR)

For materials annealed under annealing Bell (BA):  
Thickness: 0.14 -0.26 mm  
Width: 700 -950 mm  
For continuous annealed materials (CA):  
Thickness: 0.14- 0.39 mm\*  
Width: 700- 975 mm

- Length: 500 - 1150 mm  
- Bundle weight: 0.5 - 2.0 t

\* Thicknes 0.13 is produced only in TS550

HBIS Serbia Tin plates Šabac in their side trimming, tin plate plating, cutting and packing processes produces tin plate as a final product according to the EN 10202:2001 standard:

### Delivery form:

- Tin plate in coils
- Tin plate in sheets

### Final surface finishing (roughness):

Final surface finishing	Mark	Surface roughness - Ra (µm)
Bright	BR	≤ 0.35
Fine Stone	FS	0.25 - 0.45
Stone	ST	0.35 - 0.60

\* Possibility of Bright (BR) surface production is being negotiated during ordering

### Passivation:

- 311 (Cathodic Sodium Dichromate - CDC: 3,5- 9,0 mg/m<sup>2</sup>)
- 300 (Sodium Dichromate Solution: 1,0 - 3,0 mg/m<sup>2</sup>)

### Oiling:

- DOS (Diocetyl Sebacate: 2 - 10 mg/m<sup>2</sup>)

### Quantity of tin coating (g/m<sup>2</sup>):

Possibility of tin plate production in specific delivery form, final surface finishing (roughness), passivation and quantity of tin coating is being agreed during ordering. All other request related to quality and dimensional assortment, measures and shapes with tolerances, quality certificates, packing type and general delivery terms could be also discussed during ordering.

Quantity of tin coating (g/m <sup>2</sup> )	
Normal coating	Differential coating
E 1.0/1.0	D 1.0/1.4
E 1.4/1.4	D 1.0/2.0
E 2.0/2.0	D 1.4/2.0
E 2.8/2.8	D 1.4/2.8
E 4.0/4.0	D 2.0/2.8
E 5.0/5.0	D 2.0/5.0
E 5.6/5.6	D 2.0/5.6
	D 2.8/4.0
	D 2.8/5.0
	D 4.0/2.0
	D 5.6/2.8
	D 8.4/2.8
	D 8.4/5.6
	D11.2/2.8
	D11.2/5.6

Material with differential coating can be produced as above noted and reversed, except tin coating on under layer cannot be more than 5.6g/m<sup>2</sup>

## STEEL QUALITY

HBIS Serbia delivers tin plate according to EN10202:2001 standard. Qualities that can be produced are listed in the following table:

### Tin plate products

Final reduction	SR		DR	
	CA	BA	CA	BA
Annealing				
Grade	TH 415	TS 245	TH 520	TS 520
	TH 435	TS 260	TH 550	TS 550
		TS 275	TH 580	
		TS 290	TH 620	

EN 10202:2001								
Steel type	C-max	Mn-min	Mn-max	S-max	P-max	Si-max	Cu-max	Ni-max
<b>A</b>	0.08	0.18	0.35	0.0200	0.0200	0.03	0.08	0.08
<b>B</b>	0.12	0.30	0.50	0.0200	0.0200	0.03	0.08	0.08
Steel type	Sn-max	As-max	Mo-max	Cr-max	N-max	Al-min	Al-max	ostali-max
<b>A</b>	0.02	0.02	0.02	0.08	0.0080	0.020	0.080	0.02
<b>B</b>	0.02	0.02	0.02	0.08	0.0080	0.020	0.080	0.02

EN 10202 / 2001										
Grade	Min Rp0.2	Max Rp0.2	Min R <sub>m</sub>	Max R <sub>m</sub>	Min HR30T <sub>m</sub> for t ≤ 0.21mm	Max HR30T <sub>m</sub> for t ≤ 0.21mm	Min HR30T <sub>m</sub> for 0.21 < t ≤ 0.28mm	Max HR30T <sub>m</sub> for 0.21 < t ≤ 0.28mm	Min HR30T <sub>m</sub> for t > 0.28mm	Max HR30T <sub>m</sub> for t > 0.28mm
TH 415	365	465	385	485	58	66	57	65	56	64
TH 435	385	485	410	510	61	69	61	69	60	68
TH 520	470	570	490	590						
TH 550	500	600	520	620						
TH 580	530	630	540	640						
TH 620*	570	670	575	675						
TS 245	195	295	290	390	49	57	48	56	47	55
TS 260	210	310	310	410	52	60	51	59	50	58
TS 275	225	325	325	425	54	62	53	61	52	60
TS 290	240	340	340	440	56	64	55	63	54	62
TS 520*	470	570	495	595						
TS 550	500	600	525	625						

\* For TH 620 thickness between 0,291 and 0,38mm mechanical properties are not guaranteed according to standard, but according to: Rp0,2=550-650 MPa and Rm=555-655MPa.

\* For TS 520 standard EN10202:2001 does not prescribe values of mechanical properties. Given values are internally prescribed.

## DELIVERY TYPES, DIMENSIONS AND WEIGHTS

Tin plates are delivered in dimension and weight ranges given in the following tables. The tables show usual delivery forms for this type of steel. Requests for dimensions and weights that are outside the dimensions given in the tables, can also be negotiated. Possibility of coil or sheet production in specific quality, dimensions and weight could be agreed during ordering.

### Tin plate in coil:

Final reduktion	Annealing	Thickness (mm)	Width (mm)
SR*	BA	0.17-0.49	685-955
	CA	0.17-0.49	700-976
DR*	BA	0.140-0.26	700-950
	CA*	0.140-0.39	700-975

DR-CA	
Grade	Thickness (mm)
TH 520	0.14-0.39
TH 550	0.14-0.29
TH 580	0.14-0.29
TH 620	0.15-0.38

Coil ID (inner diameter): 420mm (+10/-15mm) Coil OD (outside diameter): max. 1675mm Weight:4 - 18t

DR\*CA\*

Maximum/minimum thickness depends on steel quality as given in the table.

## Tin plate in sheet:

Final reduction	Annealing	Thickness (mm)	Width (mm)	Length (mm)
SR*	BA	0.17- 0.49	685-955	500-1150
	CA	0.17-0.49	700-976	
DR*	BA	0.13*-0.26	700-950	
	CA*	0.14-0.39	700-975	

Bundle weight: 0.5-2.0t SR\* (single reduced) - single reduced tin plate DR\* (double reduced) - double reduced tin plate BA - annealing under annealing bell CA - continuous annealing

\* Thickness 0.13 mm is produced only in grade TS550.

DR\*CA\* Maximum / minimum thickness depends on steel quality as given in the table for tin plate in coil.

HBIS Serbia - Tinplate Šabac also offers next products:

- HBL lacquered tinplate
- HBP printed tinplate