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# Technical Information of 4artis shield steel bio

**Description:** Matt and scratch resistant surface with excellent taste, aroma and fat barrier properties, sustainable film based on biopolymer (polylactic acid, PLA), compostable (EN13432).

**Characteristic:** Very high yield, reducing packaging and converting equipment downtimes and material waste, transportation and warehousing costs. Strong and air tight gusset and fin seals. Low seal initiation temperature.



Properties	Test Method/ Standard	Value	Unit
Thickness	DIN EN ISO 534	23	µm
Substance/Grammage	ISO 536	27.50	g/m <sup>2</sup>
Yield	DIN 53375	36.36	m <sup>2</sup> /kg
Tensile Strength at Break MD	ASTM D882	-	N/mm <sup>2</sup>
Tensile Strength at Break TD	ASTM D882	-	N/mm <sup>2</sup>
Elongation at Break MD	ASTM D882	-	%
Elongation at Break TD	ASTM D882	-	%
Gloss Angle of Incidence/ Observation 60°/60°	ASTM D2457	5 - 6	GE
Haze	ASTM D1003	-	%
Surface Tension	DIN 55660-2	> 42 dyn	mN/m

**Prior to each and any treatment or processing of the film, the customer is obliged to perform pre-tests under original production conditions in accordance with the form sheet Processing Recommendations.** Damages resulting from the fact that the Customer did not or not properly carry out such mandatory pre-tests shall be borne by the Customer.

The information contained herein corresponds to the current state of our knowledge and is not an extension of the warranty conditions specified in our terms of delivery, in particular, no warranted characteristics. This information sheet can only advise you without obligation. Deviations of ± 5% may occur.

## Explanation of Abbreviations:

ASTM	American Standard Test Method	GE	Gloss Units
DIN	Deutsche Industrie Norm [German Industry Norm]	JIS	Japanese Industrial Standard
DIN EN ISO	German, European and International Standard	MD	Main Direction
		TD	Transverse Direction



# Processing Recommendations

## 4artis shield steel bio

Prior to any treatment or processing of 4artis-laminating films they must be tested in each case under the original conditions of production. Due to the great variety of processing machines and their adjustment parameters as well as the variety of materials on the market only recommendations are possible here.

4artis shield steel bio lamination film should have preferably a temperature less than 30 °C and humidity of 55 ± 5 % in storage areas. Storage at high temperatures or in a horizontal position should be avoided. The material should be consumed within three months of receipt.

To avoid damage or consequential costs, the customer has to ensure that when laminating with 4films-laminating films in the event of any defects in the film (eg wrinkling, stains, spots or other imperfections) the production has to be stopped immediately.

When using 4artis-laminating films, it has to be verified throughout each job that a sufficient compound adhesion to the substrate to be laminated exists. In case of insufficient compound adhesion, processing parameters such as pressure, machine speed and temperature should be varied. In the case that the surface wettability of the substrate to be laminated is particularly poor, the customer might be required to improve the

surface wettability beforehand, for instance, without limitation, by use of a primer or corona treatment or to use another laminating procedure.

Prior to any treatment or processing of 4films-laminating film in following methods:

- UV varnishing
- hot foil stamping
- cold foiling
- adhesive bonding
- creasing
- grooving
- blind embossing
- die cutting
- pocket sealing
- pocket welding

it must take place before an suitability test to be used with the original materials under original conditions generally.





# Processing Parameters

## 4artis shield steel bio

Detailed laminating tests were performed.  
Thereby the following processing parameters were determined.

Lamination on Billhöfer EK 76	
Lamination roller	70 - 80 °C
Airjet	90 °C
Max. processing speed	30 - 40 m/min
Adhesive application	9 - 10 g/m <sup>2</sup>

Lamination on Steinemann Aqua	
Dry roller	50 °C
Lamination roller	70 - 80 °C
Airjet	90 °C
Max. processing speed	30 - 40 m/min
Adhesive application	9 - 10 g/m <sup>2</sup>

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