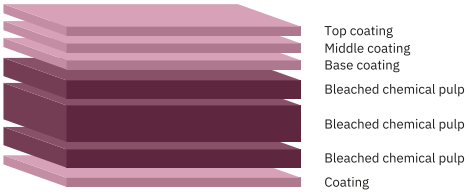
INVERCOTE® G

Facts, figures and properties.
Product specification for Invercote G.

HOLMEN

INVERCOTE G



Solid Bleached Board

Invercote is a multi-layered product (solid bleached board, SBB), entirely based on fresh fibres. Specific fibre compositions are used for the various layers in the construction to optimise performance. The outer layers are dominated by hardwood fibres to promote smoothness and printability. The middle layers consist of softwood fibres for strength and flexibility.

Product description

Invercote G is designed for prestige packaging applications and high-end graphical designs where an exceptional aesthetic effect is desired. Invercote G has an ultra-smooth surface with a triple-coated print side that are tailored to reproduce print images and meet the high demands of foil and film lamination, the reverse side is single-coated. It has a matt finish on both sides, excellent whiteness and a patented coating formula that provides outstanding lightfastness, giving the end products a longer life. Invercote G is suitable for aroma and flavour sensitive products as well.

The 180 and 200 g/m² grammage versions are produced without reverse side coating. Invercote G is also available as linen embossed sheets in all grammages. Invercote G in the grammages 260-380 g/m² are certified as industrially biodegradable and compostable in compliance with the demands in the Directive EN 13432:2000.

Invercote/Inverform Certifications & Standards

Product related				
Possible to order as:				
100% PEFC certified (PEFC/05-33-105)	FSC® Mix Credit (FSC-C110018)	Food safety	Archiving	Toy safety
Certificate no: TUEV-PEFC-COC-117551	Certificate no: TUEV-COC-000232	EC 1935/2004 EC 2023/2006 FDA 21 CFR German BfR XXXVI	Acid free	EN 71 Part 3 EN 71 Part 9
All fibres from sustainable and controlled sources in compliance with the EU Timber Regulation EC 995/2010.				
EcoVadis Platinum Medal awarded in 2024 (top 1% of all companies assessed).				
Recyclable according to CEPI Recyclability Test Method-Standard Paper Mill Version 2.				

Mill related
ISO 9001
ISO 14001
ISO 45001
ISO 50001
FSSC 22000

For more detailed information about our certificates, visit iggesund.com/certificates.

Properties - Print side

		Tolerances		Tolerances	Methods/Remarks
Grammage (g/m²)	180-200	+/-4%	220-380	+/-4%	ISO 536
Colour L* - PS	96.7	+/-0.8	96.7	+/-0.8	ISO 5631-2
Colour a* - PS	2.3	+/-0.6	2.3	+/-0.6	ISO 5631-2
Colour b* - PS	-7.9	+/-1.1	-7.9	+/-1.1	ISO 5631-2
Whiteness - PS	129	+/-5	129	+/-5	ISO 11475
ISO Brightness R457 - PS (%)	94	+/-2	94	+/-2	ISO 2470
Surface roughness PPS - PS (µm)	0.9	≤1.4	0.9	≤1.4	ISO 8791-4
Board gloss 75° - PS (%)	40	+/-10	40	+/-10	ISO 8254-1
Surface strength IGT blister - PS (m/s)	0.7	≥0.5	0.7	≥0.5	ISO 3783
Surface strength IGT pick - PS (m/s)	1.3	≥0.8	1.3	≥0.8	ISO 3783
Cobb - PS (g/m²)	30	≤40	30	≤40	ISO 535

Properties - Reverse side

		Tolerances		Tolerances	Methods/Remarks
Grammage (g/m²)	180-200	+/-4%	220-380	+/-4%	ISO 536
Colour L* - RS	96.4	-	96.5	-	ISO 5631-2
Colour a* - RS	2.0	-	1.6	-	ISO 5631-2
Colour b* - RS	-4.3	-	-7.0	+/-1.1	ISO 5631-2
Whiteness - RS	110	-	122	-	ISO 11475
ISO Brightness R457 - RS (%)	90	-	94	-	ISO 2470
Surface roughness PPS - RS (µm)	-	-	5.0	≤7.0	ISO 8791-4
Cobb - RS (g/m²)	30	≤40	30	≤40	ISO 535

Common properties

		Tolerances		Tolerances	Methods/Remarks
Grammage (g/m²)	180-200	+/-4%	220-380	+/-4%	ISO 536
Moisture content (%)	6.0	+/-1.0	6.0	+/-1.0	ISO 287
Ply bond (J/m²)	160	≥120	160	≥120	Tappi 569
Robinson taint	<0.6	-	<0.6	-	EN 1230-2

Robinson taint value is below the detection limit of 0.6.

Grammage dependent properties

											Tolerances	Methods/Remarks
Grammage (g/m²)	180	200	220	240	260	280	300	330	350	380	+/-4%	ISO 536
Thickness (µm)	205	235	260	300	330	360	395	435	465	505	+/-4%	ISO 534
Caliper (pt)	8.1	9.3	10.2	11.8	13.0	14.2	15.6	17.1	18.3	19.9	-	ISO 534
Opacity (%)	94.0	95.6	97.0	97.6	98.0	98.4	98.6	98.8	99.0	99.2	-	ISO 2471
Bending stiffness L&W 5° - MD (mNm)	5.5	8.2	11.9	16.2	20.8	29.9	38.5	50.8	61.8	77.9	-	ISO 5628
Bending stiffness L&W 5° - CD (mNm)	2.5	3.7	5.4	7.5	9.7	12.5	16.0	21.0	25.0	31.0	-	ISO 5628
Bending resistance L&W 15° - MD (mN)	65	95	140	190	245	315	405	550	650	820	-15%	ISO 2493-1
Bending resistance L&W 15° - CD (mN)	30	45	64	83	107	137	180	230	275	345	-15%	ISO 2493-1
Bending moment Taber 15° - MD (mNm)	3.1	4.6	6.8	9.2	11.8	15.2	19.6	26.5	31.4	39.6	-	ISO 2493-2
Bending moment Taber 15° - CD (mNm)	1.4	2.2	3.1	4.0	5.2	6.6	8.7	11.1	13.3	16.7	-	ISO 2493-2
Tensile strength - MD (kN/m)	17.0	18.5	20.0	21.5	23.0	24.0	25.5	28.0	29.5	31.0	-	ISO 1924-2
Tensile strength - CD (kN/m)	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.5	14.0	14.5	-	ISO 1924-2
Tearing resistance - MD (mN)	2000	2300	2700	3100	3300	3700	4300	4700	5200	6400	-	ISO 1974
Tearing resistance - CD (mN)	2000	2350	2800	3300	3600	4000	4600	5100	5600	6400	-	ISO 1974

Bending Moment Taber is a calculated value based on a correlation factor of 20.7.

Test methods

All properties are measured in test climate 23°C/50% RH at Iggesund mill. Tolerances and max/min levels, when stated, are based upon 95% confidence interval within each production run. Read more about testing methods in our section about General Technical Information (https://www.iggesund.com/insights/paperboard-know-how/general-technical-information/).

Online version

Access the online version of this spec sheet on:
iggesund.com/invercote-G

Holmen Board and Paper
holmen.com/boardandpaper

GENERAL TECHNICAL INFORMATION

This is a collection of technical information designed to give you a general picture about everything from product safety regulations to sustainability performance and paperboard terminology.

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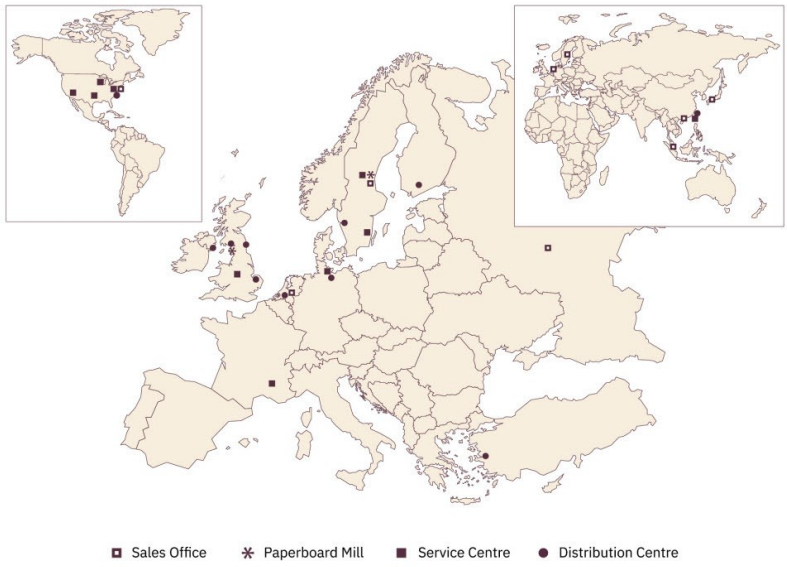
GENERAL TECHNICAL INFORMATION

Introduction

How is the paperboard quality tested? Which EU regulations apply to paperboard material and how are our products evaluated according to sustainability standards and certifications? General Technical Information is a collection of technical information designed to give you a general picture about everything from product safety regulations to sustainability performance and paperboard terminology.

This information includes an overview of various kinds of paperboard and advice about how the paperboard material should be handled to achieve the best possible results. The recommendations and advice are designed to help you in selecting and using our three product families: Invercote, Incada and Inverform. If you are interested in complete and updated product specifications, go to iggesund.com/products.

We hope that our product information will make it easy for you to find a product that fits your needs and specifications. The specifications are regularly updated online. If you have a specific question about our material or products, please contact our customer service.



Contact us

To find a local Holmen Board and Paper representative please go to the contact page on iggesund.com/contacts (https://www.iggesund.com/contact-and-support/contact-us/contacts/) or call one of the numbers below.

Switchboard numbers:

Europe, Amsterdam, Netherlands
+31 20 655 9200

Lyndhurst, United States
+1 201 804 99 77

Workington, United Kingdom
+44 1900 601000

Asia
Hong Kong
+852 2516 0250
Singapore
+65 6392 8600
Japan
+81 3 3560 3068

Made in Sweden and England

Holmen manufactures a range of paperboard products at the Holmen Iggesund Mill and the mill in Workington, England. We also offer plastic extrusion and various kinds of lamination in combination with our paperboard. All our facilities have been production units for the better part of a century thus advancing the craft, performance and production methods of our paperboard products.

EcoVadis - third party assessment of CSR data

Holmen mill Iggesund report their CSR data to EcoVadis and have, after undergoing assessment of data from 2020, received Platinum Level in the EcoVadis system. Our mills are among the top one per cent of almost 25,000 companies that are annually assessed by EcoVadis.

The EcoVadis scorecard for each mill can be downloaded at iggesund.com/certificates (https://www.iggesund.com/sustainability/our-production/certificates-and-awards/).

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Paperboard handling

The correct handling of paperboard is very important for achieving the best results in printing, converting and use. To ensure this we recommend the following procedures to printers, converters and other users.

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Sheet and reel tolerances

	Iggesund Invercote Inverform	Workington Incada	Strömsbruk Extrusion coating Film, foil and board laminated	Sheeting stations/ Service centres
Sheets				
Width (Cross direction (CD) or Slit dimension)	0/+2 mm	0/+2 mm	0/+2 mm	0/+2 mm
Max slit wander	0.25 mm/sheet	0.25 mm/sheet	0.25 mm/sheet	0.25 mm/sheet
Length (Machine direction (MD) or Chop dimension)	0/+2 mm	0/+2 mm	0/+2 mm	0/+2 mm
Squareness	1 mm per metre	1 mm per metre	1 mm per metre	1 mm per metre
Number of sheets/pallet*	±0.5 %	±0.5 %	±5 %	±0.5 %
Number of sheets/ream (ream wrapped, typically 100 sheets)	±3 sheets	±3 sheets	±3 sheets	±3 sheets
Max sheet size	1345 x 1600 mm	1400 x 1600 mm	1350 x 1600 mm	1400 x 1610 mm
Min sheet size	290 x 420 mm		405 x 450 mm	
	Embossed board: 290 x 450 mm		Board laminates: 400 x 550 mm	
Max pallet height	Standard board: 1580 mm (pallet incl.)	1500 mm (pallet incl.)	1580 mm (pallet incl.)	1500 mm (pallet incl.)
	Embossed board: 1250 mm (pallet incl.)		Board laminates: 1140 mm (pallet incl.)	

* According to information given on pallet or reel label.

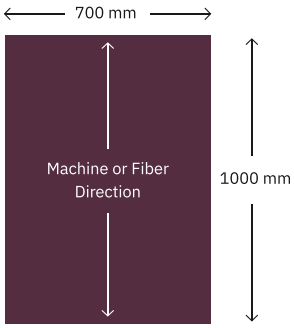
	Iggesund Invercote Inverform		Workington Incada		Strömsbruk Extrusion coating Film, foil and board laminated		Sheeting stations/ Service centres	
Reels	≥ 120 mm:	< 120 mm:	≥ 230 mm:	< 230 mm:	≥ 120 mm:	< 120 mm:	≥ 230 mm:	< 230 mm:
Width	±1 mm	0/–1 mm (0/+1 mm and ±0.5 mm by request)	0/+2 mm	0/–0.5 mm	±1 mm	0/–1 mm	±1 mm	0/–1 mm
Length*	±0.5%	±5 metres	±0.5%	±5 metres	±0.5%	±5 metres	±0.5%	±5 metres
Core displacement	< 5 mm	< 2 mm	< 3 mm	< 2 mm	< 5 mm	< 2 mm	< 5 mm	< 2 mm
Diameter, general	Max 1800 mm ± 25 mm		Max 1800 mm ± 25 mm		Max 1800 mm		Max 1200 mm ± 25 mm	
If max diameter specified	+0/–50 mm		+0/–50 mm		+0/–50 mm		+0/–50 mm	

* According to information given on pallet or reel label.

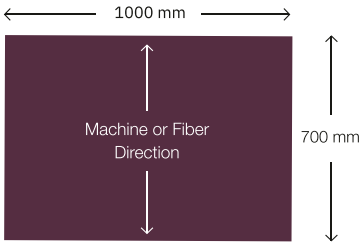
Sheet grain direction

Grain results from the fact that fibers flowing onto the paperboard machine align themselves predominantly in the direction of their flow and the moving wire. The direction that is parallel to the flow of fibers on the wire is called the Machine Direction (MD). Direction perpendicular to the machine direction, or across the paper machine wire, is called the Cross Machine Direction (CD). Grain direction is called long-grain (or grain-long) when the longer sheet dimension is the same as, or parallel to, the machine direction. Shortgrain paperboard has its shorter sheet dimension parallel to machine direction. A diagram of each is below:

Long grain 700 x 1000 mm



Short grain 1000 x 700 mm



Reel join

Reel join markings as used by Holmen are identified according to the following:

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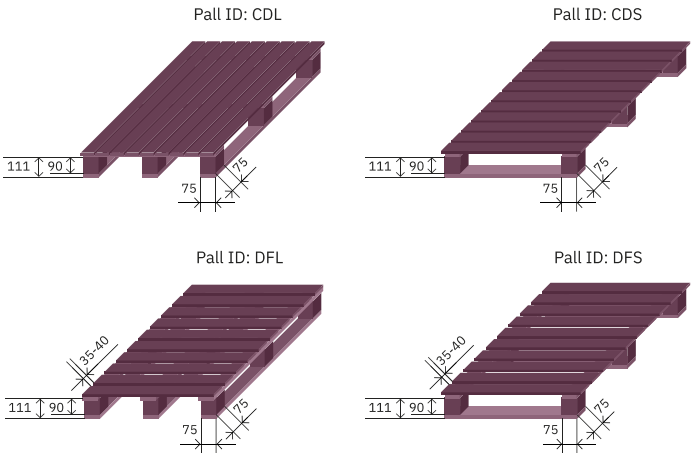
Restrictions affecting reel diameter

Reel width	Diameter	Wrapping	
Iggesund safety restrictions			
<460 mm		Double packed reels	
460-479 mm	<1101 mm	Single packed reels	
480-489 mm	<1351 mm	Single packed reels	
490-501 mm	<1551 mm	Single packed reels	
502-540 mm	<1651 mm	Single packed reels	
>540 mm	<1800 mm	Single packed reels	
Workington safety restrictions			
<400 mm	>900 mm	Reel will be multipacked.	
>400 mm	>900 mm	If diameter is <3 times the reel width = single packed.	
		If diameter is between 3 and 3.5 times the reel width = single or multipacked. System will allow both options. The customer decides.	
		If the diameter is >3.5 times the reel width = multipacked.	
Strömsbruk safety restrictions			
<600 mm	Max dia 2.3 x width	Single packed	Larger diameters will be double packed.
≥600 mm	Max dia 2.6 x width	Single packed	

For the Iggesund plant, grammages above 300 g/m2 must be ordered on a 302/305 core.

Pallets for sheet deliveries



The most frequent pallet types for sheet deliveries used by Holmen Board and Paper.

Code	Version	Description	Code	Version	Description
CD	L	CDL (close deck, runners long)	2CD	L	2CDL (close deck, runners long)
CD	S	CDS (close deck, runners short)	2CD	S	2CDS (close deck, runners short)
DF	L	DFL (direct feed, runners long)	2DF	L	2DFL (direct feed, runners long)
DF	S	DFL (direct feed, runners short)	2DF	S	2DFL (direct feed, runners short)

It is not always possible to deliver certain sheet sizes as single pallets. The option will be twin pallets with the codes 2CDL, 2CDS, 2DFL and 2DFS.

Transport packaging

Transport packaging is used to maintain the quality of the delivered paperboard and to protect it during handling, transport and storage.

Reels have cores made from recycled paper and core plugs from particle wood. The reels are either packed with the ends protected by corrugated kraft board and stretch wrap or only stretch wrapped. The stretch film is low-density polyethylene. The labels are made of bleached kraft paper and, occasionally, plastic labels are used.

For the Iggesund Mill, pallet packs consist of pallets of 100 per cent wood. For the Workington Mill, the blocks are made of pressed wood. All pallets are covered with a protective polyethylene sheet. The paperboard pile is protected on top by a sheet of polyethylene. The whole pallet is then shrink-wrapped with medium-density polyethylene. Labels are made of bleached kraft paper. Ream packs are made from bleached kraft paper coated with a water barrier (polyethylene 10 g/m^2). Labels are made of bleached kraft paper.

The materials used for the transport of packaging meet the requirements in the EU Directive EC 94/62. For more detailed information please contact your Holmen Board and Paper representative.

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Terminology

Holmen's paperboard grades

Abbreviations/keys

According to DIN 19303			
GZ	Coated SBB	**SBB**	Solid Bleached Board
AZ	Cast Coated SBB	**FBB**	Folding Box Board
GC1	Coated FBB, white back	**SUB**	Solid Unbleached Board
GC2	Coated FBB, cream back	**WLC**	White Lined Chipboard
GN	Coated SUB, white or brown back	**G**	Coated
GT	Coated WLC, cream or white back	**U**	Uncoated
GD1	Coated WLC, grey back (spec.volume <1.45 cm^3/g)	**A**	Cast coated
GD2	Coated WLC, grey back (spec.volume 1.3 to 1.45 cm^3/g)	**Z**	Bleached virgin chemical pulp
GD3	Coated WLC, grey back (spec.volume <1.3 cm^3/g)	**C**	Virgin mechnical pulp
UZ	Uncoated SBB	**N**	Unbleached virgin chemical pulp
UC1	Uncoated FBB, white back	**T**	Recycled with white or cream back
UC2	Uncoated FBB, cream back	**D**	Recycled with grey back
UT	Uncoated WLC, cream or white back		
UD	Uncoated WLC, grey back		

Test methods

General

This section contains an alphabetical list of the tests by which paperboard is evaluated during manufacture.

The list is divided into two parts:

- Paperboard property tests
- Extrusion/lamination property tests

These test methods evaluate the board properties, which influence the appearance and performance. Important test values (technical data) for the individual board products are quoted on the board data sheets that can be found at iggesund.com/products. The Paperboard Manual deals in further detail with the board properties in terms of appearance and performance, and how they influence the printing, converting and use of the board.

Paperboard property tests

All properties are measured in a test climate of 23°C/50% RH at the mills. Board performance properties are measured on samples taken from the board production.

Product and use

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Product purity and hygiene

For end uses such as food, confectionery and pharmaceuticals, purity and hygiene are of critical importance. In order to maintain correct product performance Holmen only uses approved raw materials and additives, and carries out the production process according to manufacturing practices that incorporate the use of risk assessment methods. Every chemical additive is assessed according to occupational health and safety, environmental impact and product safety before it is allowed to be used.

Rules, regulations and good manufacturing practice

Over the years, many countries have developed regulations to control the safety of the packaging materials in order to prevent cross-contamination between the packed product and the packaging. The best known and currently most widely recognised regulations are summarised in the table below. In the absence of harmonised European legislation for paper and board intended to be used in contact with food, Holmen ensures that its paperboard products fulfil the relevant requirements listed.

Used products - waste management and producer responsibility

The EU Directive on Packaging and Packaging Waste, 94/62/EC and subsequent amendments, defines common requirements on packaging and packaging waste within the EU. However, the Directive's formal implementation and interpretation and the practical methods introduced by the member countries vary widely. As a consequence, the requirements and methods differ between countries.

In some countries, producer responsibility has been introduced and has led to industry-owned organisations which manage used packaging. In other countries, there are community or nationwide schemes more or less controlled by the authorities. The result is systems with very different approaches to how packaging is taken care of and the costs involved. Each country has its own systems and rules. Waste generated during the manufacture of Holmen's products is managed and reported according to the permits given by the local authorities.

Typical applications for our paperboard

The Holmen products can be extrusion coated with plastics as barriers and glue or extrusion laminated with board, foil or film to achieve special functions. Below you will find examples of various applications, what barriers they require, and what board grades are suitable. To read more about the plastic coating or laminate properties, go to Iggesund.com/products.

For a description of the baseboard, please see the respective product specification. Some products in the overview are not presented in the catalogue but are available upon request and some applications are not listed. Please contact your local Holmen Board and Paper representative for information and recommendations.

Typical product application	Type of board/grade	Type of plastic coating/ laminate
Vegetables (packed pre-frozen) Fish and other seafood (packed pre-frozen) Meat products (packed pre-frozen) Cups and containers Ice cream and frozen desserts Sugar confectionery Chocolate	Invercote GP Incada Exel Inverform	1-side PE
Fish and other seafood (packed wet) Vegetables (packed wet) Cups and containers Ice cream and frozen desserts	Invercote GP Incada Exel Inverform	2-sides PE
Lids and trays for reheating of food	Invercote GP Incada Exel Inverform	1-side PP 2-sides PP
Lids for trays for cooking and reheating of food Trays for cooking and reheating of food Trays for baking (pressed or creased cartons)	Invercote GP Inverform	1-side PET

Confectionery		
Confectionery Tobacco Biscuits and other food Cake mixes Cereals Ice cream	Invercote G Incada Exel	Alubarrier
Wine and spirits Tobacco Perfume and cosmetics Hair care and toiletries Pharmaceuticals Brochures Confectionery	Invercote G Invercote Creato Invercote Albato Incada Silk Incada Exel	Metalprint

Product range

The Holmen product range is very extensive and includes solid bleached boards from 180– 400 g/m² and folding box boards from 200–350 g/m² as well as versions where sheets are glued together or extrusion laminated with foil or film. Below you will find examples of the typical end uses and the grammage/thickness range for the respective products. For further information, please contact your local Holmen Board and Paper contact or visit iggesund.com (https://www.iggesund.com/).

Typical application	Type of board/ Grade	Grammage (g/m^2)	Thickness (µm)
	Solid Bleached Board (SBB, GZ)		
Perfumes, Cosmetics, Chocolates, Pharmaceuticals, Wines and spirits, Book and CD-covers, Cards, Brochures, Advertising material	Invercote G	180-380	205-505
Brochure and catalogue covers, Folders, Tags, Point of sales, CD-covers, Cards, Tobacco	Invercote Creato	220-400	230-485
Perfumes, Cosmetics, Chocolates, Wines and spirits, Advertising material, Covers, Cards, Media, Tobacco	Invercote Albato	250-350	242-285
Tobacco	Invercote Lenato	220-260	275-350
Tobacco	Invercote T	220-280	275-365
	Folding Box Board (FBB, GC1)		
Cosmetics, Chocolates, Medical and health care, Covers, Cards, Media	Incada Silk	220-350	325-590

Tobacco	Incada Silk C	220-340	330-350
	Folding Box Board (FBB, GC2)		
Frozen and chilled food, Confectionery, Wines and spirits, Beverages, Biscuits and other foods, Pharma and health care, Microwaveable products	Incada Exel	200-350	310-640
	Board Laminates		
Advertising material, Games, Wines and spirits, CD-holders, Covers, Point of sales, Brochures, Tags, Chocolates, Glassware, Perfumes and cosmetics	Invercote Duo	450-770	520-1010
Brochures, Tags, Advertising material, Games, CD-holders, Wines and spirits, Electronic goods	Incada Duo	410-995	610-1740
	Foil and Film Laminates		
Tobacco, Wine and spirits, Perfume and cosmetics, Hair care and toiletries, Pharmaceuticals, Brochures, Confectionery	Metalprint	Depending on choice of baseboard grade	
Confectionery, Tobacco, Biscuits and other foods, Ice cream	Alubarrier	Depending on choice of baseboard grade	
	Formable Solid Bleached Board		
Lids for trays for cooking and reheating food,			

Trays for cooking and reheating of food, Trays for baking (pressed or creased cartons), Trays for chilled food, Cups and containers	Inverform	290-380	400-530

Online version

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Holmen Board and Paper
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