INVERCOTE

CARBON FOOTPRINT & ENVIRONMENTAL DECLARATION 2020

HOLMEN IGGESUND

CARBON FOOTPRINT

Company	Iggesund Paperboard AB
Site	Iggesunds Bruk
Product	Invercote family
Period	2020-01-01 – 2020-12-31

The ten elements of the Carbon Footprint Framework

Iggesund Paperboard calculates the Carbon Footprint of its mills based on the ten elements (“toes”) and the guidelines given in the publication “Framework for the development of carbon footprints for paper and board products”. The framework is available at www.cepi.org The carbon footprint is updated annually and based on figures from the previous year.

		Fossil CO_2 (kg/tonne board)	Percentage of total
1	Annual carbon storage in Holmen forest	-677	
2	Carbon stored in paperboard	-1244	
3	Greenhouse emission (fossil) from product manufacturing facilites	39	21%
4	Greenhouse emission (fossil) from producing the wood fibres	21	11%
5	Greenhouse emission (fossil) from producing other raw materials	101	55%
6	Greenhouse emission (fossil) associated with purchased electricity	1	1%
7	Greenhouse emission (fossil) associated with transportation	22	12%
8	Greenhouse emissions associated with product use	N/A	
9	Greenhouse emissions associated with product end-of-life	N/A	
10	Avoided greenhouse emissions	N/A	
	Carbon Footprint SUM 3 -7	**184**	**100%**

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Comments and explanations to the ten elements of the Carbon Footprint framework

1 Annual carbon storage in Holmen forest
Growing forests capture carbon. The quoted figure is calculated by dividing the net CO_2 capture in Holmen’s own Forests by yearly tonnage produced of all Holmen products. Calculated with the assistance of Skogforsk, The Forestry Research Institute of Sweden, and the Swedish University of Agricultural Sciences.

2 Carbon stored in paperboard
Biogenic carbon stored in the products.

3 Greenhouse emission (fossil) from product manufacturing facilities
Fossil CO_2 emissions from combustion of fossil fuels during pulp and paperboard production, including purchased pulp.

4 Greenhouse emission (fossil) from producing the wood fibres
Fossil CO_2 emissions from forest management and harvesting.

5 Greenhouse emission (fossil) from producing other raw materials
Fossil CO_2 emissions from production of non-wood based raw materials and fuels.

6 Greenhouse emission (fossil) associated with purchased electricity
Fossil CO_2 emissions associated with purchased electricity.

7 Greenhouse emission (fossil) associated with transportation
Fossil CO_2 emissions from transport of harvested wood, purchased pulp and other raw materials. Transport to customer is not included as this varies strongly from case to case dependent on transport mode and distance. The emissions related to transport to customer can on request be calculated separately for specific cases.

8 Greenhouse emissions associated with product use
Not applicable for Iggesund Paperboard as a board producer.

9 Greenhouse emissions associated with product end-of-life
Not applicable for Iggesund Paperboard as a board producer.

10 Avoided greenhouse emissions
Avoided emissions of fossil CO_2 by incinerating paperboard waste with energy recovery, which can be viewed as replacing oil as fuel.

ENVIRONMENTAL DECLARATION

Product	Invercote family, 180-770 gm^2
Site and company	Iggesunds Bruk and Iggesund Paperboard
Paper type	Solid bleached board, fresh fibre
Period	2020-01-01 – 2020-12-31

Product composition

Sulphate pulp (ECF bleached)	70-90 % of which 100 % produced at the site
Pigments and fillers	10-20 % of which 0 % produced at the site
Binders	4-7 % of which 0 % produced at the site

Sourcing of energy

Internal and procured fuels used for production of process steam and cogeneration of electricity at the site.
All electricity used is generated from renewable sources.

Renewable sources – 98% | Fossil – 2%

Electricity used	1183 kWh/tonne
Thermal energy used	4590 kWh/tonne

Environmental load

Production site process waste water discharges, atmospheric emissions and solid waste per tonne products in year 2018 (total environmental load of the production of board produced at the site divided with total production of board).

Emissions to water

COD	12 kg/t
AOX	0,09 kg/t
Nitrogen	0,17 kg/t
Phosphorus	0,02 kg/t
Water use	56 m^3/t

Emissions to air

S (total)	0,10 kg/t
NO_x	1,35 kg/t
CO_2 (from fossil sources)	39 kg/t

Waste to landfill

0,37 kg/t

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Explanations

Product composition
Chemical pulp (ECF) ensures that the product has a good hygienic standard as well as taint and odour neutrality. Chemical pulp is produced in an energy-efficient process that makes use of all parts of the log. All pulp used in Invercote is made on site at Iggesund.The coating consists of clay, calcium carbonate and a binding agent in various combinations depending on the end product's properties and intended uses.

Sourcing of energy
Both thermal and electrical energy are used in paper-board manufacture. More than 98% of the thermal energy – the steam – that powers the mill is produced from biofuel. The electricity purchased by the mill supplies 7% of the mill's total energy requirements. The mill is planning to eliminate all fossil carbon dioxide emissions and to become self sufficient on electricity.

Emissions to water
Iggesund Mill is situated on the shores of the Baltic Sea, which is classified as a highly sensitive marine ecosystem. The mill complies with the emissions levels set for it by the Swedish environmental authorities by continually measuring discharged water at about 20 test points. Iggesund constantly monitors the conditions of the marine ecosystems around the mill to ensure that their balance is not disturbed.

Process water discharge
The Iggesund Mill is geographically located in an area of abundant water supply and there is no shortage of availability. All process water is re-circulated and re-used within the process a number of times. Before final discharge to the receiving water, process water is treated in three steps which includes mechanical, biological and chemical treatment, a combination of treatment technol-ogies considered as Best Available Technology.

COD
Chemical oxygen demand is a measurement of the amount of oxygen consumed in the decomposition of organic compounds has its outlet into the sea. The presence of organic by-products such as bark and wood chips gives rise to a COD value. The Swedish environmental authorities set emission levels based on COD to be acceptable to the local conditions and the marine environment adjacent to the mill.

AOX
Adsorbable organic halogen is formed in the pulp making process. High levels of AOX negatively affect marine organisms. Here, too, limits are set to be acceptable to local conditions and the marine environmental adjacent to the mill.

Nitrogen and phosphorus
Nitrogen and phosphorus are elements that when present in large amounts contribute to the overfertilisation (eutrophication) of marine environments.

Emissions to air – S and NO_x
These normally arise from combustion process-es used in the production of energy. They contribute to eutrophication, acidification and the creation of ground-level ozone. All emissions are regulated and monitored by the Swedish licensing authorities.

CO_2 (from fossil sources)
Carbon dioxide is an invisible gas that occurs naturally but its increased emissions from fossil fuel use are contributing to global climate change. This figure indicates the emission of fossil CO_2 from the production of Invercote. The figure should not be confused with the far broader concept of carbon footprint, which encompasses much of the product's lifecycle.

Waste to landfill
Sending waste to landfill creates an unsustainable stress on local landfill facilities and is a growing environmental problem. In the production of Invercote we have system-atically reduced our process waste with a small balance coming from other mill activities where this waste cannot be reused or recycled. As a result, the Iggesund Mill has been deregistered from waste tax by the Swedish authorities.

Water supply
All water used for the manufacturing of Invercote is surface water from the nearby lake Pappersavan. After usage in the manufacturing process the water is cleaned in a three-step process and let out into the sea near to where lake Papperavan has its outlet into the sea.

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WOOD SUPPLY AND CERTIFICATIONS

Certifications

Mill's environmental certificates:	FSC® TUEV-COC-000232 (Logo license: FSC-C110018) PEFC™ 44 11 7551 (Logo license: PEFC/05-33-105) ISO 14001 SP-2778 M

Methods

Certification scheme	Method
FSC® Volume credit system	All FSC certified deliveries contain 100 % certified fibre
PEFCTM Volume credit method	All PEFC certified deliveries contain 100 % certified fibre

Wood supply

All wood used at Iggesund Mill is either certified in accordance with FSC or PEFC or meets FSC requirements for controlled wood. Invercote can be supplied certified in accordance with FSC or PEFC. The wood raw material for the Invercote product is sourced from forest lands that are replanted with new trees in order for it to stay forest. The production of Invercote is to no extent contributing to deforestation.

Wood sourcing information, Iggesunds bruk 2020

Country of origin	%	Procurement region	Species	Forest owners	Certificates
Sweden	90,2	Central Sweden	Pinus silvesteris Pinus contorta, Picea abies Betula spp, Alnus spp	Forest companies and private owners	DNV-COC-000004 DNV-CW-000004 2003-SKM-PEFC-006
Estonia	5,3	Estonia	Pinus silvesteris Picea abies Betula spp, Alnus spp	State forests and private owners	DNV-CW-000004 DNV-COC-000004
Latvia	4,3	Latvia	Pinus silvesteris Picea abies Betula spp, Alnus spp	State forests and private owners	DNV-CW-000004 DNV-COC-000004
Norway	0,2	Norway	Betula spp Alnus spp	Forest companies and private owners	DNV-COC-000004 DNV-CW-000004 2003-SKM-PEFC-006

All pulp for the Invercote production is produced internally within the Iggesund Mill. All wood procurement for the production of Invercote is handled by Holmen Skog, a sister company in the Holmen Group. The certificates given in the table above belong to Holmen Skog.

Environmental management

Certified enviromental management system	SS-EN ISO 14001 since 2001 in 2011
Certified energy management system	SS 62 77 50 since 2005 and upgraded to ISO 50001

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