ANNIVERSARY
BORTOLOMIOL
VALDOBBIADENE
SINCE 1760

EPD®

# Environmental Product Declaration

in accordance with ISO 14025 for

# IUS NATURAE

## Valdobbiadene Prosecco Superiore D.O.C.G. Brut Millesimato


**Programme/**
**The International EPD® System**
www.environdec.com

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EPD should provide current information, and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

# Programme information

**Programme/ The International EPD® System**

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**Product category rules (PCR)/**

PCR 2020:06 v.1.0 Wine

**PCR review was conducted by/**

chair Maurizio Fieschi

**Independent verification of the declaration and data, according to ISO 14025:2006/**

☐ EPD Process Certification ☒ EPD Verification

**Third party verifier/ SGS Italia S.p.A**

**In case of accredited certification bodies:**
**Accredited by/** ACCREDIA - Certificate n.006H

**Procedure for follow-up of data during EPD validity involves third party verifier/**

☒ yes ☐ no

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**Owner of the EPD/ Bortolomiol S.p.A**

Via Garibaldi, 142
31049 Valdobbiadene (TV) Italy

www.bortolomiol.com

**LCA developed by/ Indaco2 srl**

via Roma 21B
IT 53034 Colle di Val d'Elsa (SI)

www.indaco2.it

# Company information

### Description of the organisation:

The Parco della Filandetta extends over two hectares and is located in the heart of Valdobbiadene. Here, the Bortolomiol family has recovered an ancient spinning mill from the early 1900s that has been converted into a large and bright tasting room. The park also houses the first wine-making center, a stone amphitheater, and an organic vineyard. Between works of art and an ancient hornbeam gallery, the park is the perfect place to discover the Prosecco Superiore DOCG and the history of Giuliano Bortolomiol, pioneer of this territory recognized as a UNESCO World Heritage Site.

Name and location of production site:
**Bortolomiol S.p.A.**
via della Filandetta 7 and via Garibaldi, 142
Valdobbiadene (TV) Italy

fig. 1
Vineyard and cellar
in Filandetta production site.
The company is currently run by
Giuliano's four daughters.

# Product information

### Product identification and description:

This new Valdobbiadene Prosecco Superiore Brut made from organically grown grapes is the natural consequence of the production philosophy of the Bortolomiol family who have always been keen to practice both sustainable and environmentally respectful wine-growing.

During harvest two days are set aside purely for harvesting these grapes so as to guarantee absolute control over their quality and ripeness. The mousse is fine and persistent and the pale straw yellow colour indicates the wine has great energy.

An energy that we find both on the nose with its deep austere bouquet of fragrant fruity, flowery and mineral notes of acacia honey and almond flower as well as in the mouth. Here the sweetness is controlled and its zest, combined with a lovely freshness, brings a solid, vigorous and lasting flavour. The wine can be enjoyed with the same foods as traditional Bruts even if in this case its minerality and vigour suggest it would also go well with snails cooked with garlic, parsley and wild herbs.

fig. 2
Bottle of wine

**Product name:**
**IUS NATURAE**
Valdobbiadene Prosecco Superiore D.O.C.G.
Brut Millesimato

**UN CPC code:**
24211 - Sparkling wine of fresh grapes

**Geographical scope:**
Europe

# Content declaration

IUS NATURAE Valdobbiadene Prosecco Superiore D.O.C.G. Brut Millesimato is exclusively produced from glera varietal grapes in double inverted training system. The harvest period is in early September. The winemaking is made off skins by gentle pressing. A primary fermentation is made at controlled temperature with selected yeasts. A foaming for 25-30 days and yeast fining phase for 3 months follow. Finally, it is fined in bottle for 2 months. The colour is pale yellow and the perlage is fine and persistent. The sparkling winemaking method is Martinotti – Charmat.

Tabs shows the main characteristics and the content of the product.

tab. 1
**Main characteristics and content of IUS NATURAE**

| Characteristics and Content | |
|---|---|
| **Area of origin** | Valdobbiadene (TV) |
| **Varietal** | 100% Glera |
| **Training system** | Double inverted |
| **Harvest period** | Early September |
| **Winemaking** | Off skins by gentle pressing |
| **Primary fermentation** | Controlled temperature with selected yeasts |
| **Foaming** | 25-30 days |
| **Yeast fining** | 3 months |
| **Fining in bottle** | 2 months |
| **Colour** | Pale yellow |
| **Sparkling winemaking method** | Martinotti - Charmat |
| **Alcol** | 11,50 % vol. |
| **Sugar residue** | 10,00 g/l |
| **Total acidity** | 5,50 g/l |
| **Total sulphites** | 90g/l |

No hazards are expected from using this product.

## Packaging

### Distribution/consumer packaging:

tab. 2
**Packaging material used for IUS NATURAE**

| Packaging Materials | | |
|---|---|---|
| | | kg per DU |
| **Primary**  | **Bottle – glass** | 0.85 |
| | **Stopper – cork** | 0.01 |
| | **Seal – aluminium** | 0.006 |
| | **Seal – cardboard** | 0.001 |
| | **Labels – paper** | 0.002 |
| | **Back label – pp** | 0.001 |
| **Secondary**  | **Box x6 bottles – cardboard** | 0.062 |
| **Tertiary**  | **Film – pe** | 0.00042 |

# LCA information

| | |
|---|---|
| **Time representativeness** | data refer to the year 2019 |
| **Database used** | EcoInvent Database v.3.6 |
| **LCA software used** | SimaPro 9.1.1.1 |

The scope of the present Environmental Product Declaration is to assess potential environmental impact values for IUS NATURAE production based on the Life Cycle Assessment methodology and make them explicit. A description follows with details on declared unit, system boundaries, key assumptions and a flow chart describing the lifecycle stages of the product.

A comprehensive quantitative evaluation of environmental performances in the IUS NATURAE production chain has been provided based on Life Cycle Assessment (LCA), according to UNI EN ISO 14040-14044, 14025 and PCR 2020:06 v.1.0. The considered lifecycle includes all the processes from raw material extraction, to grape production, must fermentation and cellar operation, bottling, until its transport to retailer and packaging end-of-life (i.e.cradle to grave approach).

## Declared Unit

The Declared Unit (DU) is 0.75L of wine IUS NATURAE Valdobbiadene Prosecco Superiore D.O.C.G. Brut Millesimato, produced by Bortolomiol S.p.A. in Filandetta and historical headquarter sites in Valdobbiadene (TV - IT), including its packaging (primary, secondary and tertiary). IUS NATURAE is bottled in 0.75L glass bottle.

## Description of system boundaries

Based on a "from cradle to grave" approach, the IUS NATURAE lifecycle system boundaries concern (fig. 6):

### UPSTREAM PROCESS

it consists in the "from cradle to gate" set of processes that includes:

- **Production and transport of raw materials used in vineyard (e.g. chemical products, electricity, water, fuel);**
- **Direct emission in vineyard (e.g. from chemical use, gasoline consumption);**
- **Production and transport of materials used in cellar (e.g. oenological products);**
- **Production and transport of materials for packaging (e.g. glass, paper, cork, cardboard box).**

Grapes are produced within the farm and by growers compliant and subscribing to the internal Bortolomiol Green Mark Management Protocol, that ensure to upgrade product quality whilst minimizing vineyard treatment/operations. Data refers to the grape harvest in the year 2019 and were based on farm register.

fig. 3
Grape harvest
in upstream process

## CORE PROCESS

it consists in processes within the production site (from gate to gate) that include the following sub-sections:

**Transport of materials to the company gate**
Transport of e.g., oenological products, packaging materials to the cellar of historical headquarter, grapes to the fermentation site of Filandetta (Valdobbiadene).

**1 GRAPE PROCESSING**
Destemming and soft pressing: stems and pomace are removed by bunch grapes and must enter in the Filandetta site.

**2 PRIMARY FERMENTATION**
in the Filandetta site a first fermentation of must occur. This site is devoted to grape/must processing.

**3 FOAMING AND YEAST FINING**
must is carried to the historical site cellar, where it is foamed in autoclave at controlled pressure for 25-30 days and subsequently put in contact with yeasts for 3 months. The obtained wine is then clarified.

**4 BOTTLING**
Prosecco is packed in 0.75L bottles.

**5 FINING IN BOTTLE**
Prosecco bottles are stocked and fined for 2 months.
Bottles are packed in cardboard boxes for distribution.

Environmental impacts due to the production and use of energy (e.g. electricity, natural gas and gasoline) and water were based on data reported in company registers and allocated to the mass processed in each phase. Whilst lees are conferred to distillery, then considered as co-product, by applying a precautionary approach all cellar consumption are attributed to wine. All wine produced in cellar (IUS NATURAE and other sparkling wine labels) is considered the same, because processed according similar winemaking procedures, except for specific oenological products.

fig. 4
Cellar (external)

Waste from the production process were included and modelled coherently to the current state of waste treatment in Italy (CONAI, 2019). Transport of waste to the waste plant was also considered (50km average distance).

## DOWNSTREAM PROCESS

it consists in the "from gate to grave" process that includes:

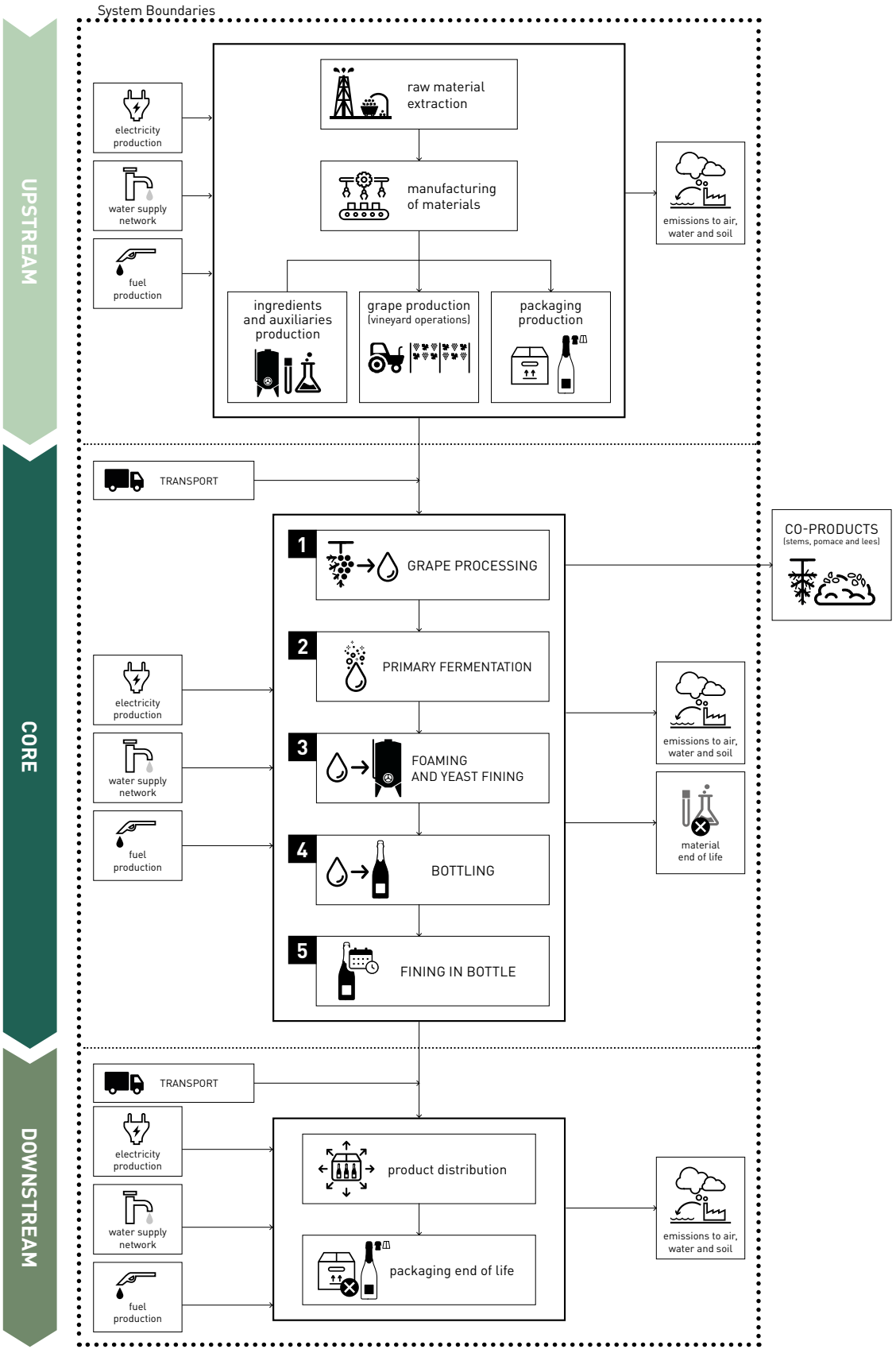
- **Distribution (transport) of the product to retailers. In this case an average transport in European boundaries (i.e. S1 roadway – average distance 1000km) was considered as scenario that reflected the actual situation.**
- **Packaging End of Life**

Waste processing of packaging materials (e.g. glass, aluminium, cardboard) were modelled coherently to the current state of waste treatment (Eurostat, 2020). Transport of waste to the waste plant was considered as 50km average distance.

The Downstream process does not include transport to the final consumer (in case of distribution in market), conservation and use of the product.

fig. 5
Filandetta Site,
Valdobbiadene (TV)

fig. 6
**Flow chart and system boundaries diagram of the IUS NATURAE Valdobbiadene DOCG Prosecco Superiore Brut Millesimato production, divided into Upstream, Core and Downstream**



**Excluded lifecycle stages:** Based on the definition of system boundaries and cut-off criteria, a number of processes were considered not relevant or not directly referred to the IUS NATURAE lifecycle.

Excluded processes are the following:

- **Vines planting;**
- **Manufacturing of production equipment, buildings and other capital goods with a lifetime >3 years;**
- **Business travel of personnel;**
- **Travel to and from work by personnel;**
- **Research and development activities;**
- **Transport to the consumer;**
- **Use of the product.**

Not significant data were neglected. The considered cut-off is under the threshold of relevance (1% of total inputs), in accordance with the maximum percentage for exclusion, recommended by the PCR 2020:06 v.1.0, and GPI 2019-09-18 v.3.01.

## More information:

The LCA has been performed in compliance with ISO 14040:2006/AMD 1:2020, ISO 14044:2006/AMD 2:2020, ISO 14025:2006 (Environmental labels and declarations - Type III) and the GPI (General Programme Instructions for the International EPD System), 2019-09-18 v.3.01.The LCA refers to the PCR 2020:06 v.1.0 "Wine".

Primary data referred to the production year 2019, the last available and considered as representative of the vineyard maintenance, harvesting and cellar management for the time period for which the EPD is valid. Primary data have been collected in the production sites (i.e. vineyard, cellar and bottling) of Valdobbiadene (TV – IT) based on direct interviews with the employers involved in production processes during specific field-visits or derived from registered company reports. All quantities derive from primary specific data, as recommended by data quality requirements of reference PCR.

The production of energy (e.g. electricity, natural gas and gasoline), and materials (e.g.water, chemical products, glass, cardboard) were referred to selected generic data from database.

Secondary data referred to the Ecoinvent database v.3.6. The LCA has been performed by using the SimaPro 9.1.1.1 software and selecting method as required by the PCR 2020:06.

Packaging glass production derives from generic data, because this process is not under the direct control of the company and specific data from the producer were not available.

The electricity mix used by the company corresponds to the national electricity production mix (IT),i.e. Italian mix in the Ecoinvent database.

The environmental impacts associated with proxy data not exceed 10% of the overall environmental impact from the product system. All primary and secondary data, selected database and accounting models are compliant with the PCR data quality requirements and fulfil selected prescribed characteristics for precision, completeness, and representativeness (temporal, geographical, and technological).

Primary data on transport distances supplier-Bortolomiol are collected and database processes are selected, based on actual transportation mode.

The end-of-life scenario was technically and economically practicable and compliant with current regulations, based on the geographical scope of the EPD. Waste transport to waste collection plant was assumed to be 50km distance.

Materials and energy consumptions were subdivided in each phase according to company estimations and recognition along the production chain, and allocated among co-products, according to the mass produced/processed in each phase.

The LCA study was performed by Elena Neri and Riccardo Pulselli, INDACO2 srl Siena – Italy (Neri and Pulselli, 2020).

fig. 7
Bottle of IUS NATURAE

# Environmental performances

## Potential environmental impact

The assessed potential environmental impacts are reported in table 3, detailed into upstream, core and downstream processes. Values refer to the declared unit (1 bottle 0.75L of IUS NATURAE Valdobbiadene Prosecco Superiore D.O.C.G. Brut Millesimato).

tab. 3
**Environmental Impact Potentials referred to Prosecco Wine production system per DU (2019).**

UPSTREAM

CORE

DOWNSTREAM

**Downstream scenario: S1 distribution to Europe (roadway)**

**Environmental Impact Potentials**

| Parameter | | Unit | UPSTREAM | CORE | DOWNSTREAM EU | Total |
|---|---|---|---|---|---|---|
| GWP | fossil | kg $CO_2$ eq | 1.14E+00 | 3.14E-01 | 4.19E-01 | **1.87E+00** |
| | biogenic | kg $CO_2$ eq | 9.42E-03 | 3.23E-03 | 9.93E-03 | **2.26E-02** |
| | luluc | kg $CO_2$ eq | 1.12E-03 | 1.06E-04 | 1.64E-04 | **1.39E-03** |
| | **Total** | **kg $CO_2$ eq** | **1.15E+00** | **3.17E-01** | **4.29E-01** | **1.90E+00** |
| AP | | kg $SO_2$ eq | 1.04E-02 | 1.29E-03 | 1.62E-03 | **1.33E-02** |
| EP | | kg $PO_4^{3-}$ eq | 2.63E-03 | 3.65E-04 | 3.63E-04 | **3.36E-03** |
| POFP | | kg NMVOCeq | 5.63E-03 | 1.01E-03 | 2.01E-03 | **8.66E-03** |
| ADP | elements | kg Sb eq | 5.44E-05 | 6.24E-06 | 1.33E-05 | **7.40E-05** |
| | fossil | MJ | 1.42E+01 | 4.01E+00 | 6.09E+00 | **2.43E+01** |
| WSP | | $m^3$ eq | 2.40E-01 | 1.16E-01 | 1.76E-02 | **3.74E-01** |
| NLT | | $m^2$ | 2.79E-04 | 6.55E-05 | 1.46E-04 | **4.90E-04** |

**Acronyms**
**GWP-fossil** = Global Warming Potential fossil fuels;
**GWP-biogenic** = Global Warming Potential biogenic;
**GWP-luluc** = Global Warming Potential land use and land use change;
**AP** = Acidification potential;
**EP** = Eutrophication potential;
**POCP** = Formation potential of tropospheric ozone;
**ADP-elements** = Abiotic depletion potential for non-fossil resources;
**ADP-fossil** = Abiotic depletion for fossil resources potential;
**WSP** = Water scarcity potential;
**NLT**= Natural Land Transformation.

**Reference to characterisation factors used:**
GWP: IPCC 2013;
AP: Hauschild & Wenzel (1998); EP: Heijungs et al. (1992); POFP: Van Zelm et al 2008;
ADP: Oers, et al (2002);
WSP: AWARE v.1 Boulay et al., 2017;
NLT: Goedkoop et al., 2009

**Global Warming Potential**: upstream processes generate the highest impact (60.7%), mainly due to the glass bottle production (44.8%). Vineyard operations (including chemical use) influence on total impacts for 9.4%. The core phase generates 16.6% of the total impact due to grid electricity absorption in cellar (9.2%) and transport of materials to the winery (5.8%). The downstream phase contributes with 22.7%, due to the transport of the product to retailer gate (18.9%). The total GWP per DU is 1.90 kgCO2eq (S1) and 1.54 kgCO2eq excluding downstream transport.

**Acidification Potential**: upstream processes generate the highest impact (78.1%), mainly due to the glass bottle production (48.5%), chemical consumption in vineyard (18.69%) and fuel (5.7%). Vineyard operations influence on total impacts for 25.02%. The core phase generates 9.7% of the total impact due to grid electricity absorption in cellar (5.6%) and material transport (3.5%). The downstream phase contributes with 12.2%, due to the transport of the product to retailer gate (9.5%). The total AP per DU is 1.33E-2 kgSO2eq (S1) and 1.20E-2 kgSO2eq excluding downstream transport.

**Eutrophication Potential**: upstream processes generate the highest impact (78.4%), mainly due to chemical consumption in vineyard (35.33%), glass bottle production (30.4%), cardboard box production (4.5%) and fuel consumption (3.9%). Vineyard operations (including chemical use) influence on total impacts for 39.8%. The core phase generates 10.8% of the total impact due to grid electricity absorption in cellar (5.8%) and material transport (3.4%). The downstream phase contributes with 10.8%, due to the transport of the product to retailer gate (8.1%). The total EP per DU is 3.36E-3 kgPO43-eq (S1) and 3.09E-3 kgPO43-eq excluding downstream transport.

**Photochemical Formation Oxidation Potential**: upstream processes generate the highest impact (65.0%), mainly due to the glass bottle production (43.2%) and fuel consumption (13.6%). Vineyard operations influence on total impacts for 16.5%. The core phase generates 11.7% of the total impact due to material transport to winery (6.8%) and grid electricity absorption in cellar (4.6%). The downstream phase contributes with 23.3%, due to the transport of the product to retailer gate (16.3%) and the end of life of packaging materials (7.0%). The total POP per DU is 8.66E-3 kgNMVOCeq (S1) and 7.25E-3 kgNMVOCeq excluding downstream transport.

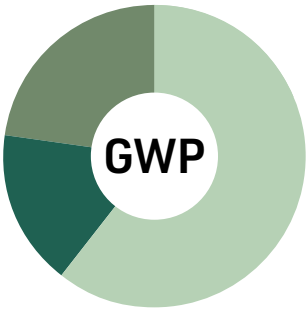
Results are shown in figure 7.

fig. 7
**LCA based values of environmental impacts of 1 bottle 0.75L of IUS NATURAE**

## Global Warming Potential

60.7% UPSTREAM
16.6% CORE
22.7% DOWNSTREAM

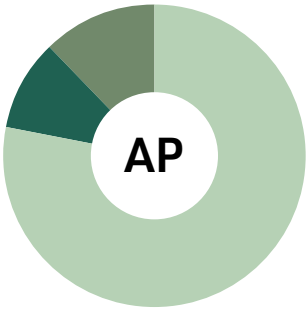
**1.90 kg $CO_2$ eq**




## Acidification Potential

78.1% UPSTREAM
9.7% CORE
12.2% DOWNSTREAM

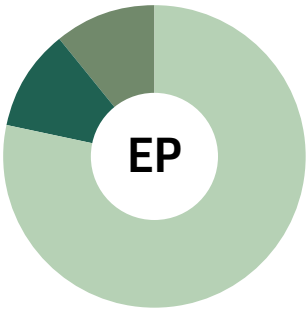
**0.013 kg $SO_2$ eq**




## Eutrophication Potential

78.4% UPSTREAM
10.8% CORE
10.8% DOWNSTREAM

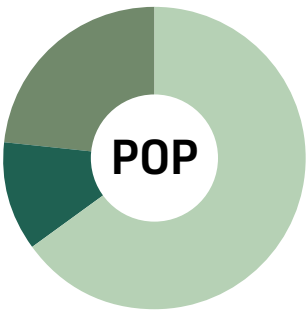
**3.36*10$^{-3}$ kg $PO_4^{3-}$ eq**




## Photochemical Formation Oxidation Potential

65.0% UPSTREAM
11.7% CORE
23.3% DOWNSTREAM

**8.66*10$^{-3}$ kg NMVOC eq**



In general, packaging material and chemical production, energy use and transports are the most relevant aspects in terms of environmental impact management, particularly referring to GWP, AP, EP and POFP assessed values. The hotspots highlighted by results constitute the starting point to identify and develop solutions to mitigate impacts and optimizing the whole process, for a continuous improvement on company management. The minimization of the use of chemicals, the use of natural origin and organic products in vineyard, the optimization of cellar operations represent best practices already implemented by the company to reduce impacts.

## Use of resources

tab. 4
**Total renewable and non-renewable resources used in the IUS NATURAE production system (2019)**

**Acronyms**
**PERE** = Use of renewable primary energy excluding renewable primary energy resources used as raw materials;
**PERM** = Use of renewable primary energy resources used as raw materials;
**PERT** = Total use of renewable primary energy resources;
**PENRE** = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials;
**PENRM** = Use of non-renewable primary energy resources used as raw materials;
**PENRT** = Total use of non-renewable primary energy re-sources;
**SM** = Use of secondary material;
**RSF** = Use of renewable secondary fuels;
**NRSF** = Use of non-renewable secondary fuels;
**FW** = Use of net fresh water.

**Renewable and non-renewable resources**

| Resources | | Unit | | | EU | Total |
|---|---|---|---|---|---|---|
| **Primary energy resources - RENEWABLE** | PERE | MJ | 3.47E+00 | 6.78E-01 | 9.16E-02 | **4.24E+00** |
| | PERM | MJ | 3.69E+00 | 1.98E-01 | 4.13E-02 | **3.93E+00** |
| | PERT total | MJ | 7.16E+00 | 8.76E-01 | 1.33E-01 | **8.17E+00** |
| **Primary energy resources - NON RENEWABLE** | PENRM | MJ | 1.61E+01 | 4.77E+00 | 5.72E+00 | **2.66E+01** |
| | PENRM | MJ | 6.75E-02 | 0.00E+00 | 0.00E+00 | **6.75E-02** |
| | PENRT total | MJ | 1.62E+01 | 4.77E+00 | 5.72E+00 | **2.67E+01** |
| **SM** | | MJ | 6.38E-01 | 0 | 0 | **6.38E-01** |
| **RSF** | | kg | 0 | 0 | 0 | **0.00E+00** |
| **NRSF** | | MJ | 0 | 0 | 0 | **0.00E+00** |
| **FW** | | $m^3$ | 7.85E-03 | 3.36E-03 | 7.16E-04 | **1.19E-02** |

## Waste production and output flows

tab. 5
**Total waste generation for the IUS NATURAE production system (2019)**

**Waste**

| Parameter | Unit | | | EU | Total |
|---|---|---|---|---|---|
| **Hazardous waste disposed** | kg | 5.27E-05 | 7.82E-06 | 1.67E-05 | **7.72E-05** |
| **Non-hazardous waste disposed** | kg | 1.63E-01 | 6.29E-02 | 4.44E-01 | **6.70E-01** |
| **Radioactive waste disposed** | kg | 5.90E-05 | 1.87E-05 | 4.23E-05 | **1.20E-04** |

tab. 6
**Total output flows for the IUS NATURAE production system (2019)**

**Output flows**

| Parameter | Unit | | | EU | Total |
|---|---|---|---|---|---|
| **Components for reuse** | kg | 0 | 0 | 0 | **0** |
| **Material for recycling** | kg | 0 | 0.0055 | 0.69 | **0.69** |
| **Materials for energy recovery** | kg | 0 | 0 | 0 | **0** |
| **Exported energy, electricity** | MJ | 0 | 0 | 0 | **0** |
| **Exported energy, thermal** | MJ | 0 | 0 | 0 | **0** |

# Additional information

Bortolomiol's mission is to produce fine-quality wines. All this starts by looking after territory and vineyards carefully and responsibly. Applying the most recent wine-making methods and integrated vine protection, enabling the company to achieve its objectives in impact mitigation and protect consumers are crucial aspects for Bortolomiol.

Applying the Green Mark Management Protocol for all growers bringing their grapes to the company has become paramount for Bortolomiol production. Well ahead of the times – ever since 2011 – this internal protocol has been applied responsibly. With a series of technical indications to be followed by grape suppliers, it aims to upgrade product quality whilst managing vineyards oriented to reduce environmental impacts. Safeguarding the quality of grapes without harming the environment and human health is part of a strong social responsibility tradition that has always made the Bortolomiol family stand out and which it shares with its grape-growers.

Drawing on its sense of responsibility as a leading producer of Prosecco Superiore, and as part of a continually evolving sustainable agriculture project, Bortolomiol has pioneered an organic cultivation project in its own vineyards in the heart of Valdobbiadene. Organic grape growing requires the use of a series of ecologically sound agricultural practices that minimise undesirable by-products and the use of synthetic chemical products in order to improve safety for both the environment and human health.

This cultivation method involves the use of copper and sulphur as pesticides, as well as the choice of equipment, pruning, soil and vine row management, weed control, foliage management and everything else right up to the grape harvest. The aim is to achieve an overall production process that optimises production quality whilst protecting the environment and human health.

All these actions are only implemented after careful consideration: this is the only way to achieve the organic cultivation or, even better, "ius naturae", of the vineyard.

The company also takes care and protects the wooded area owned by the family, extending to over three hectares located on Monte Cesen, behind the Valdobbiadene hills. This area becomes an integral part of environmental valorization for the sustainability project.

Bortolomiol has always wagered on the work of women. Giuliano's 4 daughters, who run the firm, make sure that family tradition principles remain intact: absolute quality and strong ties with the surrounding district.

Together with the non-governmental organization Ricerca e Cooperazione, the Bortolomiol women are taking part in the development of a project in northern Benin, in West Africa. A project promoting the training of women using simple knowledge tools that enable them to make better use of the natural resources available in the area, to improve the quality of life for their families and communities with new economic and business prospects.

## Differences versus previous version

Editorial changes in Additional information V.0

# Glossary

**Biogenic carbon**: carbon which is contained in biomass. [ISO 14067:2018]

**Biogenic carbon dioxide ($CO_2$)**: $CO_2$ obtained by the oxidation of biogenic carbon. [ISO 14067:2018]

**Carbon dioxide equivalent ($CO_2$ equivalent)**: unit for comparing the radiative forcing of a greenhouse gas to carbon dioxide. The carbon dioxide equivalent is calculated using the mass of a given greenhouse gas multiplied by its global warming potential. [ISO 14064:2006]

**Carbon footprint**: net amount of greenhouse gas emissions and greenhouse gas removals, expressed in carbon dioxide ($CO_2$) equivalents. The $CO_2$ equivalent is calculated using the mass of a given greenhouse gas multiplied by its global warming potential. [ISO 14067:2018]

**Functional unit**: quantified performance of a product system for use as a reference unit. [ISO 14040:2006]

**Global warming potential (GWP)**: factor describing the radiative forcing impact of one mass-based unit of a given greenhouse gas relative to an equivalent unit of carbon dioxide over a given period of time. [ISO 14064:2006]

**Life cycle assessment (LCA)**: compilation and evaluation of the inputs, outputs and the potential environmental impacts of a product system throughout its life cycle. [ISO 14040:2006]

**Raw material**: primary or secondary material that is used to produce a product. Secondary material includes recycled material. [ISO 14040:2006]

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