Protected Geographical Indication (PGI) Specifications Manual
PGI Appellation *Vin de glace du Québec*
IGP Vin de Glace du Québec - Cahier des charges – version consultation publique

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I. Terminology

Tartaric acid: the most abundant acid in grapes. It is manufactured in the young leaves and in the green berries. Its name derives from the deposit (tartar) that forms in wine-containing vessels (tanks, casks).

Control action: a possible action designed to exercise control at a specific point.

Chaptalization: adding sugar to the must before or during fermentation for the purpose of increasing the final alcohol percentage or the amount of residual sugar.

Cryoconcentration: process that consists of concentrating the must by partial freezing and subsequent physical elimination of the ice thus formed. Cryoconcentration is forbidden in the production of ice wine.

Cryoextraction: process that consists of concentrating sugars through the partial freezing of grapes caused by outdoor cold. Pressing naturally frozen grapes allows the extraction of a more concentrated, high-density must since the watery parts remain confined in the ice.

Primary materials supplier: a vineyard that produces grapes or must to be used in the production of ice wine by the applicant for certification.

Killing frost: a frost that terminates the life of the vine plant.

Severe frost: temperature many degrees below the freezing point that terminates the life cycle of non-woody aerial parts of the vine, putting it into dormancy.

Switching of grape bunches: during netting, placing bunches of grapes onto rows of vines that did not produce these grapes. This practice is forbidden in passerillage operations.

Primary materials: grapes or must used in wine production.

Must: a fermentable liquid obtained by pressing grapes that have frozen naturally on the vine, meant to be fermented and used in the production of ice wine.

Passerillage: natural desiccation of grapes on their own vine, which allows for a concentration of sugars. Climatic action with its freezing and thawing plays a major role in the process of passerillage of grapes to be used in the production of ice wine.

Pressing: mechanical operation of pressing grapes in order to extract the must.

Marketable grade: a wine whose quality meets the criteria of the Accreditation Committee.

Applicant: Any person or company who produces an application for certification or renewed certification of products.

Traceability: ability to follow the movement of a product from one point on the supply chain to another, in either direction, through the use of registered documents.

Original vine: the vine from which the grapes to be used in making ice wine originated. In this Specifications Manual, the term “original vine” is taken to mean the whole collection of contiguous vines in the same row and from the same grape variety.

Vineyard: land planted with vines and, by extension, all of the infrastructure used in the production of ice wine. Only vineyard operators can request certification of the ice wine they produce.

Ice Wine: a wine that is made exclusively from grapes that froze naturally on the vine and that were pressed while in this state at an exterior temperature of ≤ -8 °C.

Fortification: correction of the alcohol content by volume through the addition of alcohol.
II. Name: Vin de glace du Québec

The term wine designates “an alcoholic beverage that is produced by the complete or partial alcoholic fermentation of fresh grapes, grape must, products derived solely from fresh grapes, or any combination of them” according to Food and Drug Regulations C.R.C., c. 870

Climatic variables such as wind, cold and snow “transform” grapes left on the vine, which, in combination with the alternation of freeze-and-thaw, allows a concentration of the sugars in the fruit through dehydration and leads to an evolution of flavours in the grape through a phenomenon known as “passerillage”.

The humid continental climate of the delineated geographic area favours the growth of vines, fruit production and fruit ripening at different stages depending on the grape variety.

Vin de glace du Québec is characterized by the origin of the grapes used in its production. The grapes in question must be cultivated in Quebec within the delineated geographic area. The product must come from grapes picked by hand, at an outside temperature at or below -8 °C, which must be pressed in this state. Its possible alcoholic content varies from 7% to 14.9% alcohol by volume. Its residual sugar and its degree of alcohol content are solely the result of natural sugars in grapes that froze naturally on the vine.

The name Vin de glace du Québec designates a beverage obtained through total or partial fermentation of the must of grapes that froze naturally on the vine.

Ice wine designates a product as it is defined in the Regulation on Ice Wine pursuant to the Canada Agricultural Products Act. The list of characteristics of ice wine is presented in Appendix A of the present Specifications Manual.

III. Coverage of Vin de glace du Québec certification

The present Specifications Manual deals with the application of standards that must be met to obtain the PGI appellation Vin de glace du Québec. It specifies the choice of grape varieties, delineates the geographical area and sets out the framework for the production of ice wine, and also the parameters concerning cryoextraction, wine production and bottling of ice wine, as well as its labelling.

Certification applies to local vineyards within the geographic area, within which all the steps for the production of ice wine take place: grape cultivation, pressing, fortification and bottling. Grape growers within the geographic area who produce grapes or must can act as primary materials suppliers to vineyards covered by certification.
Products from these grape growers must conform to the standards established by the present Specifications Manual and these growers must obtain an attestation of conformity from the certifying organization. This document will attest that these primary materials meet the requirements of the present Specifications Manual and that they may be used in the production of Vin de glace du Québec. Only grapes and must attested to be in compliance will be allowed to enter into the production of the ice wine. The finished product, bottled and ready for sale, can carry the appellation. Producers of ice wine are required to hold a valid permit from the Régie des alcools, des courses et des jeux du Québec, authorizing the manufacture of artisan alcoholic beverages.

IV. Description and characteristics of the product

Climatic conditions such as cold, wind, low humidity in the winter air, the cycle of freezing and melting, etc., bring about a natural dehydration of the grapes which allows evaporation of their water, thus concentrating their sugars, acids and polyphenols. Acting on the grapes, these conditions create a gradual and natural passerillage. Large-scale frosts and thaws occur many times on Quebec's territory, during the fall and early-winter periods. Their effect on the grapes can be seen as a form or slow-cooking that gives ice wine its characteristic aroma and taste. Furthermore, grapes grown in Quebec have a greater acidity brought out by this climate, which gives Vin de glace du Québec a distinguishing balance and freshness.

On the other hand, winter cold naturally freezes the grapes on the vine, and encourages the concentration of sugars through a process known as cryoextraction. Since water freezes before the must, the water is trapped in the grape as ice, and during pressing, a very concentrated must flows out of the wine press.

Passerillage and cryoextraction, which are the result of natural elements acting upon the grapes, represent key factors in the production of Quebec's specific ice wine. This is why the concentration of sugars using artificial freezing or refrigeration methods is forbidden at any step in the production process.

The following tables set out the physical, chemical and sensory characteristics of Vin de glace du Québec. The physical and sensory characteristics are listed as information only and will be determined and standardized by the certification committee.

Ice wine is obliged to comply with the chemical characteristics. An evaluation of the wine is based on this set of characteristics, and the product must achieve a passing grade to earn its right to bear the appellation.
Table 1. Chemical characteristics of *Vin de glace du Québec*

<table>
<thead>
<tr>
<th>Theme</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effervescence</td>
<td>Results from the first or from the second alcoholic fermentation and is achieved either through the closed-vat method or by the traditional method, which must comply with the regulations in force.*</td>
</tr>
<tr>
<td>% alcohol</td>
<td>Between 7 % and 14,9 % by volume</td>
</tr>
<tr>
<td>Volatile acidity</td>
<td>Maximum limit of 2,1 g/L, expressed as acetic acid, or of 1,72 g H₂SO₄/L expressed as sulphuric acid</td>
</tr>
<tr>
<td>Free SO₂</td>
<td>≤ 70 mg/L</td>
</tr>
<tr>
<td>Total SO₂</td>
<td>≤ 420 mg/L</td>
</tr>
<tr>
<td>Residual sugar</td>
<td>≥ 125 g/L</td>
</tr>
</tbody>
</table>

*Loi sur la Société des alcools du Québec (chapitre S-13, a.37)

Table 2. Physical characteristics of *Vin de glace du Québec*

<table>
<thead>
<tr>
<th>Theme</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Grape variety white</strong></td>
</tr>
<tr>
<td>Colour</td>
<td>Amber yellow, golden yellow</td>
</tr>
<tr>
<td>Texture</td>
<td>Soft and full, unctuous</td>
</tr>
<tr>
<td>Clarity</td>
<td>Clear</td>
</tr>
</tbody>
</table>

Table 3. Sensory characteristics of *Vin de glace du Québec*

<table>
<thead>
<tr>
<th>Theme</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>White grape variety</strong></td>
</tr>
<tr>
<td>Taste</td>
<td>Sweet, fresh, exotic fruit, peach syrup, lichee, persistent finale</td>
</tr>
<tr>
<td>Aroma</td>
<td>Dried apricot, caramel, honey, barley sugar, candied fruit, orange</td>
</tr>
</tbody>
</table>
V. Delineation of geographic area

Cultivation of grape varieties to be used in the production of ice wines in Quebec is possible in zones where the climate is sufficiently warm to grow a good quality grape. One can observe great climatic differences between the different regions of Quebec during the growing season, notably in terms of temperature and photoperiod. These variations have an effect on the quality of grapes and will influence the choice of grape variety.

In winter, cold blankets the entire territory, regional differences notwithstanding, and it reaches the minimum temperature required (−8 °C) to freeze grapes on the vine. Therefore, the factors that limit grape cultivation are the growth period of summer and the survival of the plants in winter. Quebec’s grape growers have learned to deal with these climatic factors and have developed a unique know-how in training vines, in harvesting, and in grape pressing in winter that has given them success in creating an ice wine particular to Quebec.

An analysis of the three agro-climatic indicators, namely, the minimum number of days without frost, the minimal cumulative number of degree-days and the winter temperature allows us to delineate an appellation zone on Quebec’s territory. The use of these indicators was inspired by the evaluation grid for wine-producing potential (Barriault, E. and coll. 2013).

Delineation of the geographic area was accomplished using the “A Daily 10 km Gridded Climate Dataset for Canada” (Agriculture and Agri-food Canada, 2010). This grid contains data on daily maximum and minimum temperatures (°C) as well as total precipitation (mm), with a 10 km spatial resolution for the whole of Canada, for the years 1961 to 2008. The values at each point on the grid have been interpolated using daily data from Environment Canada’s weather stations.

These data are available in the Atlas agroclimatique du Québec (2012) Which may be consulted at the Agrométéo Québec website (http://www.agrometeo.org/index.php/atlas).

To determine the wine-producing potential of a given site, Barriault and coll. take into account the likelihood of reaching a given indicator. In the present Specifications Manual, the average of the indicators over 30 years (1979-2008) has been used in order to reflect trends arising from climatic warming and for greater inclusiveness.
A. Analysis of the three agro-climatic indicators
The following are the three indicators that allowed us to delineate the geographic area.

i. Frost-free
The first indicator is the length of the frost-free period, which must be of at least 150 days. A period of this length allows for growth of the vines, production of fruit, ripening of the grapes, and the maturation period of the vines. The longer the frost-free period, the greater the choice of grape varieties. Late spring frosts can damage or kill the fruit-producing buds, which would limit the productivity of the vines. On the other hand, early frosts in autumn may, if sufficiently intense, cause irreparable harm to leaves and prevent the metabolic activity necessary to the production and translocation of sugars in the grape.
For the purposes of this indicator, the geographic area has been delineated using the average number of consecutive frost-free days (Tmin > -2 °C).

ii. Cumulation of degree-days
The second indicator is the cumulation of growing degree-days based on 10 °C; this value must total at least 900. The growing degree-day is an empirical measure used to calculate the accumulation of heat necessary for the biological development of a plant. The value of a degree-day is calculated based on a formula that takes into account the maximum and minimum temperatures for each day. In the case of vines, the cumulation begins when temperatures attain 10 °C. The base temperature of 10 °C is that under which vine development is null (zero vegetation). The higher the degree-days, the more the vines receive the heat necessary to synthesize sugars, which play two roles in the plant: the first is to contribute to enriching the sugar content of the grapes, and the second is to supply the plant with reserves to survive the winter.
For this indicator, the geographical area has been delineated using the average of degree-days (base 10 °C) cumulated between April 1st and October 31st.

iii. Winter temperature
The third indicator is winter temperature, which must not go lower than -35 °C. Otherwise, the vines may suffer killing frosts that could compromise their capacity for yearly production.
For those less hardy grape varieties that cannot endure such low temperatures, such as the Vidal, vine-protection techniques as explained in Paragraph VI.A.i may be employed.
For this indicator, the geographic area has been delineated based on the lowest average temperature recorded on an annual basis.

B. Delineated geographic area
The geographic area for the production of the Vin de glace du Québec has been delineated based upon the three aforementioned agro-climatic indicators. According to the mathematical model used in the Atlas agroclimatique a buffer zone of 10 km (one pixel) has been added to the edge of the delineated zone in order to take into account the margin of error associated with this model.

Appendix C gives a visual representation of the appellation zone.

Climatic restrictions based on geographic location create a productive corridor along the St. Lawrence River which begins, in the north-east, with the Île d’Orléans and which expands as it moves south-west right up to the border.

VI. Description of production method
By producing ice wine with a tried-and-true method perfected over decades, a high quality product can be achieved.
All grape varieties, whether white or red, can be used in the making of the Vin de glace du Québec with the exception of pure varieties of Vitis labrusca. For information purposes, a non-exhaustive list of the Vitis labrusca varieties excluded by the certification process is given in Appendix B.

A. Passerillage methods
Different passerillage methods are used to ensure the surmaturation of grapes used in the production of the Vin de glace du Québec.
The following are the two principal methods. Passerillage methods must meet the following requirements:
• Grapes must have frozen naturally on the vine;
• grapes must remain attached to the vine or be placed above the vine;

i. Passerillage in netting above the vine of origin
At present, Vidal is the grape variety most used in Quebec in the production of ice wine. Indeed, in international competitions, ice wine produced with the Vidal variety has received a number of prizes. However, without some method of protecting the vine stock, this grape variety has difficulty getting through Quebec winters. Indeed, non-hardy varieties require protection, without which buds are killed by the cold and the vine tends to die off in most cases.

The technique of earthing-up the vine stocks to protect them from harsh Quebec winters makes it necessary beforehand to place the grape bunches in the raised netting. One must successively prune the vine, install the netting, pick the grape bunches and place them in the netting, and then earth-up the vine with soil or protect it with other materials. It is impossible to protect the vine with earthing-up without detaching the grapes from the vine. This technique that was evolved through the wine producers’ experience, made possible the production of the renowned Vin de glace du Québec.
For hardy grape varieties, this netting method is also used in regions where heavy snowfall might cover the grape bunches and thus impede passerillage and make harvest difficult.

The netting technique allows the bunches to be placed above their vines of origin that produced them, and to be held in place until the moment of harvest and pressing. This method allows us to reproduce the conditions that would be experienced by the bunches if they had remained attached to the vine. Switching of bunches of grapes above vines other than their vines of origin (i.e. grapes from another row) is forbidden.

Netting takes place in two phases. First, the wine producer must await the arrival of a severe frost which puts an end to the life cycle of the non-woody aerial parts of the vine before detaching the grape bunches and placing them in netting above the vine. In the case of non-hardy grape varieties, the earthing-up of the vine must absolutely take place before the ground freezes, because afterwards the frozen soil makes earthing-up impossible. Inadequate protection can lead to severe damage to the vine because of winter freezing.

The nets are attached to the vine support structures. Grapes are put into the netting once there has been a severe frost and once the leaves have been frost-killed and the vine is dormant.

Grape bunches are placed manually into the netting, just above their vines of origin, forming rolls. This method reproduces the conditions that would have acted upon bunches had they remained attached to their vine.

During this operation, grapes that are damaged or that show signs of rot are eliminated. The diameter and density of the rolls formed by the netting must not prevent the surrounding air from circulating around the grapes in order to encourage uniform passerillage. Netting seeks to reproduce natural conditions similar to those of a bunch attached to the vine. Therefore a too-thick netting roll interferes with the action of the cold and with passerillage, and there is a risk that the healthy environment of the grapes could be compromised. Therefore, a netting roll of grapes more than 25 centimetres in diameter at the moment of netting is excluded from the appellation.

ii. Passerillage while attached to the vine
This is the most commonly-employed technique in Canada. The bunch remains attached to the vine right up to the time the grapes are harvested. The wine producer may use a net to protect the grapes from birds. The netting that covers the whole of the vine also serves to catch grapes that become detached and fall in increasing numbers during the passerillage process, as a result of the drying of the stems. Depending on the grape variety, varying amounts of grapes detach from their bunch and fall into the protective netting, where they continue the passerillage process.
B. Harvest and pressing
The harvesting of the grapes takes place at an outdoor temperature at or below -8 °C, when the grapes have undergone thorough passerillage and have experienced many frost-thaw cycles. The grapes are then pressed in this condition. Since water freezes before must, residual water is trapped in the form of ice and, during pressing, a very concentrated must flows from the wine press. The must is required to have a sugar content of at least 32 °Brix at each pressing.

C. Production
The must in the vat is required to have a sugar content of at least 35 °Brix prior to fermentation. This must contains sugars and offers a good level of acidity and complex flavours. It is the slow fermentation of this concentrate, using know-how developed by the wine producers, that produces the rich, golden, dense, sweet and exquisite flavour of Vin de glace du Québec.

Thanks to this know-how, the desired taste of ice wine is produced naturally using selected primary materials. This is why it is always forbidden to modify the product through fortification, chaptalization or any other procedure.

Chilling of the fermentation vat is allowed purely for the purpose of controlling factors that may affect the quality of the wine. Any use of artificial cold to bring about concentration is forbidden.

Thus, pressing, wine-production and bottling must be done at a vineyard located within the delineated geographical area. On the other hand, must that is purchased outside the vineyard, from a primary materials supplier who holds an attestation of conformity, will be from grapes that this supplier has grown and pressed in his own establishment. Mixtures of assembled ingredients are therefore possible if they are in keeping with the requirements stated below (See Appendix D. – Life schematic of Vin de glace du Québec).

D. Use of grapes or must (with attestation of conformity) from outside the vineyard
It is possible to produce ice wine using must or grapes purchased outside the vineyard, provided the following requirements are met.

i. Buying grapes
1. The grapes shall satisfy all the requirements of the present Specifications Manual regarding grape-growing and passerillage.
2. The grapes shall have been harvested and transported at a temperature of ≤ -8 °C, which temperature must be achieved without artificial refrigeration. The pressing of such grapes must take place in the 24 hours following their reception.
ii. Buying must
1. The must shall satisfy all the requirements of the present Specifications Manual regarding grape-growing, passerillage and harvesting.
2. The pressing shall have been done on the site at which the grapes were produced.
3. The must shall be transported to the vineyard, where it is to be transformed into ice wine, within 7 days after pressing. Cryoconcentration is forbidden.

Grapes and must shall have been attested to be in conformity following external control tests by the certification body. The traceability of these products must be guaranteed at every step of their handling and transport.

E. Composition
Each bottle shall contain 100% ice wine produced from grapes that meet the PGI certification requirements for Vin de glace du Québec. Where must has been purchased from outside the vineyard, the composition of a bottle of ice wine must conform to the following proportions:

- 50 % or more of the contents of the bottle shall be wine produced from grapes grown at the vineyard;
- 50 % or less of the bottle may be from wine made from grapes or must purchased outside the vineyard and which meet the certification criteria of the present Specifications Manual.

VII. Historical elements
Grape-growing has been carried out on a small scale since the earliest days of New France, but it underwent a sudden expansion in the last quarter of the XXth century and most especially since the beginning of the 80s. In 1535, upon passing by l’île d’Orléans, Jacques Cartier was the first to note that the wild grape (Vitis riparia) was present in large quantities. For this reason he named this land “the Isle of Bacchus”.

As early as 1608, Samuel de Champlain planted vines from France, Vitis vinifera, which had much difficulty adapting to our winters. The religious orders contributed to the development of grape cultivation by planting several varieties of grapes from Europe. Common folk made wine and beverages using wild grapes and other native small fruit. From the Conquest of 1763 to 1867, the English preferred to trade in hard liquor with other British colonies, to the detriment of trade with France. From that point on, grape-growing was based solely on local knowledge, since imports of wine from France ceased.

Around 1864 the government of Quebec encouraged grape cultivation through grants for experimentation and the use of hardier hybrids coming from the United States. Only in 1985 did the first professionals give concrete form to this art by launching into commercial grape production in Quebec; five pioneers were granted the right to sell their production.
Walter Heinle, an immigrant of German origin, introduced ice wine to British Columbia in 1973. Subsequently, the production of “Icewine” came into its own in Ontario. In Quebec, producers got in step with their Ontario neighbours from 1994 on, and added Quebec to the list of producers of this increasingly popular beverage.

Quebec ice wine enjoys a world-wide reputation. More than a hundred medals have been awarded to wines by Quebec wine producers. These gold, silver and bronze medals were won between 1998 and 2013 at national and international competitions. *Vin de glace du Québec* enjoys a reputation among Quebec, Canadian and international consumers that has been widely reported by the media. (See Appendix F).

**VIII. Valuing know-how**

For some twenty years, wine-producers have known how to implement and develop practices that allow them to cultivate quality grapes used in the production of ice wine. Through trial and experiment, they have perfected the art of ice wine production. This acquired know-how is reflected in the sensory characteristics of Quebec ice wine. This same know-how allowed them to build the prestigious reputation of ice wine both among the public at large and among expert wine enthusiasts.

Certain grape varieties have proven their value regarding the quality of the white or red wine that is produced from them. It is with these varieties, over the course of the years, that wine-producers have developed their know-how in the production of ice wine.

The varieties used up to now for the production of white *Vin de glace du Québec* are:

- Cayuga white
- Riesling
- Gewurztraminer
- Vidal white
- Frontenac white
- Vandal-Cliche
- Frontenac grey

The principal varieties used up to now for the production of red *Vin de glace du Québec* are:

- Maréchal Foch
- Frontenac red

Other varieties are however not excluded, and as this industry develops, they may display excellent potential in ice wine production.

A first Quebec ice wine was marketed in 1994. The wine producers had understood that temperature variations around the freezing point which bring about the freeze-thaw cycle in grapes contribute to the sought-after aromas in ice wine. However, in winter, snow and intense cold can be major obstacles to production management.

Snow accumulating on grape bunches and vine stocks insulates and protects the less hardy vines, but prevents the grapes from freezing deeply, which can contribute to rot.
At the other extreme, the absence of snow can expose the foot of the vine to cold, which can be fatal for less hardy varieties. After a number of years of successive trials, a number of grape growers pooled their efforts and their ingenuity to optimize the cultivation of ice wine grapes in the face of Quebec’s own particular winter constraints.

Since the grape variety used was in large part the Vidal, it was necessary to protect the vine using different techniques like earthing-up.

Grape growers also discovered that the use of netting to protect the grape bunches allowed them to save the grapes that increasingly fall out during the process of passerillage. They adapted this need to the Quebec context and the netting technique was adopted by the majority of grape growers.

This technique is not a reinvention of the ice wine production process, but it allows grape growers to take advantage of cold conditions in Quebec winters that act upon the grapes, while still protecting the vines against excessive cold.

In parallel, it can be noted that some Quebec grape growers use the technique of protecting grape bunches with netting. This method, called “traditional” allows the production of a wine whose quality leaves nothing to be desired.

The know-how of Quebec grape growers has been repeatedly proven through demonstrations of the quality of their products, which now enjoy international recognition.

IX. Committee for Product Accreditation and Analyses

Once the production process is complete and the product is bottled, a sample of the ice wine must be analysed by an independent laboratory. These analyses allow the chemical composition of the wine to be measured and its compliance with established standards to be determined. If the analyses give a favourable result and if the wine meets the other requirements for certification, it is subsequently evaluated by the Accreditation Committee.

The Accreditation Committee has a mandate to evaluate ice wine before it is marketed, to ensure that the product meets taste standards (its sensory characteristics). Ice wine is subject to this control to ensure that quality wines are marketed and to preserve the renown and reputation of Vin de glace du Québec.

The Accreditation Committee is made up of at least 5 experienced professionals who must undergo a test of their competencies and who must be independent in respect of any vineyard in order to avoid conflicts of interest.

Wine testing follows a protocol that allows the principles of sensory evaluation to be applied. Wines are evaluated according to the standards established by the
Accreditation Committee. At the end of this evaluation process, only the ice wines accepted by the committee are eligible for certification. Wines that do not meet the requirements of the Accreditation Committee are declassified and may not carry the name *Vin de glace du Québec*.

The certification body coordinates the steps in the certification process with the accredited laboratory, and has the responsibility of overseeing the Accreditation Committee by validating the various activities of the committee, notably:

- the selection process for professionals,
- managing the competency tests administered to the professionals,
- determining the analyses criteria for ice wine,
- establishing wine-tasting calendars
- wine-tasting results

Each of these elements is detailed in the control plan. Once certified by the certification body, wines may ultimately carry the appellation: *Vin de glace du Québec.*

X. Identification of external control points and methods used

The characteristics of *Vin de glace du Québec* arise from a set of elements that allow us to express all the particularities of the product. Annual verification at several quality control points ensures that the ice wine meets the requirements of its appellation. A certification body (CB) accredited by the *Conseil des appellations réservées et des termes valorisants* (CARTV) (the independent authority that is responsible for managing and protecting reserved designations in Quebec) exercises rigorous control over every vineyard that requests a certificate of conformity. In addition to the mandatory annual inspection, unannounced visits occur, in the form of both random and specifically targeted inspections.

The entire process for making ice wine (growing grapes, purchasing grapes or must, harvesting, pressing, wine production, bottling and labelling) must be subject to control actions undertaken by both applicants and primary materials suppliers. A documentary record including sales invoices, harvest registers, transport registers, pressing registers, forms for bottling, etc. must be kept up to date and available to the certification body. These documents allow the legal conformity of an ice wine to be demonstrated and ensure its traceability.

To support control actions by an applicant (for example, the keeping of registers) a professional who holds a licence to practise will be hired to collect data on site in keeping with the dedicated acts specified by the professional code to which he is subject. This intervention, in the course of the certification process, ensures a better control at certain crucial points.

The certification body must supply qualified staff to carry out all evaluations of the land and of documentary records. A set of control factors guarantees that requirements will
be met and the authenticity of the product preserved. Schematic 1. **Process and granting of certification** presents these elements.

The respective roles of each intervener (notably between the agronomist and the certification body) in the control process are detailed in the control plan. A summary is presented in Table 4: Summary of control plan.

**Schematic 1. Process and granting of certification**

![Schematic diagram](image)

Control actions and application for certification by the grape grower.

Audit report (CB) and attestation that the primary material conforms.

On-site data collection by an agronomist

PGI Certification *Vin de glace du Québec*

Independent Accreditation Committee

Chemical analysis by an independent laboratory.

Request for attestation of conformity by the primary material supplier

Centre bubble Certification Body

The table on the following page presents the main visual and documentary control points.

**Table 4: Summary of control plan**

<table>
<thead>
<tr>
<th>Elements</th>
<th>Control Points</th>
<th>Visual</th>
<th>Doc.</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Applicant</td>
<td>Address within the geographic area</td>
<td>x</td>
<td>x</td>
<td>Address</td>
</tr>
<tr>
<td></td>
<td>Valid permit</td>
<td></td>
<td>x</td>
<td>Permit</td>
</tr>
<tr>
<td>2. Primary Material (viticulture)</td>
<td>Address within the geographic area</td>
<td>x</td>
<td></td>
<td>Address</td>
</tr>
<tr>
<td></td>
<td>Grape variety</td>
<td>x</td>
<td>x</td>
<td>Identification of grape variety, sales invoice</td>
</tr>
<tr>
<td></td>
<td>Source of primary material</td>
<td></td>
<td>x</td>
<td>Attestation of conformity in order</td>
</tr>
<tr>
<td></td>
<td>Balance of verification</td>
<td></td>
<td>x</td>
<td>Register – Purchase, Register – Netting, harvest and pressing</td>
</tr>
<tr>
<td></td>
<td>Production potential</td>
<td>x</td>
<td>x</td>
<td>Form for parcelling plan and potential production</td>
</tr>
<tr>
<td>3. Passerillage, harvest and pressing</td>
<td>Grapes that froze naturally on the vine</td>
<td>x</td>
<td></td>
<td>Declaration by the grape producer, documentation on the date of netting and weather summary for that time, photos if available.</td>
</tr>
<tr>
<td></td>
<td>Grapes are present on the vine</td>
<td>x</td>
<td>x</td>
<td>Photo, affidavit</td>
</tr>
</tbody>
</table>
### Controls

<table>
<thead>
<tr>
<th>elements</th>
<th>control points</th>
<th>visual</th>
<th>doc.</th>
<th>measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>origin during the entire process of passerillage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outside T° during the harvest</td>
<td>x</td>
<td></td>
<td></td>
<td>Declaration of the grape grower and documentation on the date of harvest and weather summary</td>
</tr>
<tr>
<td>Manual harvest</td>
<td>x</td>
<td>x</td>
<td></td>
<td>Register – Netting, harvest and pressing</td>
</tr>
<tr>
<td>Outside T° during transport of grapes or must, as the case may be</td>
<td></td>
<td></td>
<td>x</td>
<td>Declaration of the producer to the CB Register – Transport of must or grapes, weather summary</td>
</tr>
<tr>
<td>Sugar content at each pressing</td>
<td></td>
<td>x</td>
<td></td>
<td>Register – Harvest and pressing</td>
</tr>
<tr>
<td>Artificial refrigeration forbidden</td>
<td>x</td>
<td>x</td>
<td></td>
<td>Register – Harvest and pressing</td>
</tr>
</tbody>
</table>

### 4. Production

- At the vineyard which has an artisan manufacturing permit
- Sugar content of must, in the vat, before fermentation
- Addition of substances (sugar, water, sweetener etc.) forbidden
- Method of obtaining effervescence, if applicable
- Artificial refrigeration forbidden

### 5. Bottling and labelling

- At the vineyard
- Origin of the grapes
- Method of obtaining effervescence, if applicable
- Bottling in glass
- Information and claims appearing on the bottle
- Balance verification (the production potential compared to the volume produced)

### 6. Chemical analyses (independent laboratory)

- Alcohol content
- Volatile and total acidity
- Free and total SO2
- Residual sugar

### 7. Accreditation

- Committee Visual and sensory criteria

### XI. Labelling methods

Each bottle bearing the mention *Vin de glace du Québec* must contain ice wine that is 100% produced using grapes grown and processed within the delineated geographic area.

On a voluntary basis, the label may additionally bear one of the following mentions:
• if the contents of the bottle are at least 85% made from grapes grown at the vineyard, the authorized mention shall be: harvested, processed [and bottled] at vineyard X (or on property Y);
• if the contents of the bottle are less than 85% made from grapes grown at the vineyard, the authorized claim shall be: processed [and bottled] at vineyard X (or on property Y).

The legal requirements for labelling set out in Loi sur la Société des alcools du Québec (Chapitre S-13, a. 37) and by federal laws must be followed. More specifically, requirements relative to labelling of the appellation Vin de glace du Québec are presented in the following table:

Table 5. Legal requirements for labelling bottles of Vin de glace du Québec

<table>
<thead>
<tr>
<th>CARTV – PGI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of appellation : Vin de glace du Québec</td>
</tr>
<tr>
<td>Name of the Certification Body</td>
</tr>
<tr>
<td>Mention : “Protected Geographical Indication” or the official PGI trademark logo of the CARTV</td>
</tr>
<tr>
<td>Contact information for the producer, batch number (traceability)</td>
</tr>
</tbody>
</table>

**XII. Condition of the product at point of sale**

Ice wine must be containered in a glass bottle at the vineyard and sold as is, no matter what form of marketing is used (as long as the marketing complies with the requirements of the law on the Société des alcools du Québec and the law on alcohol sales permits.)

**XIII. Process for revising the Specifications Manual**

Certification norms for Vin de glace du Québec are based upon a number of factors concerning grape-growing, the know-how of grape growers, climatic conditions, provincial and federal regulations, etc. This Specifications Manual is designed to give a realistic picture of ice wine production in Quebec, as influenced by factors in the present-day context. As know-how develops, it will be possible to propose grape varieties adapted to different regions of the delineated geographic area.

Since it is impossible to predict the future and to foresee exception clauses that could take into account eventual changes in these influencing factors, it has been planned that the present Specifications Manual shall be subject to future revision that will allow it to remain abreast of the evolution of production as a whole.

**Produced by:** Sol-éco inc. et CertiRessources inc.
**Revised June 2014**
References


### APPENDIX A – Certification characteristics for *Vin de glace du Québec*

<table>
<thead>
<tr>
<th>Steps</th>
<th>Characteristic</th>
</tr>
</thead>
</table>
| **GEOGRAPHIC AREA** | Criteria that allowed the Geographic Area to be delineated  
An area that simultaneously meets 3 climatic criteria  
(see map in Appendix C)  
o frost-free period of at least 150 days (threshold of -2°C);  
o winter temperature minimum of -35 °C;  
o cumulation of at least 900 degree-days (base 10 °C);  
Grape-growing, pressing, production and bottling | At all times within the delineated geographic area |
| **VITICULTURE** | Grape varieties  
All grape varieties (white and red) except for pure *Vitis labrusca*, which are banned (see Appendix B for partial list)  
Passerillage  
Grapes that have been naturally frozen on the vine.  
Grape remains on its original vine until the moment of harvest.  
Natural, weather-induced cold and alternating freeze-thaw cycles.  
Harvest | Mechanical harvest forbidden.  
Outside temperature must be ≤ -8 °C at the moment of harvest. |
| **TRANSPORT** | Transport of grapes (coming from outside the vineyard)  
Transport of grapes at a natural temperature of ≤ -8 °C.  
Transport of must (coming from outside the vineyard)  
Transport of must within 7 days after pressing. |
| **PRESSING** | Pressing  
At the vineyard, except when must from the outside is purchased.  
Grapes have frozen naturally on the vine at a temperature of ≤-8 °C and pressed in this state (cryoextraction).  
Use of artificial cold forbidden.  
Sugar content of the must at each pressing  
≥ 32 °Brix. |
| **PRODUCTION** | Sugar content after transfer to vat  
≥ 35°Brix.  
Cryoconcentration  
Forbidden.  
Wine-making and cultivation  
100% at the vineyard.  
Refrigeration of the vats  
Refrigeration allowed only for chilling the vats during fermentation or when using cold stabilization, before bottling (≥ -4 °C).  
Effervescence | Result of the first or second fermentation obtained |
<table>
<thead>
<tr>
<th>Steps</th>
<th>Characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>using the closed vat method or the traditional method.</td>
</tr>
<tr>
<td></td>
<td>Artificial effervescence forbidden.</td>
</tr>
<tr>
<td>Origin of grapes</td>
<td>The wine may be certified if in each bottle:</td>
</tr>
<tr>
<td></td>
<td>- 100% of the grapes met the requirements of the present Specifications Manual;</td>
</tr>
<tr>
<td></td>
<td>- at least 50% of the wine comes from grapes grown in the vineyard.</td>
</tr>
<tr>
<td></td>
<td>Only the purchase of grapes or must that have been attested as conforming to</td>
</tr>
<tr>
<td></td>
<td>the present Specifications Manual is permitted.</td>
</tr>
<tr>
<td>CONTAINERING AND LABELLING</td>
<td>Bottling In a glass bottle only.</td>
</tr>
<tr>
<td></td>
<td>Labelling Meets the norms of l’ACIA et du CARTV (PGI), and is consistent with</td>
</tr>
<tr>
<td></td>
<td>the claims permitted in point XII.</td>
</tr>
<tr>
<td></td>
<td>Bulk sales Forbidden.</td>
</tr>
<tr>
<td>ANALYSIS AND SENSORY</td>
<td>Residual sugar ≥ 125 g/L (originates solely from the grapes’ sugar).</td>
</tr>
<tr>
<td>EVALUATION</td>
<td>Alcohol content Between 7 % and 14,9 % (originates solely from the grapes’</td>
</tr>
<tr>
<td></td>
<td>sugar)</td>
</tr>
<tr>
<td></td>
<td>Volatile acidity Upper limit of 2,1 g/L (expressed as acetic acid).</td>
</tr>
<tr>
<td></td>
<td>Free SO₂ ≤ 70 mg/L.</td>
</tr>
<tr>
<td></td>
<td>Total SO₂ ≤ 420 mg/L.</td>
</tr>
<tr>
<td></td>
<td>Accreditation Committee Evaluates ice wines based on defined standards.</td>
</tr>
<tr>
<td>MARKETING</td>
<td>Permit The enterprise must hold a valid permit from the Régie des alcools,</td>
</tr>
<tr>
<td></td>
<td>des courses et des jeux du Québec, authorizing the artisan production of wine.</td>
</tr>
<tr>
<td>TRACEABILITY</td>
<td>From the vine to the bottle Origin of grapes, choice of grape varieties,</td>
</tr>
<tr>
<td></td>
<td>transport, harvest, pressing, wine production, bottling, batch number.</td>
</tr>
</tbody>
</table>
APPENDIX B – Hybrid grape varieties of the species *Vitis labrusca* whose use is forbidden (this list is not exhaustive)

- Agawam
- Beta
- Bluebell
- Buffalo
- Campbell’s Early
- Canadice Seedless
- Carman
- Catawba
- Christmas
- Concord
- Delaware
- Early Giant
- Extra
- Flame
- Fredonia
- Golden Muscat
- Himrod Seedless
- Interlaken Seedless
- Lake Emerald
- Lakemont Seedless
- Mars Seedless
- Niagara
- Ontario
- Pierce
- Portland
- Red Amber
- Reliance Seedless
- Romulus
- Schuyler
- Seneca
- Sheridan
- Steuben
- Suffolk Red Seedless
- Van Buren

Adapted from: *vines of the labrusca type*;
http://lesbeauxjardins.com/jardinons/fruitiers/petitsfruits/labrusca.htm
(February 4, 2014).
APPENDIX C – Delineated Geographic Area

ANNEXE C - Aire géographique délimitée

Zone de l’appellation IGP « vin de glace du Québec »

Données fournies par Agriculture et Agroalimentaire Canada, mai 2014

Translated to english by Canadian Vintners Association
APPENDIX D. – Life schematic of the Vin de glace du Québec

ANNEXE D. – Schéma de vie du Vin de glace du Québec

- Raisin cultivé au vignoble
  - Passerillage et récolte
    - Pressurage
      - Vinification
        - Échantillonnage
          - Analyse en laboratoire
            - Comité d’agrément
              - Étiquetage
                - Commercialisation
                  - IGP Vin de glace du Québec

- Raisin cultivé producteur récoltant
  - Passerillage et récolte
    - Pressurage
      - Achat de raisin
        - Achat de moût
          - Tracabilité
            - Provenance de l’extérieur du vignoble
              - Aire géographique
APPENDIX E. – Accreditation Committee

The mandate of the Accreditation Committee is to evaluate and to attest whether predetermined sensory and physical characteristics for the *Vin de glace du Québec* have been achieved. To make the process standardized and credible, the formation and operation of the Accreditation Committee must be consistent with certain criteria as follows:

This process makes use of the expertise and structure of the Société des alcools du Québec (SAQ) whose qualified interveners and installations are used to achieve defined requirements. Its role is to cooperate with the Certification Body, to prepare and to supervise wine-tasting sessions, to effect analyses and to transmit the results obtained.

1. The Committee is made up of at least 5 voting members (whose evaluation is of value in the final decision) made up of sommeliers, professionals and enologists.
2. Each member must be a member in good standing of an association, of a professional order or of any other recognized organization.
3. The members must possess a good knowledge of Quebec wines and of sweet wines.
4. Members must be impartial and have no direct or indirect interests in the wines that are judged.
5. Members are appointed to the Committee and serve a 2-year renewable term.
6. The Committee must meet at least 5 times per year to undertake evaluations of *Vin de glace du Québec*.
7. The wine tasting sessions use blind and anonymous testing methods.
8. The wines are evaluated following a number of criteria determined by the committee and must achieve a mark of 70% to qualify.
9. Disqualified wines are given a second chance to qualify at the next evaluation session.
10. After each session, the evaluation results are transmitted to the certification body.
11. For purposes of transparency, two observer members are invited to each session; the evaluations given by these members are of an indicative nature only (they are not computed into the final decision). The observer members can change with each session.
APPENDIX F. – Press review on the history of \textit{Vin de glace du Québec}

\textit{For on-site consultation in the offices of CARTV.}