

## Solid Carbon Dioxide during the grape harvest



The use of solid carbon dioxide (CO<sub>2</sub>), more commonly known as dry ice, plays an essential role:

- in controlling temperature so as to prevent excessive warming and, therefore, the premature fermentation of the grape, slowing down the whole intra and extra-cellular enzymatic metabolic mechanisms;
- in creating an inert atmosphere, via the process of sublimation, thereby reducing oxidation and preventing deterioration in the organoleptic characteristics of the wine.

The right “moments” for adding dry ice differ and depend on the type of grape, on the timing and production method and by the end results one wishes to achieve:

- during transportation from the vineyards to the wine making area, for both white and red grapes;
- on the crusher before the grapes are pressed, for white grapes;
- on the crusher-destemmer, for white and red grapes with different objectives.

The main effect of the treatment is to obtain wines characterised by more intense and complex aromatic notes. In the case of red wines, a more intense and stable colour is obtained, tending towards red and mauve tones, whilst the tannins appear more delicate and mature. The thermal shock, brought about by the sublimation of the CO<sub>2</sub> (-80°C) is able to provoke “cellular collapse” which leads to a greater extraction of phenolic substances. No less important are the benefits which they bestow, not so much on the final result, but on the production process: a reduction in the use of sulphur dioxide as an antioxidant; lower consumption of energy when compared with using mechanical refrigeration; furthermore a quicker, higher and more homogenous temperature jump; and the combination, in one single product, of cooling and inertization properties.

By drawing on experience and combining that with the technology available today it becomes possible to make use of a diverse range of application methods, from the simplest and cheapest to the more complex and automated. Depending on the quantity of grapes that need treating and the characteristics of the wine.

#### **Dry Ice Characteristics**

##### ***Solid Carbon Dioxide***

CO<sub>2</sub>

##### ***Temperature at ambient pressure***

-78,5°C

##### ***Heat absorbed up to 0°C***

152 kcal/kg

##### ***Specific Gravity***

1,5 kg/dm<sup>3</sup>

##### ***Residual humidity***

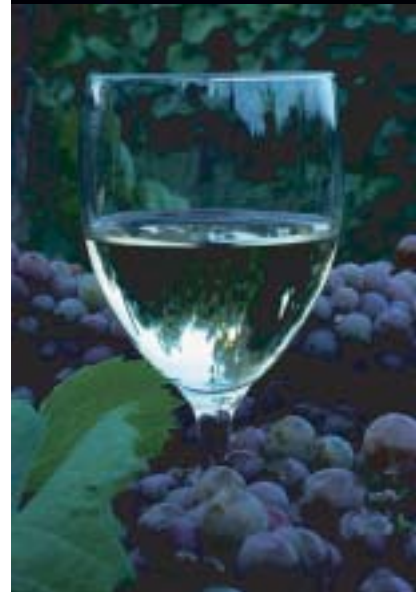
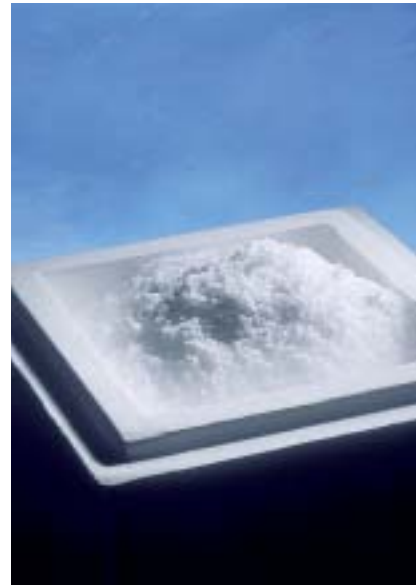
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##### ***Appearance***

White, opaque

##### ***Odour***

Odourless



#### **For further information**

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