Hillebrand GORI

Hillebrand Gori climatic risk predictive tool

Wine quality indicator

Very hot	Hot	Comfort	Cold	Cold & very cold
Above +30°C	+21°C to +30°C	+11°C to +20°C	+5°C to +10°C	Under +5°C
Above +86°F	+69°F to 86°F	+51°F to +68°F	+41°F to +50°F	Under +41°F
Probable loss of free sulphur dioxide	Possible loss of free sulphur dioxide		Possible tartrate crystal precipitation	
Possible loss of acidity/freshness/zestiness		Natural chemical /sensory changes		
Possible formation of oxidative/reductive characters on nose/palate				
Possible loss of fresh fruit aromas				
Possible accelerated development (premature ageing)				
Probable colour change (formation of brown hues in white and red wines)			Probable appearances of sediments in whites & reds caused by precipitation of phenolic material	
Probable loss of closure integrity due to wine expansion and leaking			Possible package and closure damage if freezing occurs	Probable package and closure damage if freezing occurs

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Hillebrand GORI

Labels
Factors which can impact label quality/integrity:

The paper used (uncoated, coated, metallised, film)

The paper stock, thickness and calibre

The label type (single/multiple layer; high-gloss/semi-gloss/matte finishes; etc.)

The surface condition, contour and shape of the bottle

The coatings and adhesives used in application

The storage and transportation conditions of the bottle once the label has been applied

Labels are susceptible to damage in transit and storage. This damage is caused by a combination of temperature and humidity fluctuations and extremes. In shipping containers, extremes of heat, cold and humidity can soften glues and adhesives, leading to labels slipping and peeling. The combination of temperature decreases, high relative humidity level increases causes condensation (risk of container rain) which damages labels.

Packaging
Cardboard packaging is essential for the safety and protection

Cardboard is very sensitive to environmental conditions, especially moisture.

Studies show the sensitivity of corrugated cardboard to the relative humidity (RH) of the environment tested:

Elastic properties change significantly beyond 70% RH.
This effect is more noticeable on bending characteristics than in tensile ones.
Bending stiffness falls by 54% when the RH reaches 90%.
From 50%, the relative humidity causes:

An increase in the gross weight and in the dimensions of the cardboard

A loss of its resistance properties

A loss of its compression performances, thus reducing the resistance to compression

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