



Inspiring innovation.

CaT instability: brief key points list

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Agenda

- Why more and more Ca related issues?
- Zenith and stabilizing colloids effect on CaT instability
- How to properly evaluate the situation
- How to solve the matter
- Enocrystal Ca application: pH detail

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Why more and more Ca related issues?

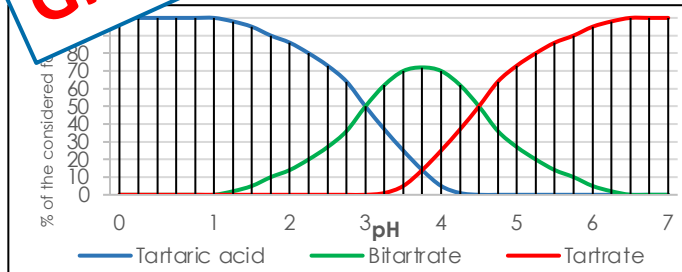
Because of more Ca presence

- Berries/leaves cells use **calcium** ions to **prevent dehydration**
- closing aquaporins, water transporters through cell membranes
 - increasing the concentration in the guard cells, causing stomatal closure, causing the closure of the stomatal openings

High transpiration in cause calcium increase in berries

Because of the

Global warming, heat stress effect

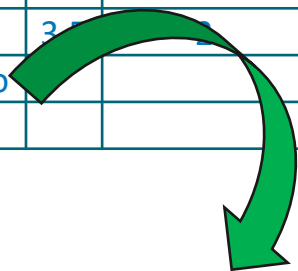


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Zenith effect on CaT instability

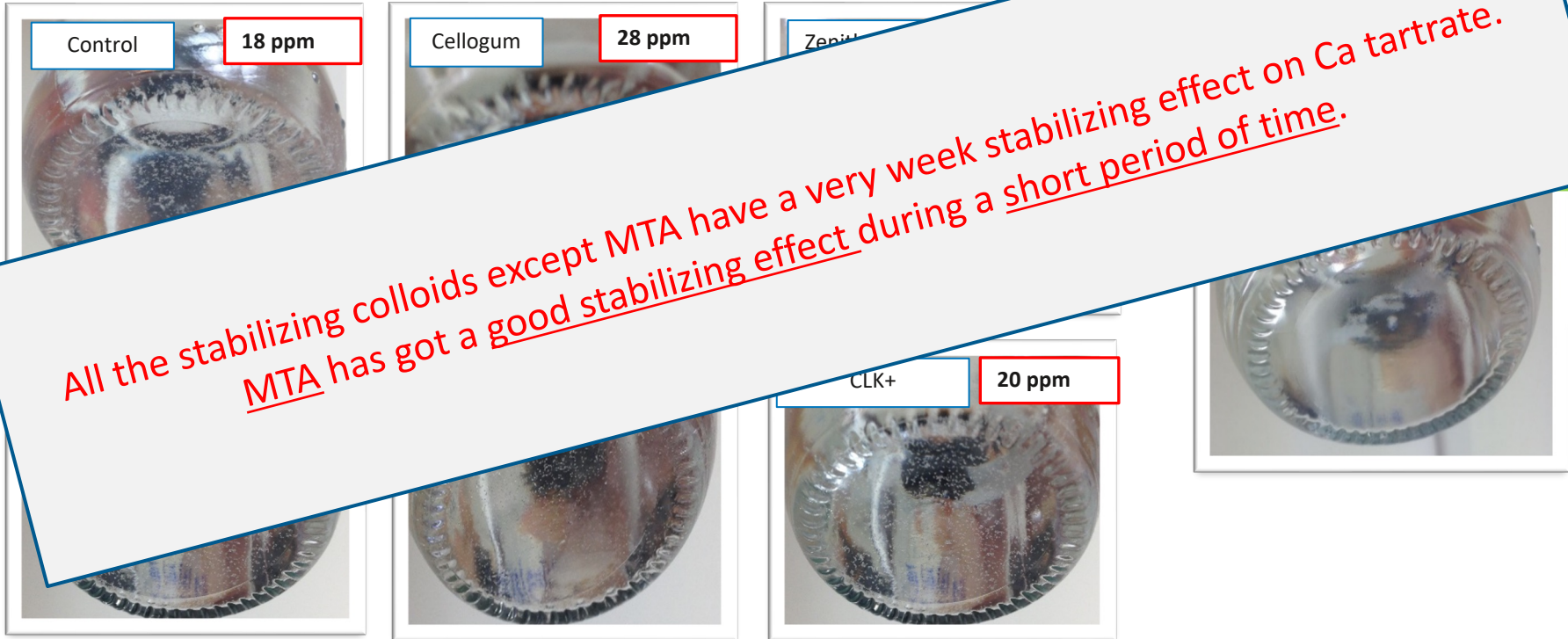
	pH	Tartaric acid (g/L)	Ca conc. (ppm)	Ca conc. (ppm) after 30 days	Δ Ca (ppm) after 30 days
Control	3.5	10	96	40	-56
100 mL/hL Zenith Uno	3.5	10	96	43	-53
1 L/hL Zenith Uno	3.5	10	96	92	-4



Zenith has got a very weak stabilizing effect on Ca tartrate

Stabilizing colloids effect on CaT instability

Experimental test. Solution composed by: 12% VOH, 5 g/L tartaric acid, 80 ppm Ca, pH 3.4. MTA at 0°C. *Residual Ca in solution indicated on images.*



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How to properly evaluate the situation?

Ca ≥ 60 mg/L RED WINES
 ≥ 80 mg/L WHITE WINES

How...

RED

60 ppm Ca with

60 ppm Ca

W...

8...

80...

Outdated approach
...we can do much better...

... = precipitation

... 3.4 = no precipitation

... tartaric and pH 3.5 = precipitation

... g/L Tartaric and pH 3.2 = no precipitation

How to properly evaluate the situation?

Remember to take in consideration the 3 main actors: **Ca, Tartaric acid, pH** and use our unique **MULTIFACTORIAL PLAN**

Range scaling			
	Ca ppm	Tartaric acid g/L	pH
Values to be inserted:	78	3,4	2,95
Valori da usare:	-0,425	-0,56	-0,111
Model			
media	6,625	-	48,625
A	12,35	-0,425	-13,91
B	12,35	-0,56	-3,458
AB	0	0,238	0
C	52,25	-0,111111111	-2,903
AC	20,95	0,047222222	0,4947
BC	0	0,062222222	0
ACB	0	-0,026444444	0

Reference Δ Ca values (ppm):	
< 15	STABLE
15 \leq X \leq 25	SLIGHTLY UNSTABLE
> 25	UNSTABLE

Enartis property

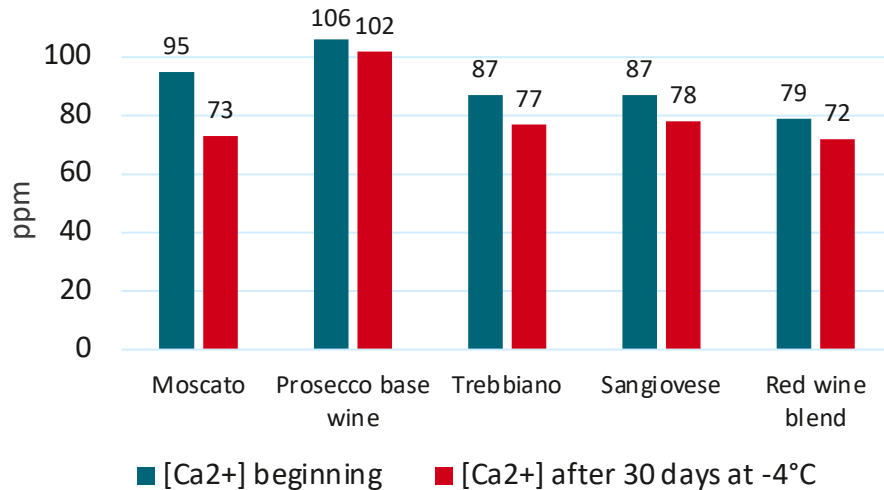
Result
29

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How to solve the matter

- Chilling is not resolutive!



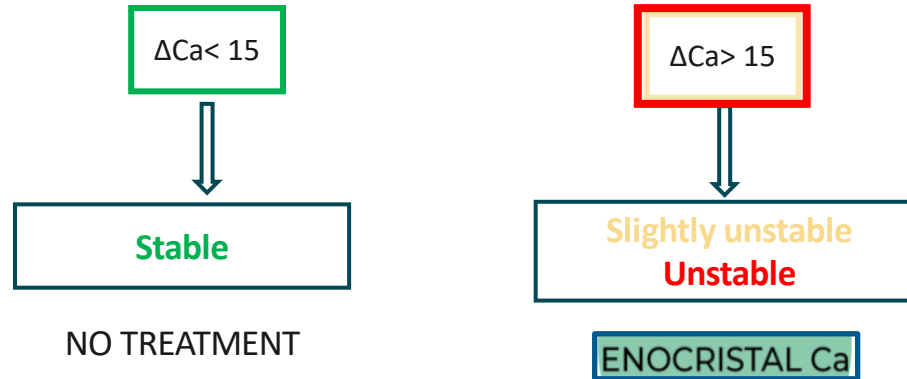
	pH
Muscat	3.26
Prosecco base wine	3.14
Trebbiano	3.27
Sangiovese	3.50
Red wine blend	3.61

- **Enocrystal Ca** is specific tool to overcome the limiting phase of the crystallization process

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Reference values ΔCa (ppm)		Dosage (g/hL)
$15 \leq X \leq 25$	slightly unstable	30 - 50
> 25	unstable	50

ALERT:

At pH ≤ 3 potential risk of Ca solubilization: treatment with Enocrystal Ca is not recommended



Thank you!