

# CMC Crystallisation tank

When innovation meets tradition



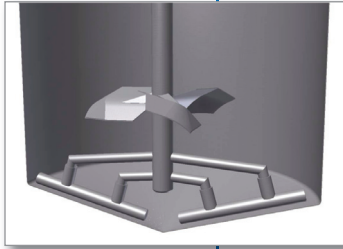
**PIERRE GUERIN**  
TECHNOLOGIES

TOGETHER BRING LIFE TO YOUR PROJECTS

ISO 9001  
BUREAU VERITAS  
Certification



# CMC, crystallisation tank on legs or on skirts



**Pierre Guerin**, specialist of stainless steel processing, design and manufacture agitated vessels and complete process lines for major clients whose reputation depends on bacteriologic quality of their dairy and food products.

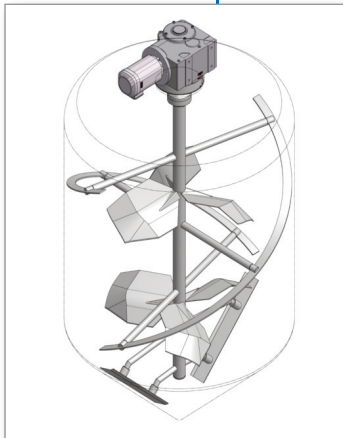
With more than 60 years of experience, **Pierre Guerin** is the preferred partner of many Food & Beverage industries. We offer you a large range of storage and process vessels manufactured in our factories in Niort (France) and Burgos (Spain).

## Applications - Fonctionnalités

- controlled crystallisation of whey, permeate and lactose juices.

## Design

- proposed capacities: 2 500 up to 100 000 litres
- Clean-In-Place stainless steel cylindrical tank, without retention zone
- insulation by non-hydrophilic Mineral Wool, with water-proof stainless steel jacket, fitted to avoid watering and permitting a material expansion without damage.
- jacket on the bottom and the wall-side by forced circulation of cold or chilled water on all surfaces in contact with the product.

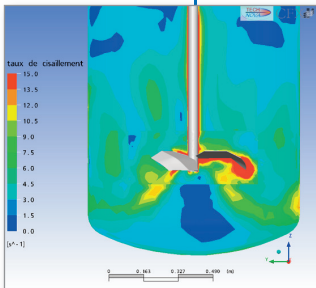


## Performance & Innovative agitation system

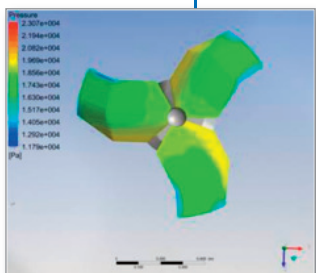
- the standard design utilizes a centred top-mounted HTPG4 three blades impeller(s), without bottom guide, plus proximity blades on the liner and the bottom to avoid any formation of crystal aggregates at the bottom-liner interface.
- Eole4 agitator dedicated to high percentage dry matter and high viscosity products. Centred and top mounted on the cover, this agitator is made of three blades HTPG4 impellers with baffles fitted at the lower part of the shaft and with opposing helicoids along the liner to ensure a perfect homogeneity of the product.

## Main features

- 15° conical cover and bottom
- frame support:
  - on adjustable stainless steel legs (*from 3 up to 10 depending on capacity*)
  - on request, skirt-mounted
- All parts in contact with product made of stainless steel EN 1.4404 (AISI 316L), stainless steel EN 1.4307 (AISI 304L) for others
- finish:
  - internal: welds are rolled, ground and polished Ra <0.8 µ and cold roll mill
  - external: welds are brushed and polished surfaces grit 120 or cold roll mill.



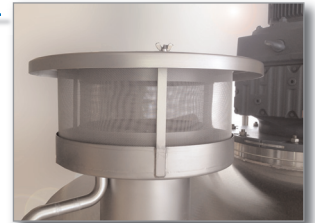
Measurement of shearing rates  
in the different tank zone



Digital simulation  
CFD: pressure on upper  
surface of blades

## Accessories

- 1 centre top mounted HTPG4 type impeller(s) with one turbine fitted on the lowest part of the shaft (*without bottom guide*) - frequency inverter for control - or Eole 4 type agitator depending process requirement.
- 1 man-hole  $\varnothing$  400 minimum on the cover, without retention zone
- 1 atmospheric vent with anti-insect screen sized for clean-in-place
- 1 outlet with bottom valve type « casse-croûte » with welded anti-vortex
- 1 set of nozzles for instruments (*temperature probe, low and high level switches, continuous level probe*)
- 1 set of cleaning devices including 2 static spray balls on the cover (*not submerged*) and one flush-fit cleaning system set mounted on the wall-side (*one for each three bladed impeller*). Pierre Guérin flush-fit cleaning system are controlled by pilot valves (*possibility to have proximity detectors*) and run independently from the CIP function.



*Atmospheric Vent*



*Flush-Fit Cleaning System*

## Options

- stainless steel agitator drive motor cover
- cleaning-in-place sample valve
- circular safety rail, intermediate rail and kick plate, EN 1.4307 (AISI 304L)
- ultra-clean vent to maintain the product under a filtered air pressure
- controlled heat exchangers thanks to superimposed coils
- insulated cover.



*Circular Safety Rail*



*Sample valve*

## Dimensions - Weight - Sizes

Nominal Volume (l)	Useful Volume (l)	Internal Diameter (mm)	External Diameter (mm)	Wall Height (mm)	Total Height (mm)	Total Weight (kg)
10 000	11 700	2 186	2 386	3 000	5 300	1 800
15 000	15 450	2 186	2 386	4 000	6 300	2 700
20 000	20 265	2 863	3 003	3 000	5 400	2 850
25 000	26 700	2 863	3 003	4 000	6 400	3 200
30 000	32 950	3 181	3 321	4 000	6 500	3 650
40 000	41 885	3 578	3 719	4 000	7 000	4 700
50 000	51 940	3 578	3 719	5 000	8 000	5 450



*Ultra-clean Vent*

## Selection Guide

<ul style="list-style-type: none"> <li>- product nature:           <ul style="list-style-type: none"> <li>• whey - sweet <input type="checkbox"/> acid <input type="checkbox"/></li> <li>• juice lactose <input type="checkbox"/></li> <li>• ultrafiltration permeate serum <input type="checkbox"/></li> </ul> </li> <li>- density: 1.35 to 1.40 <input type="checkbox"/> other (specify) <input type="checkbox"/></li> <li>- max. dry extract.....g/l</li> </ul>	<ul style="list-style-type: none"> <li>- viscosity ....Cps ... °C to a shear rate of .....s<sup>-1</sup></li> <li>- temperature program:           <ul style="list-style-type: none"> <li>• initial temperature 40° C <input type="checkbox"/> 60° C <input type="checkbox"/> other (specify) <input type="checkbox"/></li> <li>• final temperature 20° C <input type="checkbox"/> other (specify) <input type="checkbox"/></li> </ul> </li> </ul>
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*The design takes into account the exothermic crystallization.*



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