



## LOW IMPACT THERMAL CONCENTRATION

### LOW IMPACT THERMAL CONCENTRATION TECHNOLOGY

TEC Square has developed a unique high-end concentration method that outperforms even freeze-concentration. The method is ideal for quality products that require special care.

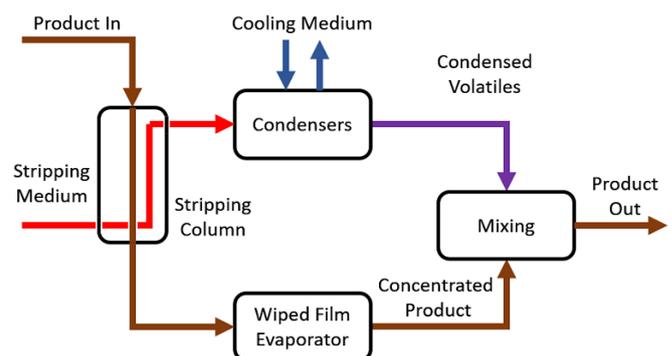
Our system is characterized by the following:

- ◆ A TEC Square Aroma Recovery System using high-end technology to provide only the desired aromas.
- ◆ Wiped Film technology for evaporation. We use the Rototherm-E® made by Artisan Industries.
- ◆ Efficient aroma standardization technologies for a final product of very high concentration.

Our Low-Impact Thermal Concentration technology provides a gentle and rapid concentration process that will outperform any other concentration process in terms of quality and ease of operation.

### CONCENTRATION PLANT — KEY POINTS

The layout of the plant depends mainly on the capacity. Our Aroma Recovery system has a minimal footprint, as it uses gravity as its main source of energy. The evaporation system can normally be installed in a 2 level building.



Schematic Process Low-Impact Thermal Concentration

# SPECIFICATIONS AND ADVANTAGES

	TEC Square Technology Low-Impact Thermal Concentration	Advantages
Evaporation Principle	TEC Square uses the Rototherm-E® by Artisan Industries. This method of evaporation is considered the best technology for high quality performance.	The Rototherm technology has many advantages: <ul style="list-style-type: none"> <li>◆ Very high concentrations are possible, 70% TS is no exception.</li> <li>◆ Low temperatures are possible, avoiding damage to heat sensitive products.</li> <li>◆ The fluid stream can contain small solid particles.</li> <li>◆ Almost no product losses at high product concentrations.</li> </ul>
Aroma Recovery Principle	TEC Square Aroma Recovery System	<ul style="list-style-type: none"> <li>◆ High quality end-product.</li> <li>◆ Direct in-line with the evaporation process.</li> </ul>
Investment Costs	Though Investment costs are higher compared to a falling film evaporator, it is much lower compared to a freeze concentration process.	A more flexible solution than freeze concentration at a far lower level of investment.
Operational Costs	Higher operational costs compared to a falling film evaporator, but much lower costs compared to a freeze concentration operation.	Rototherm evaporation technology uses a 1:1 steam to vapor ratio, which is much less than the energy required to freeze and de-frost.
Product Residence Time	Product is normally only subjected to process conditions for 10-20 minutes.	Short processing times allow for <ul style="list-style-type: none"> <li>◆ A better end-product quality.</li> <li>◆ More flexibility in processing.</li> </ul>
Start-Up Time	Within 30 minutes to 1 hour the operation is stable. Change over of SKU's is less than 30 mins	Quick start-up times and quick change over times facilitate multi-SKU operation.

**TEC Square Project Management S.L.**  
 Calle Sebastian Souviron 18, Ático 2  
 29005 Málaga, Spain  
 Tel : +34 664 389873

**TEC Square Electrical B.V.**  
 de Biestraat 18  
 4751 HC Oud Gastel  
 the Netherlands  
 Tel : +31 6 30894398

**TEC Square Solutions Inc.**  
 Robinland Business Center  
 Zeullig Avenue, North Reclamation Area  
 Mandaue City, Cebu, Philippines  
 Tel : +63 32 5205899

[www.tecsq.com](http://www.tecsq.com)

