



# The Revtech: Pasteurization of Dry Food Products

November 3rd 2022

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# News in food industry - 2021

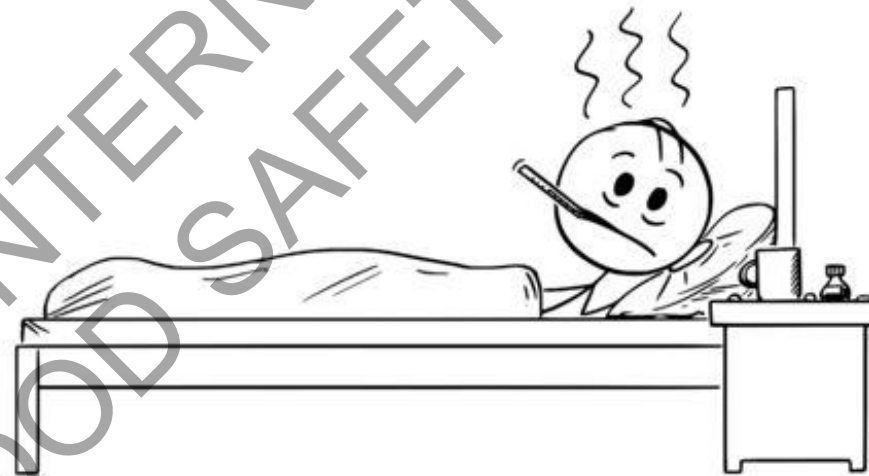
- Contamination at ethylene oxide on sesame seeds
- Use for disinfection of food including Salmonella
- Few countries impacted by strengthened check
- EU limits at 0.05 mg/kg, USA limits at 7 mg/kg



# Why use Ethylene Oxide against Salmonella & other pathogens?

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- Salmonella affects every low-humidity ingredient as sesame seeds
- Low contamination → illness
- Ethylene oxide → volatile & carcinogen
- Tiny amounts permitted



# Eliminate pathogens without oxyde ethylene

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Salmonella is

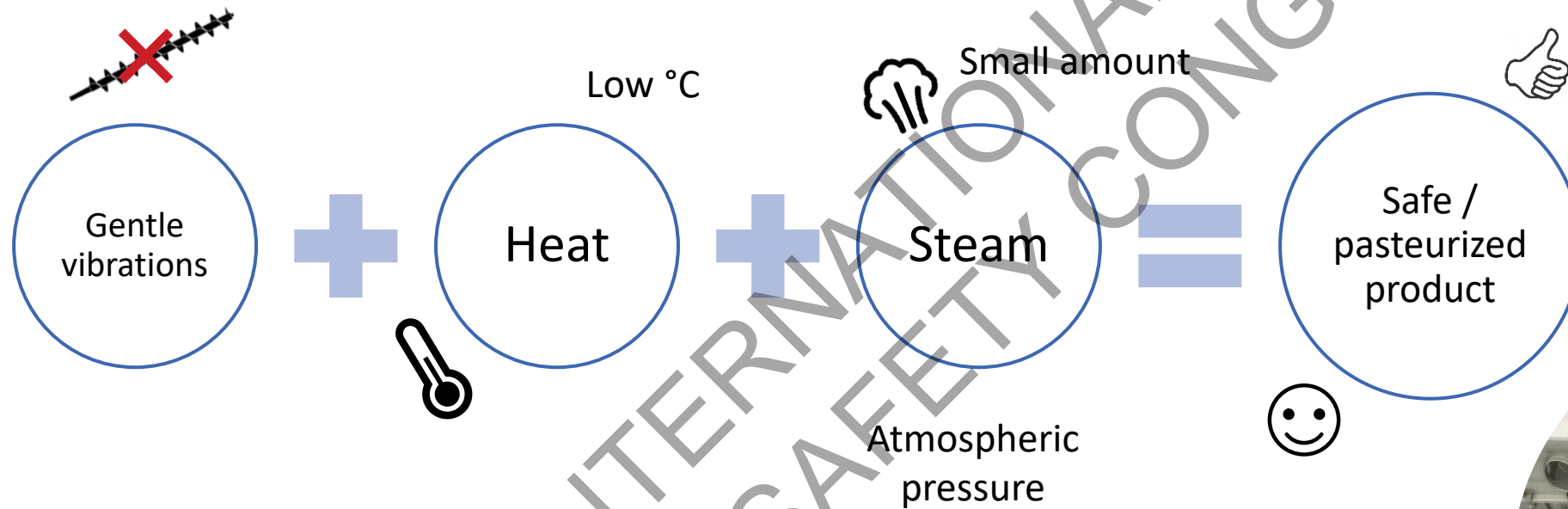
- resistant to extreme situations
- survives in different situations of stress like heat



The solution would be combine heat & steam to pasteurize.

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# Solutions by Revtech



Excellent preservation of the organoleptic properties

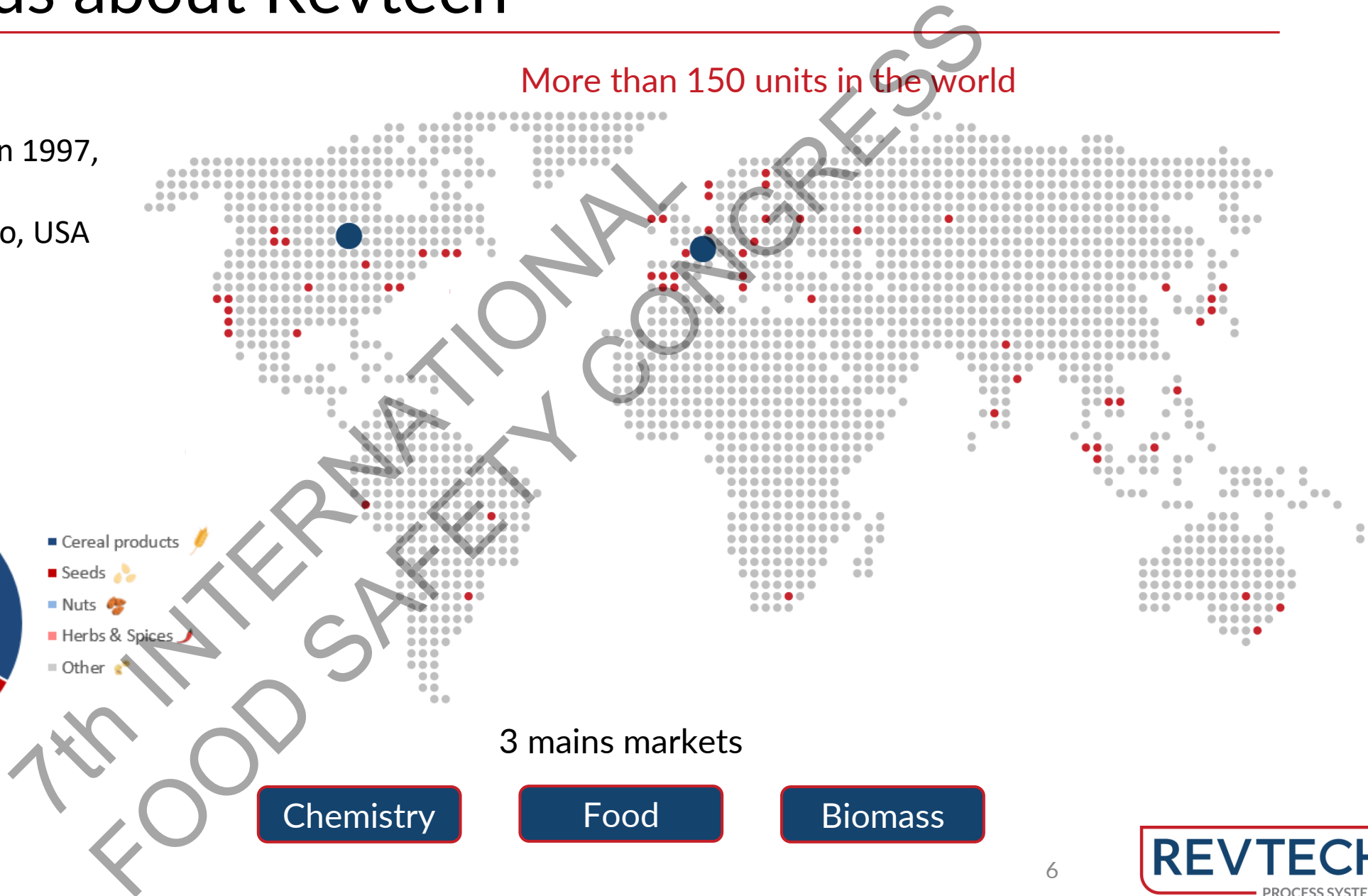
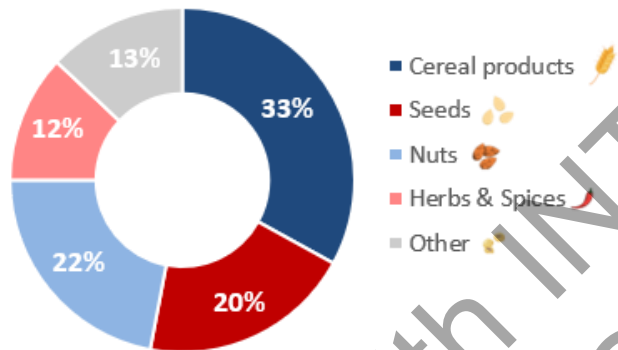


# Few words about Revtech

Company founded in 1997,

- HQ in France
- Subsidiary in Chicago, USA
- Units in the world

More than 150 units in the world



3 mains markets

Chemistry

Food

Biomass

# Revtech heat treatment – raw products



# How Revtech can help ?

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Pasteurization

Roasting

Stabilisation

Steaming

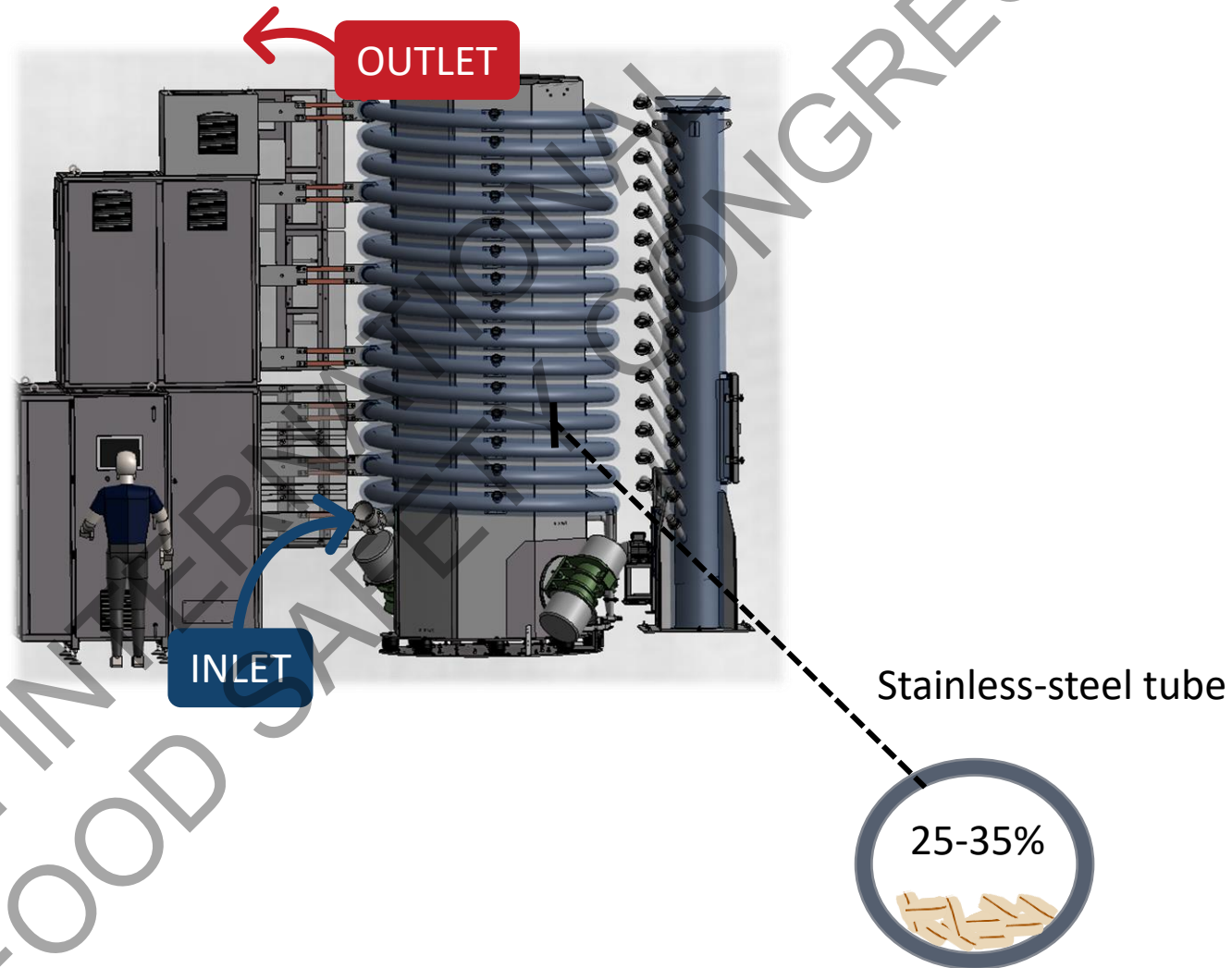
Functionalizing



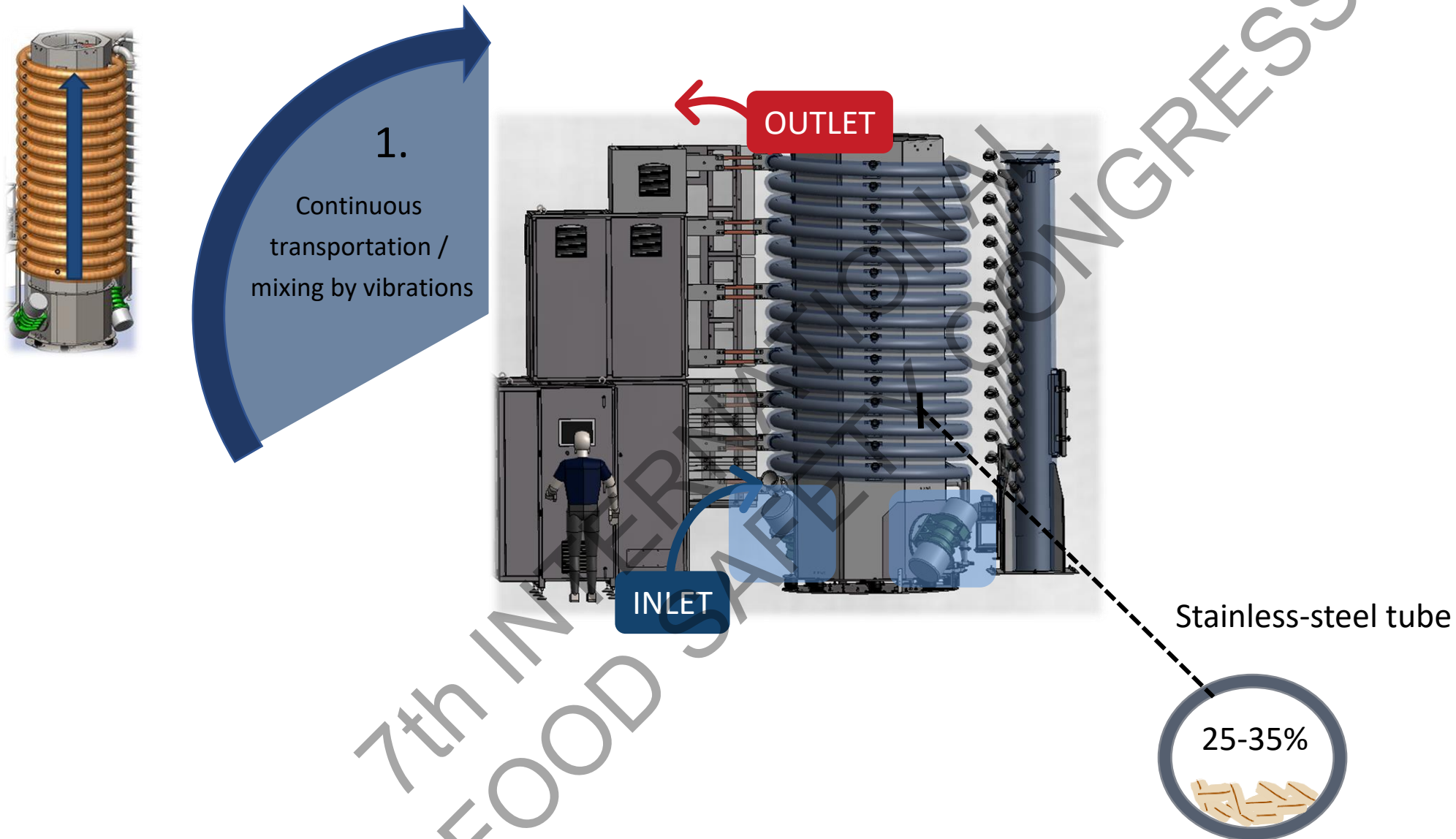


# HOW DOES A REVTECH WORK?

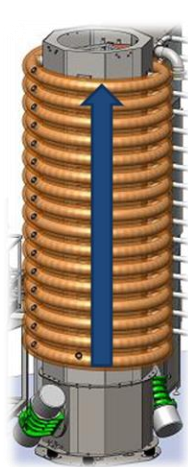
# Revtech heat treatment: how does it work?



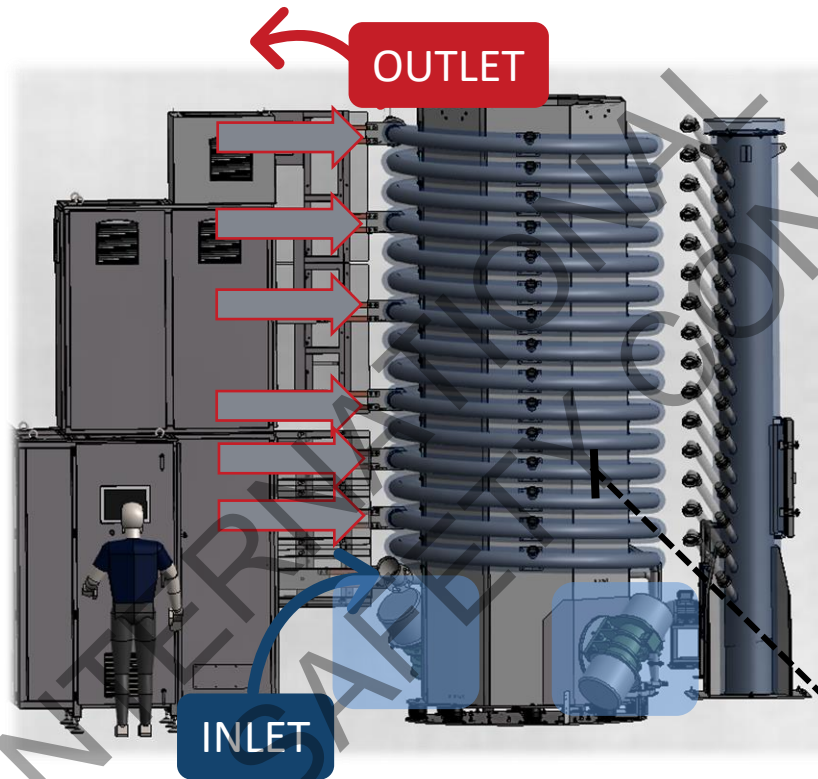
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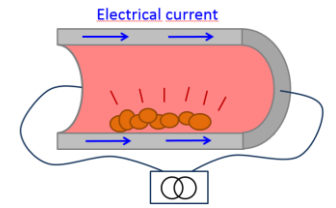
# Revtech heat treatment: how does it work?



1.  
Continuous transportation / mixing by vibrations

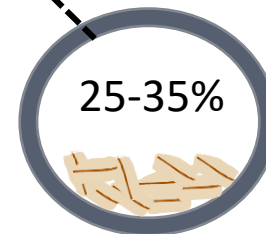


2.  
Heating by direct contact with a hot surface



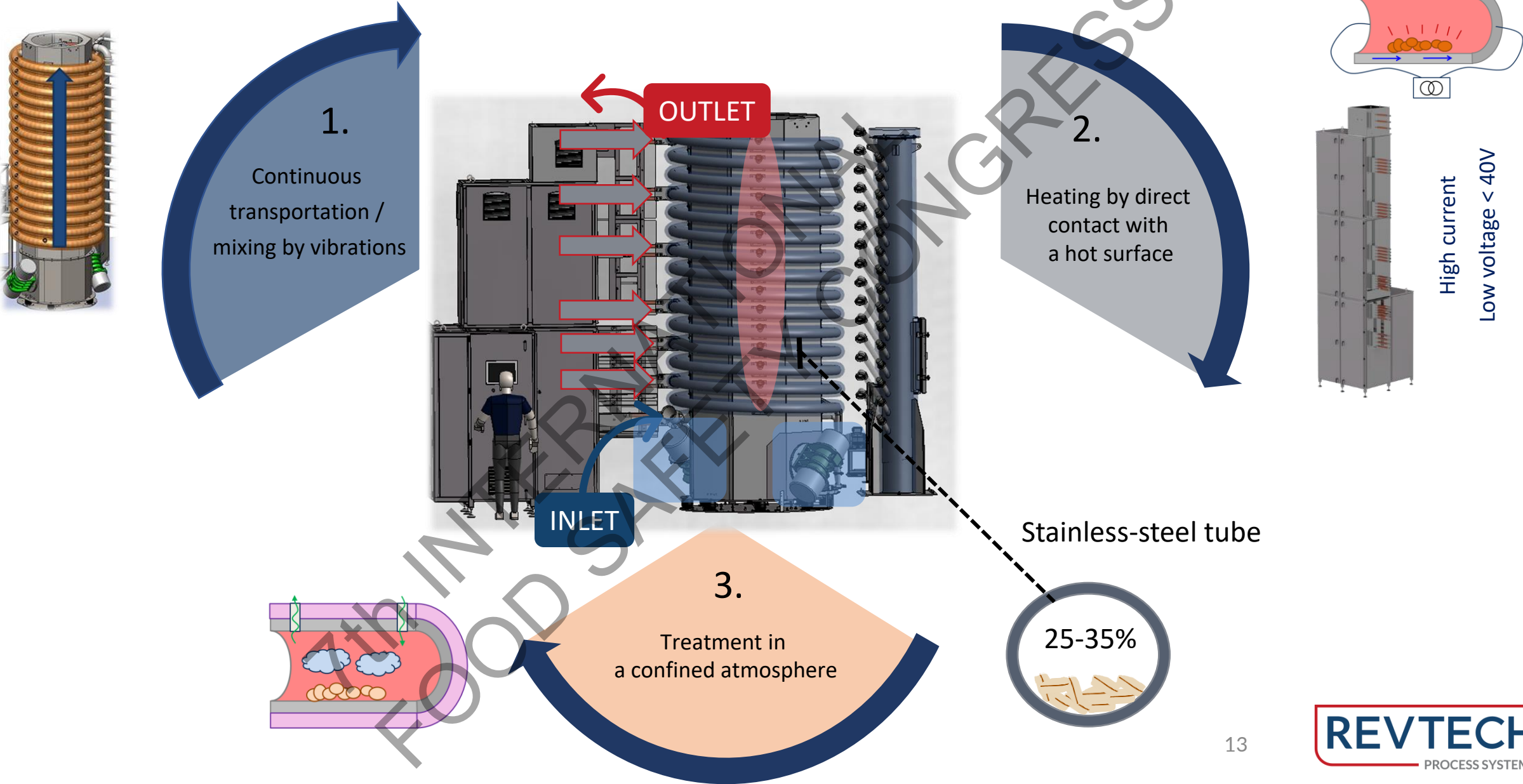
High current  
Low voltage < 40V

Stainless-steel tube

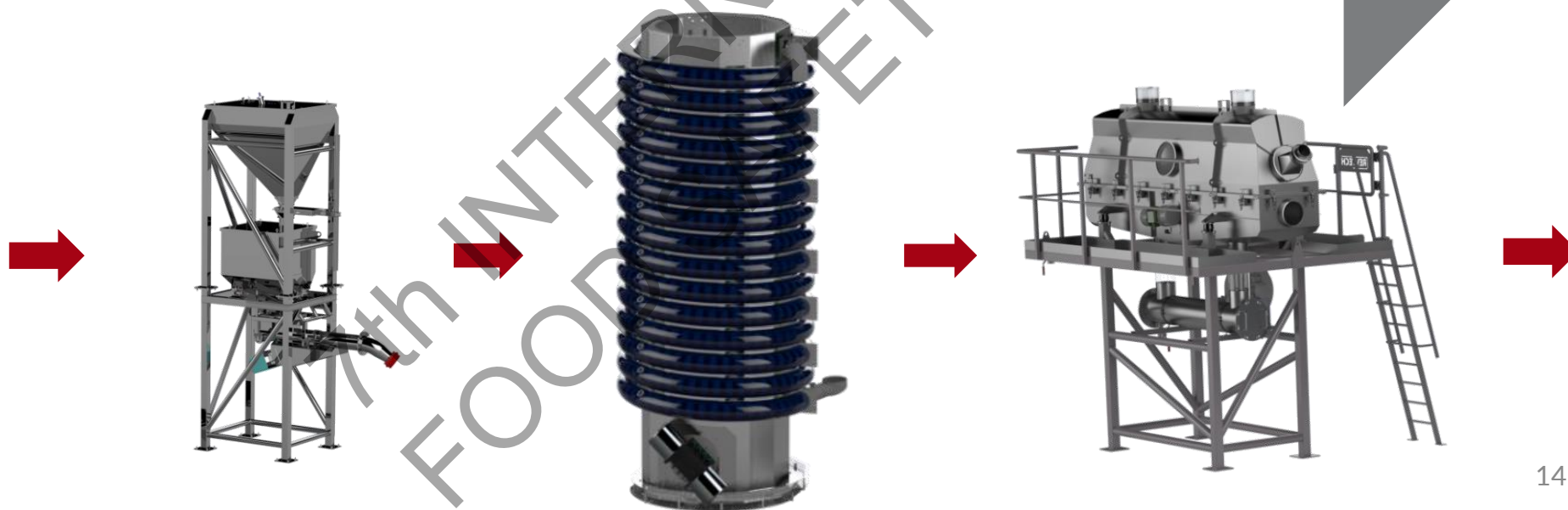


25-35%

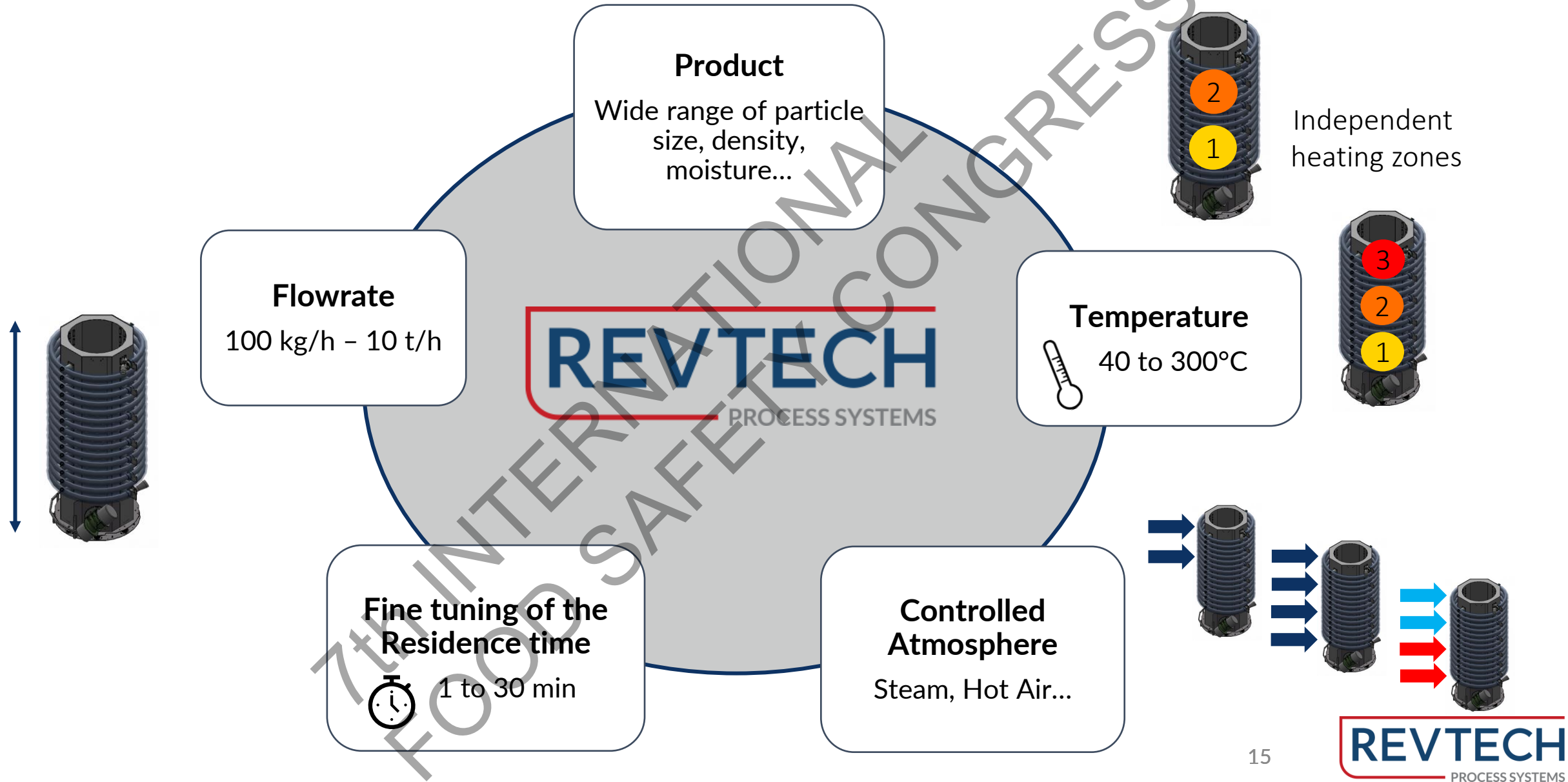
# Revtech heat treatment: how does it work?



# Revtech heat treatment: how does it work?



# What about the parameters?

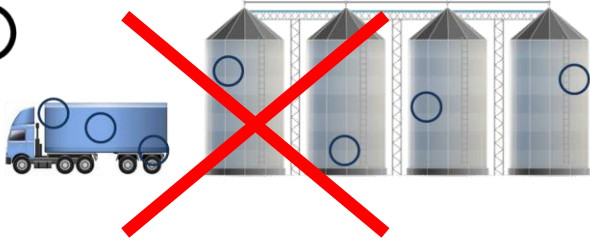




# HOW TO VALIDATE THE SOLUTION?

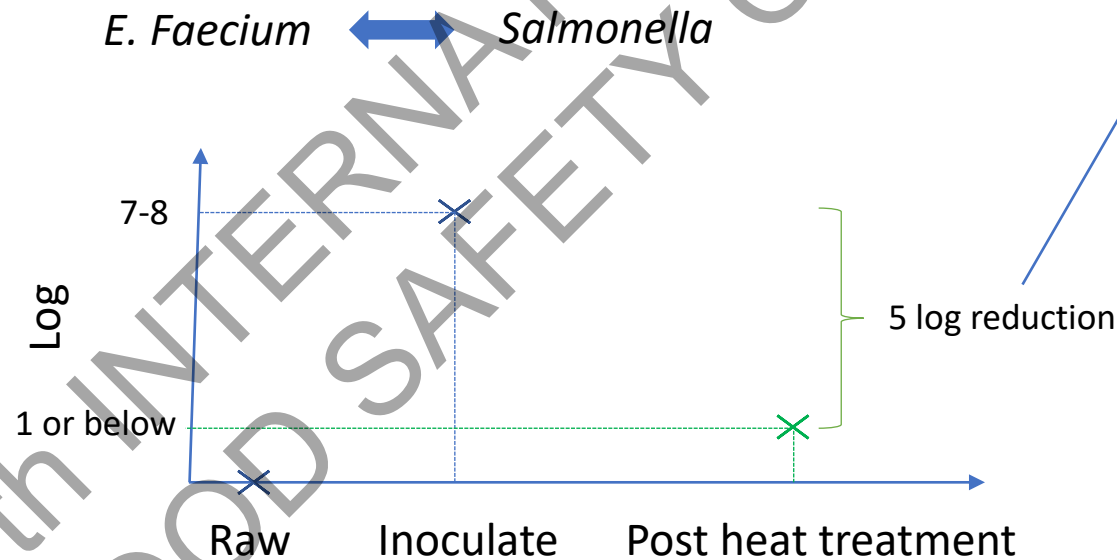


# How to validate a 5-Log reduction in a Revtech?

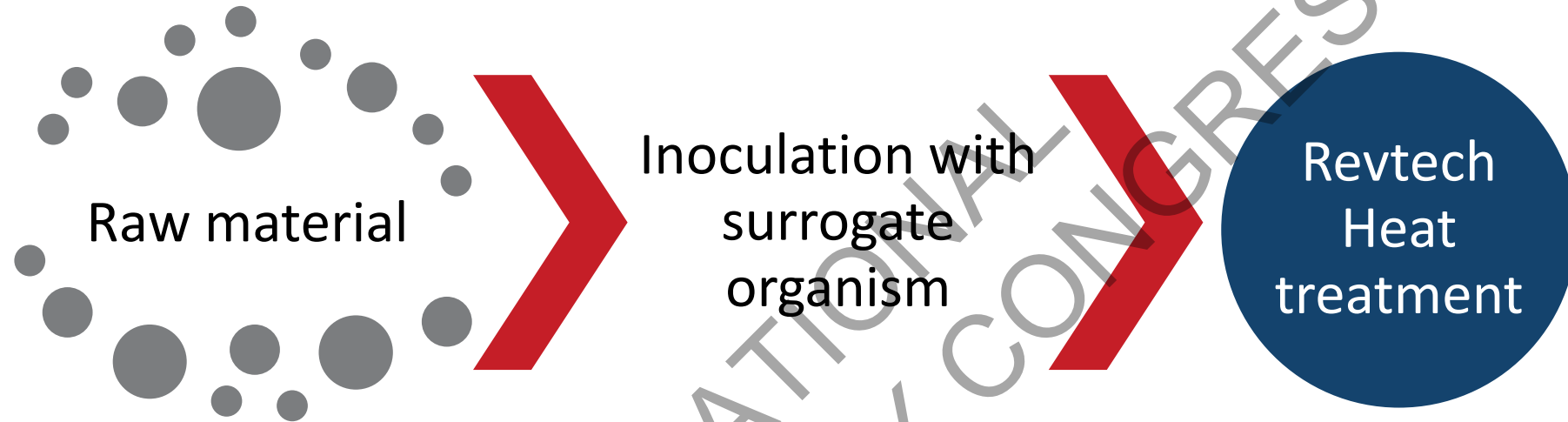


Voluntary / Forced contamination

100,000 times fewer *Salmonella* after the heat treatment



# How to validate a 5-Log reduction in a Revtech?



- Step 1. Range finding test
  - Residence time
  - Temperatures
  - Amount of steam
  - Product quality



- Step 2. Validation
  - Inoculated samples
  - 5 log
  - Define CCPs

# Safe but also good

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## ■ Microbiological activity

- Bacteria
- Yeast
- Molds
- Other contamination

## ■ Organoleptical properties

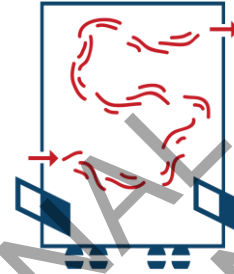
- Flavor
- Taste
- Texture
- Appearance



# Heat treatment on dry ingredient



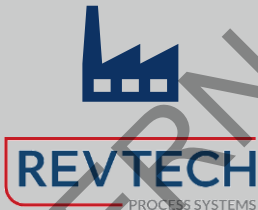
**Innovative**  
(Revtch proprietary  
Patented technology)



**Continuous**  
**Flexible**  
**Versatile**



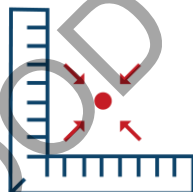
**Sustainable**  
(100% electrical)



**High robustness, low maintenance**  
(24 hours/day ; 7 days/week operability)



**Improved safety**  
(> 5 log reduction FDA approved)



**Limited footprint**

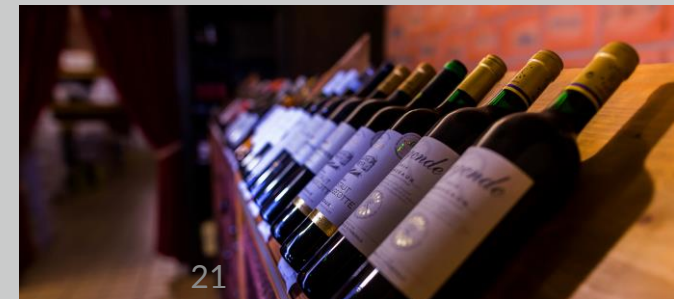
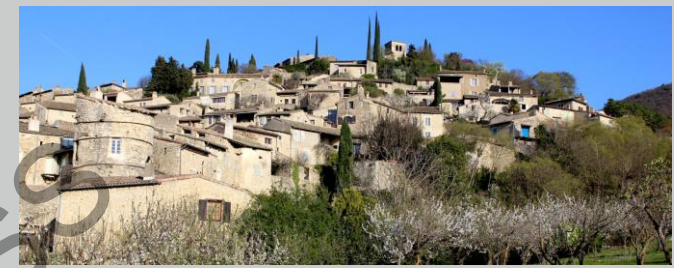
**Tailor-made on  
your process  
specifications**



**Each Revtech is  
unique !**



THANK YOU FOR YOUR ATTENTION  
AND COME VISIT US!




**REVTECH**  
PROCESS SYSTEMS

Pasteurization  
Roasting  
Heat treatment  
Thermal desorption  
Calcination

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