

L'ANALYSE DIMENSIONNELLE :

Étude d'un procédé de foisonnement de génoise dans un batteur industriel



WHO WE ARE – THE GROUP

A Group supplier of equipments for the manufacturing of products in the food domain, the chemistry, pharmaceutical, cosmetic



8
COMPANIES

\$ 182
MILLION
TURNOVER

60%
EXPORT
TURNOVER

WHO WE ARE – VMI

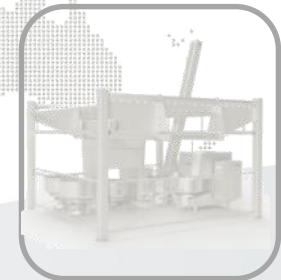
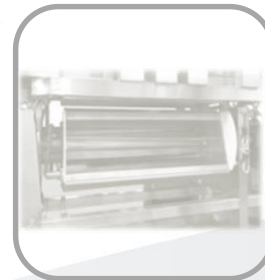
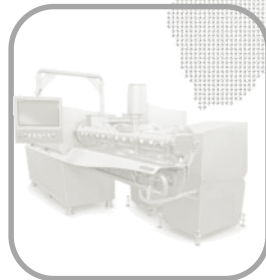
- 2015 revenues of € 55.0 million

- Headquartered in the West of France

- Offering the broadest portfolio of mixing solutions worldwide

- Facilities
- More than 90 countries covered

- 210 employees



The industry's source for MIXING solutions

WHO WE ARE – **VMI**

THE LARGEST PORTFOLIO OF MIXING SOLUTIONS

220 continuous mixer



350 Automatic systems



100 Horizontal mixers
(vacuum)



200 (Planetary mixers)



MARKET VISION– CONSUMERS EXPECTATION



Market
WORLDWILDE

CONSUMERS ARE
CONNECTED

CONSUMERS ARE
BETTER INFORMED

CONSUMERS ARE MORE
DEMANDING



CONSUMERS WANT

QUALITY

REGULARITY

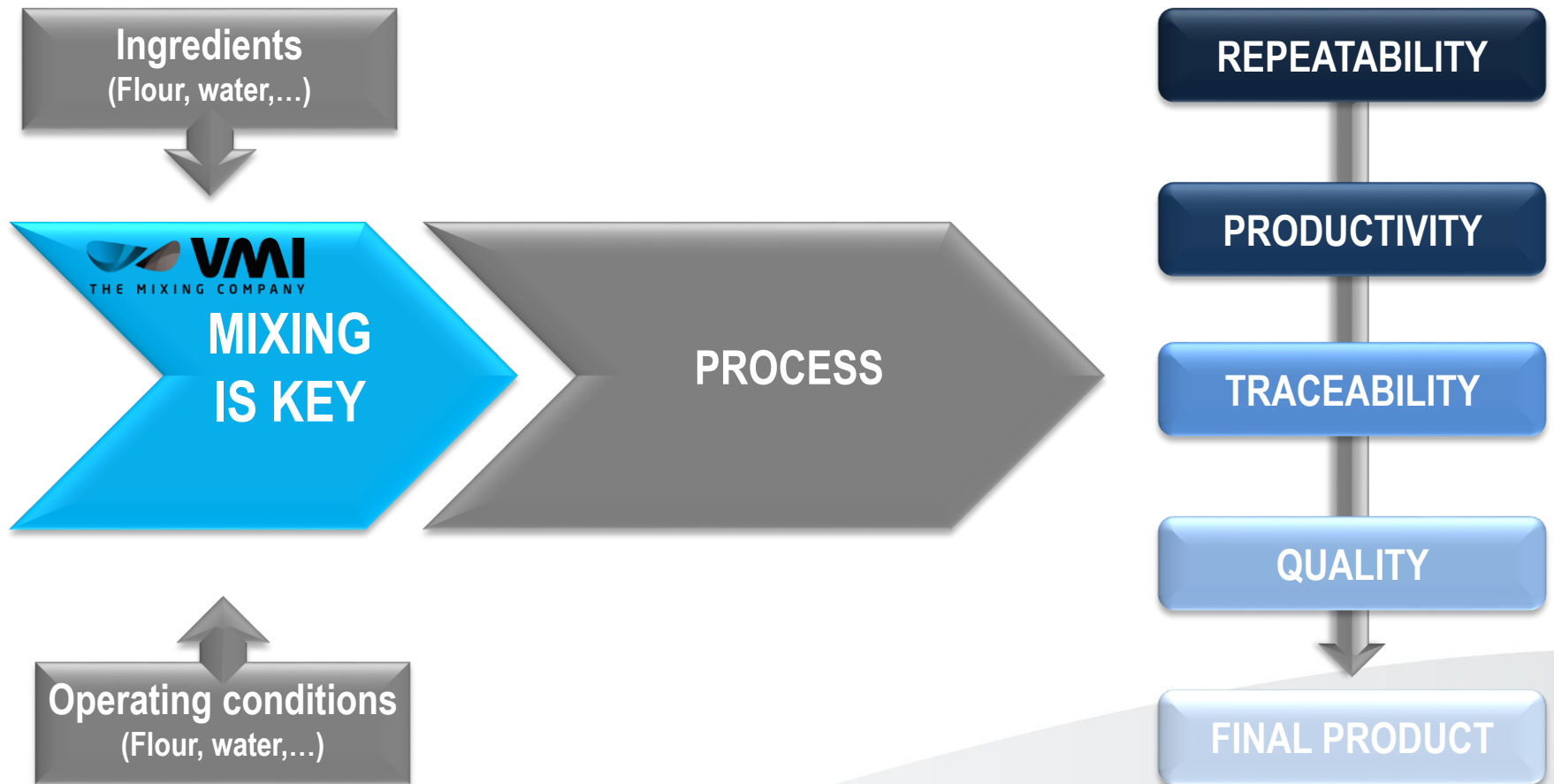
BETTER COST

MIXING UNDERSTANDING :
A KEY POINT

COMPLIANT MIXERS :
A NEED



R&D APPROACH—GUIDELINES



R&D APPROACH— DEVELOPMENT STEPS

Innovation and technological progress are the key levers that have enabled VMI, over the years, to maintain a significant competitive advantage and a global position of leadership.

Driven by strong partnerships with universities and customers



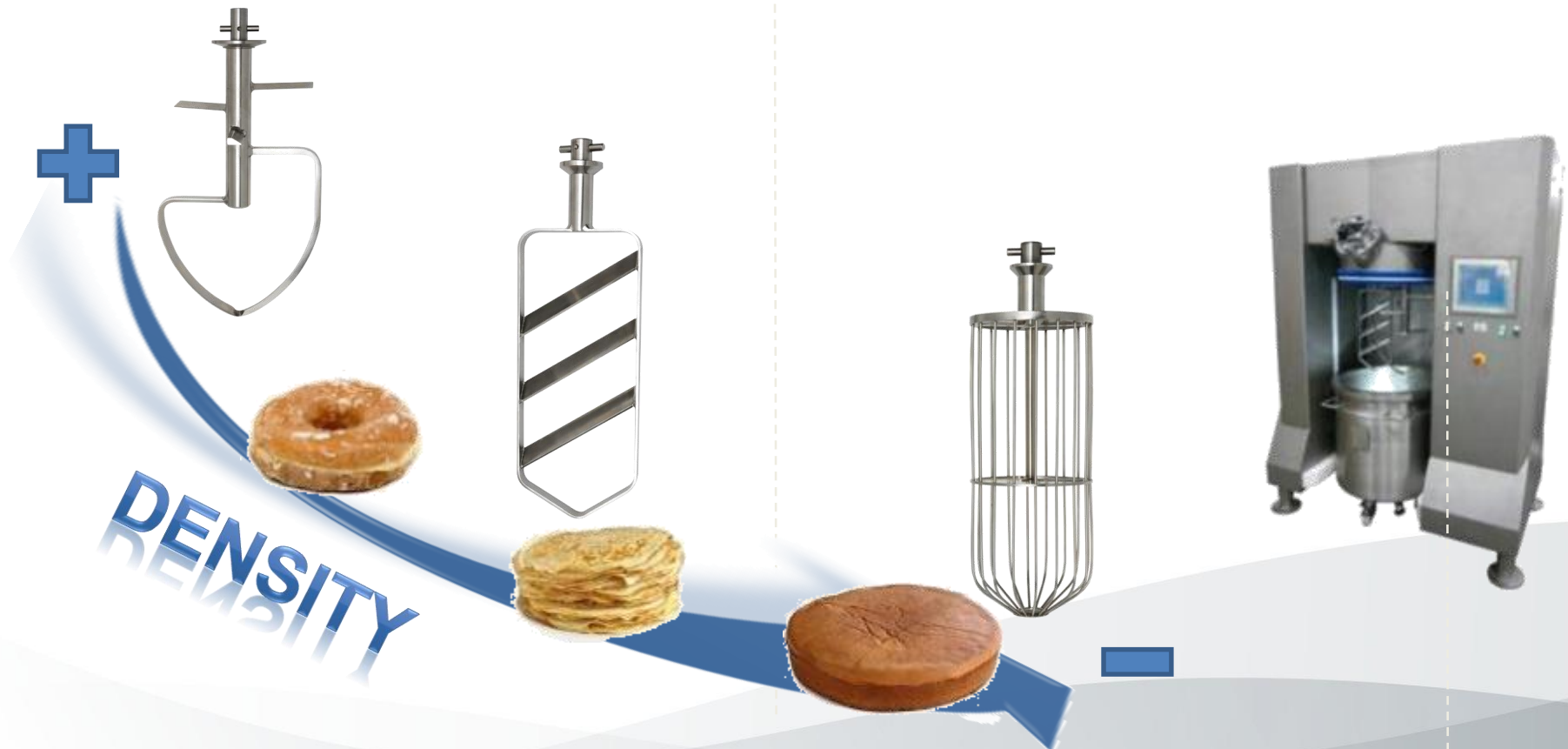
ULTIMIX : PLANETARY MIXER



PLANETARY MIXER – **VMI STATE OF ART**

- Universal Mixer
- Suitable for different viscosities

⊗ **DENSITY DEPENDING ON BOWL SIZE**



ULTIMIX - AERATION CONTROL

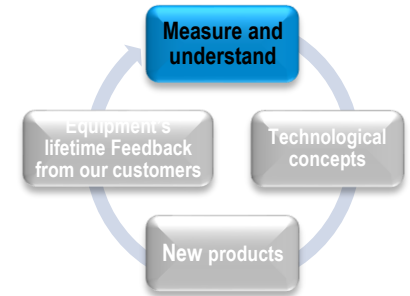


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Influence of whip speed ratios on the inclusion of air into a bakery foam produced with a planetary mixer device

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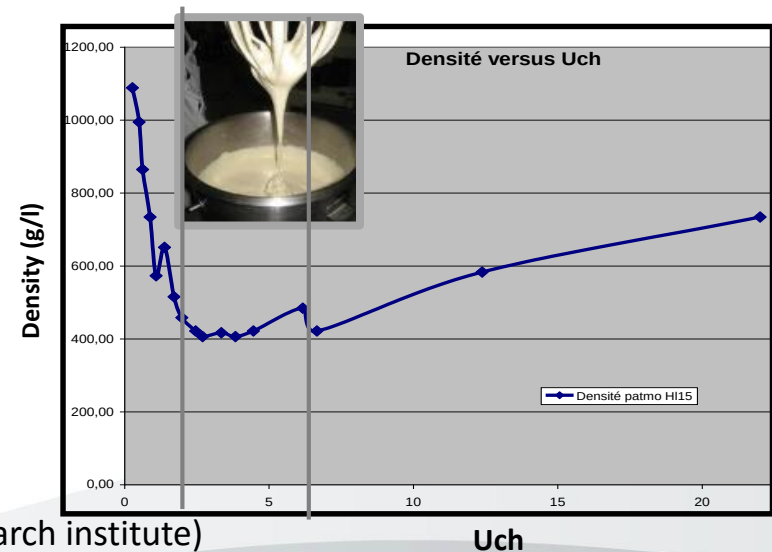
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-Optimum density reached for $2 < U_{ch} < 6$



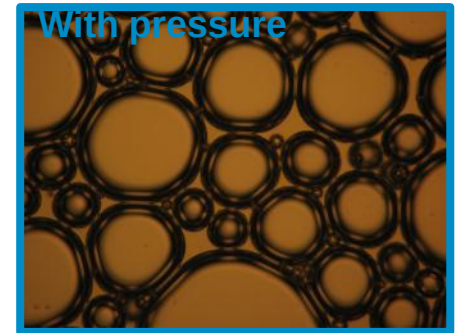
PARTENERSHIP: INRA (national agronomic research institute)

ULTIMIX - AERATION CONTROL

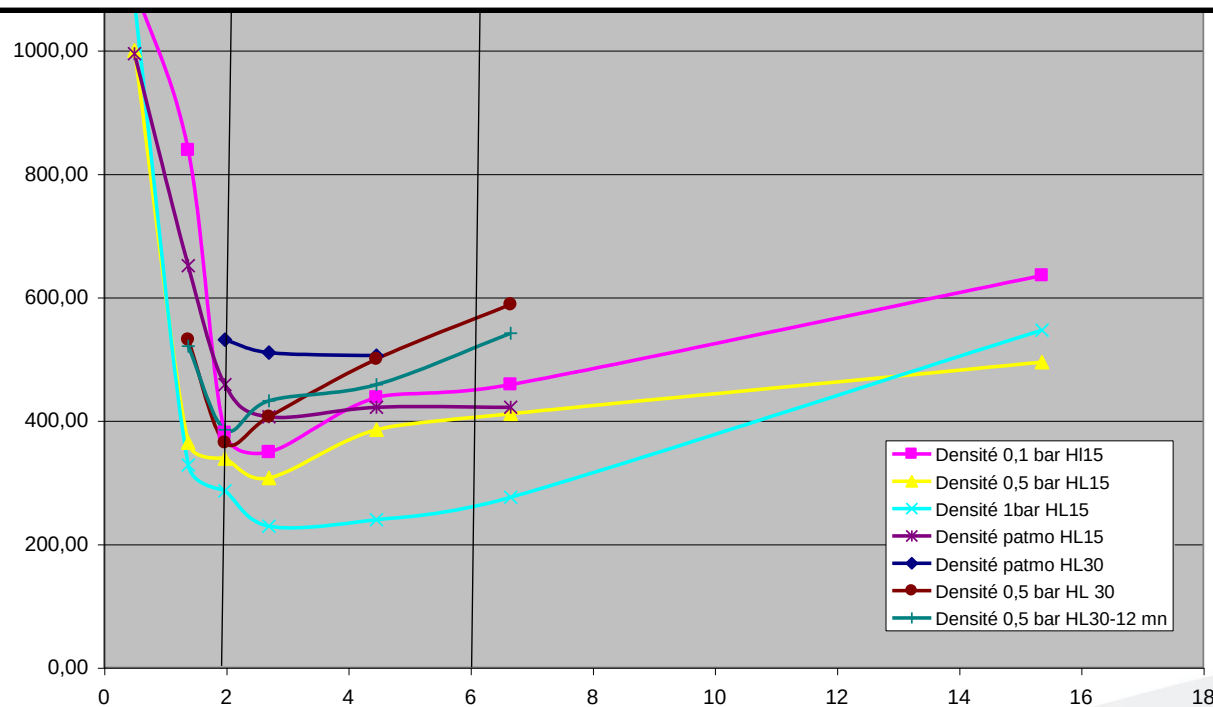
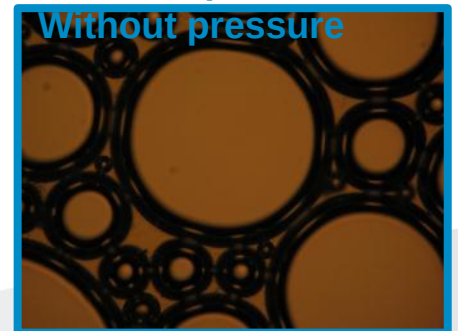


-Same results for different operating conditions (pressure)

Sponge cake microscope views –
With pressure



Sponge cake microscope views –
Without pressure



ULTIMIX - NEW RANGE PLANETARY MIXER

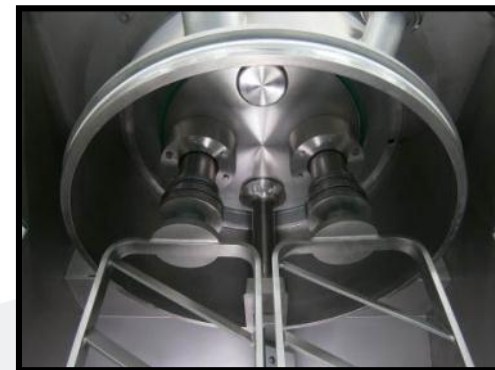


 **Aeration control (specific study)**

 **Improved cleanability**

 **Easy scale up (Uch)**

$Uch = F$ (center distance, $\varnothing$ tool, Ratio, $V_{satellite}$)



Patented gear box

CONCLUSION

MESURER & COMPRENDRE POUR MIEUX INNOVER:

L'ANALYSE DIMENSIONNELLE :

un outil performant
pour modéliser les procédés
industriels
et mieux maîtriser le changement d'échelle“

MERCI POUR VOTRE ATTENTION

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