



**WEBER
ENTEC**

CO2 FOOTPRINT REDUCTION AND PROCESS IMPROVMENT IN OIL BLENDING WITH ULTRASOUND TECHNOLOGY



WEBER ENTEC TURNKEY ULTRASOUND MACHINES

- ▶ Founded in 2010
- ▶ Worldwide sales network
- ▶ > 200 installations in 17 countries
- ▶ Market leader at ultrasound disintegration





WEBER ENTEC APPLICATIONS

> 200 Installations

Weber Entec GmbH & CO. KG
Turn-Key Ultrasound Equipment

In 17 Countries



Biogas plants



WWTPs



Olive Oil
Production



Pharma
Industry



Oil-
Blending



Chemical
Industry

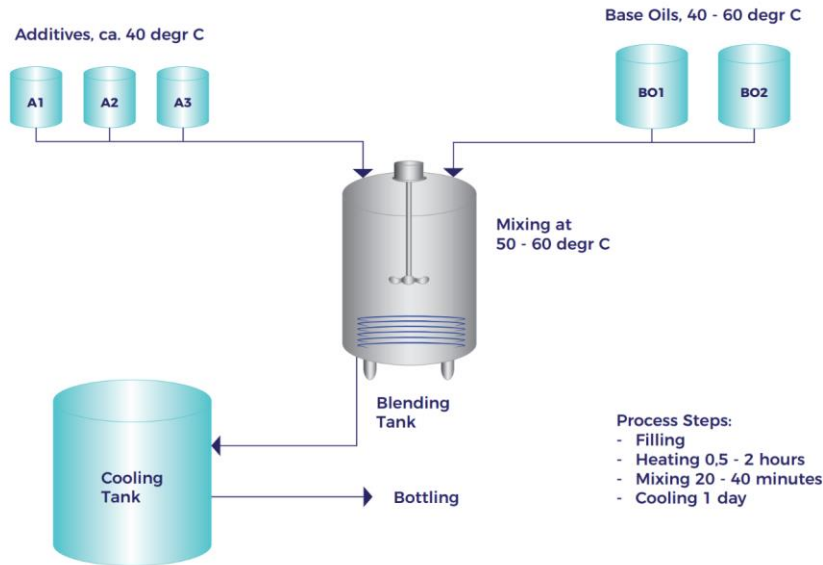


Paper
Industry

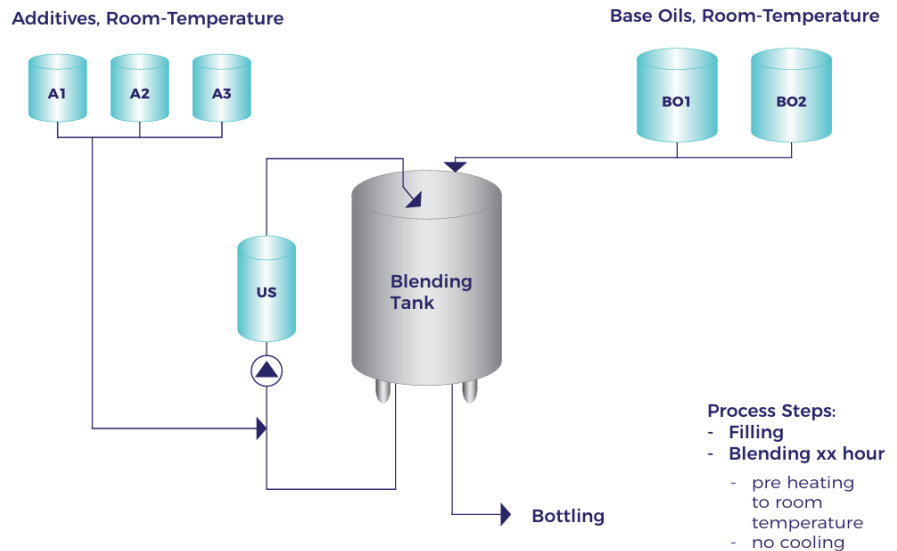


APPLICATION OF ULTRASOUND CAVITATION REACTOR IN OIL BLENDING

Traditional Process



Blending with Ultrasound





EFFECTS OF THE ULTRASOUND CAVITATION REACTOR

Processing time reduction

Reduced heating - **CO2 footprint savings** -

No need for cooling

Quality improvements

Space savings



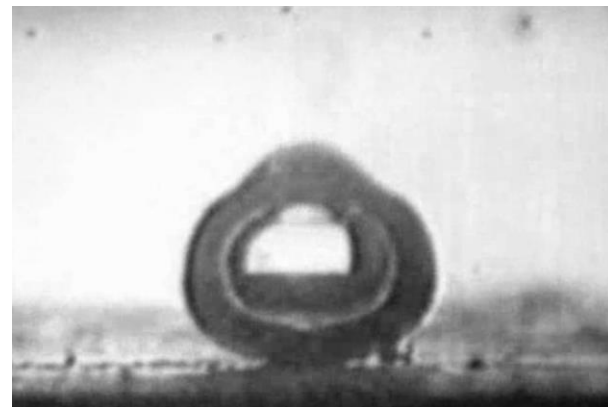
PHYSICAL PRINCIPLE – CAVITATION

Ultrasound generates cavitation field
for optimal homogenous blending

Physical principle: Cavitation

Short term local μm -radius

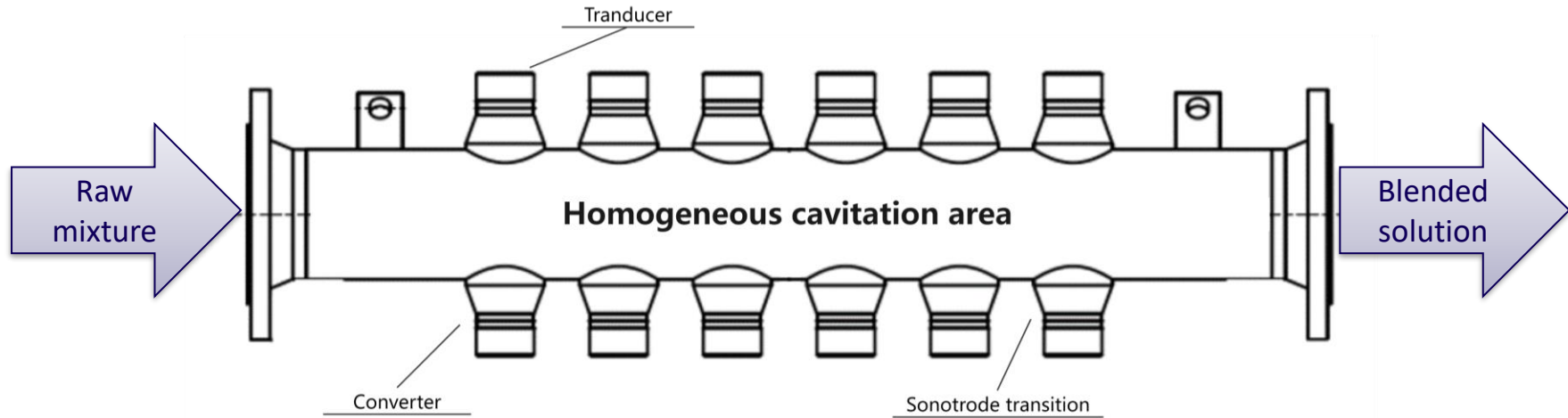
- ▶ Extreme high temperature (up to 5.000 C°)
- ▶ Extreme high pressure (up to 1.000 bar)
- ▶ Extreme high acceleration \longrightarrow Shear forces



Cavitation bubble prior to implosion



ULTRASOUND REACTOR CAVIPUSH – THE NEXT GENERATION ULTRASOUND



- Clogging free, maintenance free, high durability
- Homogeneous cavitation field
- Precisely defined intensity of treatment

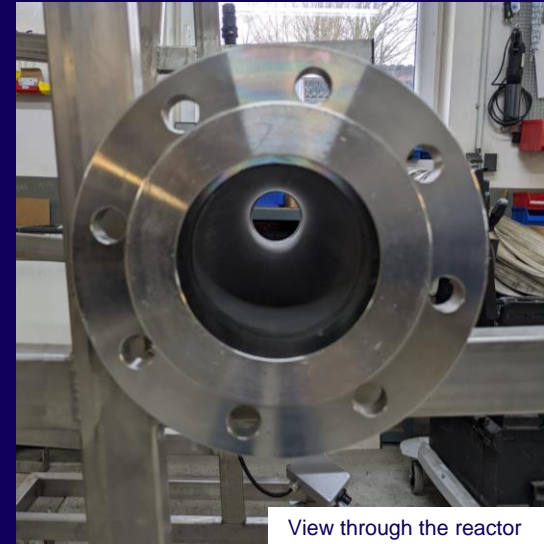


ULTRASOUND REACTOR CAVIPUSH – THE NEXT GENERATION ULTRASOUND



Exterior view of the reactor

Robust High-End technology
Optimal energy input through homogeneous treatment



View through the reactor

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GENERAL MACHINE DESIGN

1 Ultrasound unit

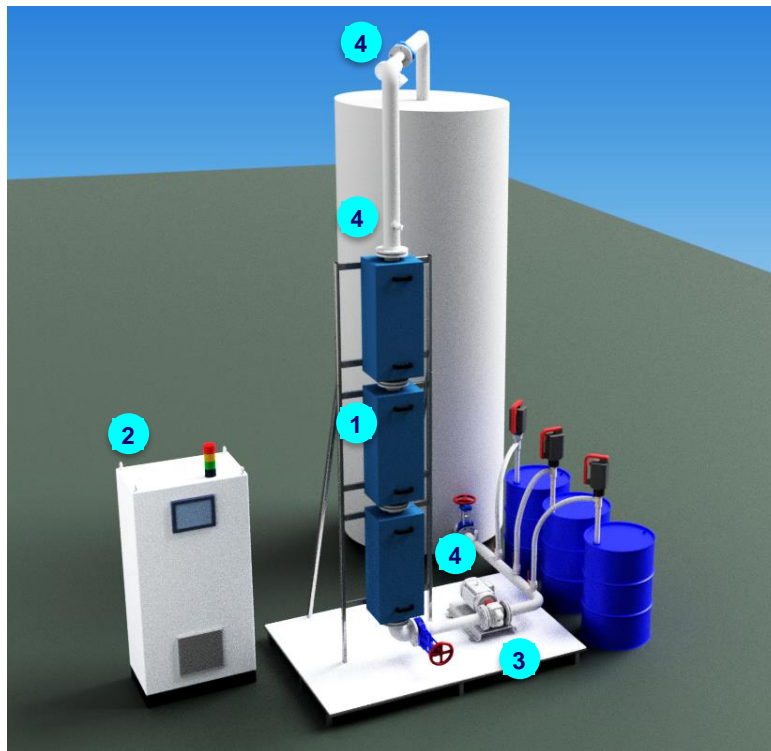
Micro-scale mixing through
homogenous cavitation field

Adjustable process
parameters

Consistent and stable high
quality homogeneous blend

Ultrasonic power
2 kW per unit

High durability –
up to 6 years and more



2 Control cabinet

Controlbox with ultrasound
generators and HMI for
adjustment of process
parameters

3 Circulating pump

Gear pump

4 Sensors

2 x pressure gages,
2 x temperature sensor,
1 x flow meter



YOUR BENEFITS

CO2 Footprint Reduction

Save/Eradicate all Heating energy

Save/Eradicate all Mixing energy

Lower relative share of building services energy required

Process Improvements

Enhanced homogenous stable mixture

Space savings (no cooling tanks)

Bottling directly after blending

Multiply production output within same real estate



BENEFIT IN YOUR FACILITY

Our **application specialists** support each project individually

- ▶ Exchange project information, challenges, improvement targets, etc.
- ▶ Individual design and benefit evaluation
- ▶ Integration in new project or existing plant
- ▶ Machine Start-Up and Process-Parameter Set-Up together



Contact us for more information!

THANK YOU

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