

# SONOFLUX®

## Ultrasonic sludge pre-treatment



**SONOFLUX®** is a physical cell lysis process used in the pre-treatment of biological sludge, mainly to enhance the performance of anaerobic or aerobic digestion.

**SONOFLUX®** is also used in water treatment, to improve denitrification and dephosphatation yields, optimize sludge index and eliminate foaming and bulking problems.

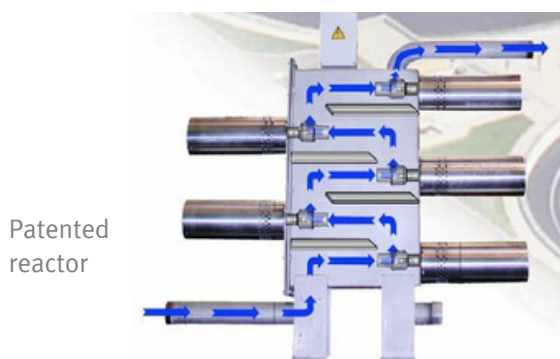
### FIELDS OF APPLICATION

- Sludge digestion (DIGESTHANE® process)
- Activated sludge treatment

Stereau has signed an exclusive partnership agreement with Ultrawaves, a company specializing in the sonolysis of sewage sludge. The result of a merger between Ultrawaves and Sonotronic, a manufacturer of ultrasonic probes for industry, this process was the subject of a Research & Development program at the Hamburg-Harburg University of Technology. Its compactness and modularity enable it to be rapidly adapted to existing configurations.

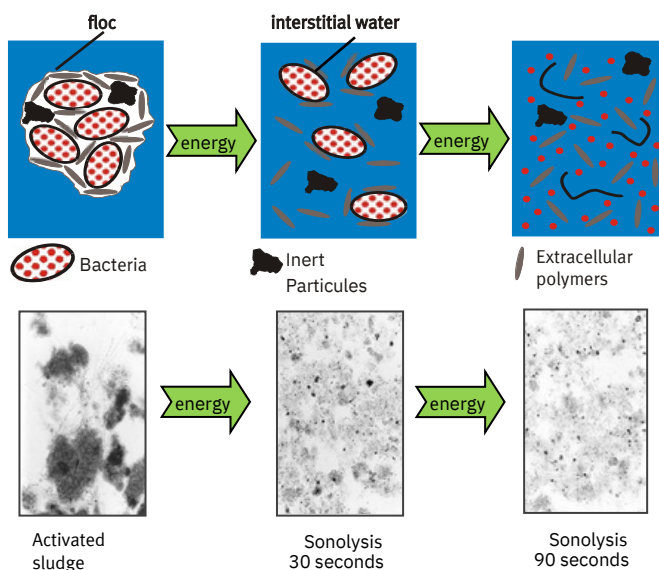
## Ultrasonic sludge pre-treatment

The sound pressure generated by ultrasound on a liquid induces cavitation: in just a few microseconds, gas microbubbles form, swelling and vibrating with the rhythm of compression and expansion until they reach a critical size, at which point they implode. Implosion releases considerable energy, generating local stresses of extreme pressure (up to 500 bar) and very high temperatures (up to 5200 K).



The energy thus applied to a biological sludge disintegrates its constituent cells. This phenomenon is called Sonolysis. The intra- and extra-cellular material released and transferred to the soluble phase constitutes a substrate that can be easily assimilated by purification bacteria, and contains active enzymes that will then participate in sludge digestion.

### Sludge disintegration



This mechanical transformation of matter, now rapidly accessible to purifying microorganisms, opens up a wide range of applications in water and sludge treatment.

### PERFORMANCES

#### Digestion des boues (procédé DIGESTHANE®)

- Augmentation des performances de la digestion
- Augmentation de la production de biogaz
- Réduction accrue de la quantité de boues
- Meilleure stabilité du procédé de digestion
- Elimine les phénomènes de moussage

#### Traitement des boues activées

- Augmentation de l'élimination biologique de l'azote et du phosphore (finiture de carbone facilement assimilable) en remplacement du méthanol.
- Réduction des masses de boues produites
- Destruction des bactéries filament (bulking)
- Augmentation des performances de clarification, de déshydratation, réduction des moussages de digesteur.

### SPECIFICATIONS

- Stainless steel reactor
- 1 to 5 ultrasound-generating probes: SONOTRONIC Sonotrodes
- Sonotrode unit power: 1 kW Compact: 29 L
- Modular: series and parallel connection of several reactors
- Ready to connect: standard DN 50 mm connections
- Soundproofing: soundproofing box

### REFERENCES

Ultrawaves's Worldwide references  
Germany: Bambetg (280 000 PE, Meldorf (20 000 PE) - Hollande : Zeist (75 000 PE)...