

Supplementary Material 1 (SM1). Main transducer characteristics.

| Model | Diameter (cm) | Frequency (MHz) | -6 dB Bandwidth (%) | λ (mm) | N (mm) | φ (°) |
|---------------------|---------------|-----------------|---------------------|----------------|----------|---------------|
| Panametrics V305-SU | 1.9 | 2.25 | 61.9 | 0.64 | 140.0 | 2.37 |

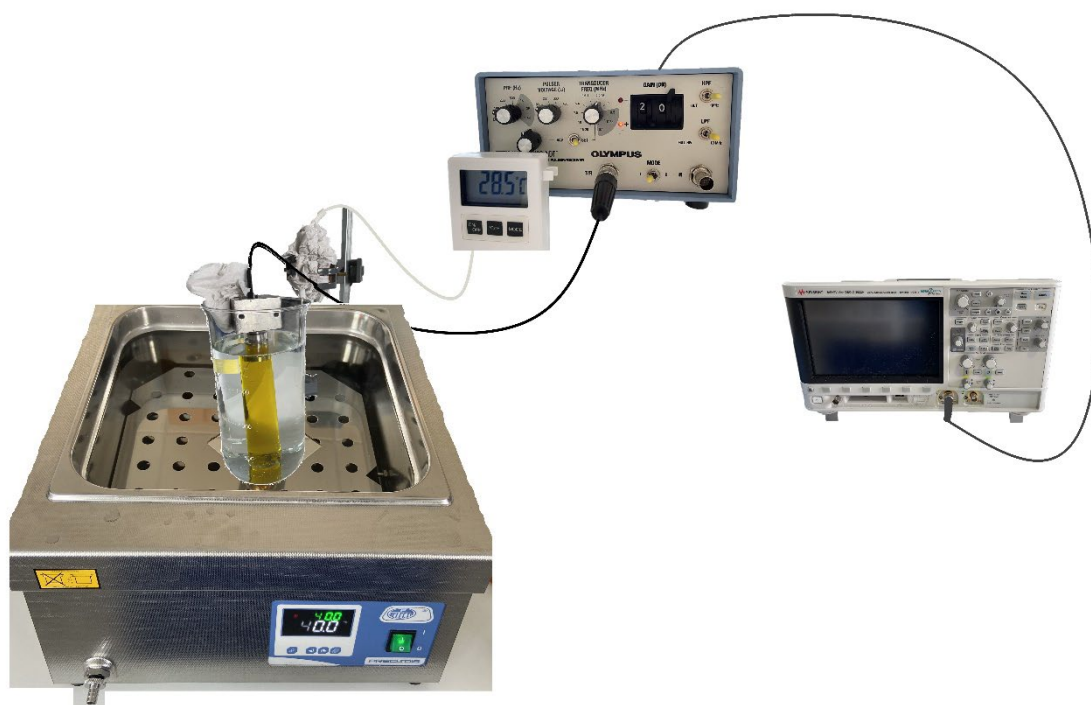
The value $UPV_L = 1450$ m/s was taken for the calculation of λ , N and φ .

λ : wavelength

N : near-field length.

φ : beam angle

Supplementary Material 2 (SM2). Set-up for the experimental ultrasonic measurements.



Supplementary Material 3 (SM3). A-scans corresponding to the tests carried out on a sample of proportions 60% Olive oil and 40% Sunflower oil with (a) $TI=2000 \mu\text{s}$, (b) $TI=500 \mu\text{s}$, and (c) $TI=250 \mu\text{s}$.

