

**ACOUSTICS2008/3533**  
**Development of a system using ultrasonic waves for assessing the quality of Frying oil and salad oil during frying**

Driss Izbaim<sup>a</sup>, Bouazza Faiz<sup>a</sup>, Adil Hamine<sup>a</sup>, Naima Taifi<sup>b</sup> and Ali Moudden<sup>a</sup>

<sup>a</sup>Ibn Zohr University, FS Agadir, 80000 Agadir, Morocco

<sup>b</sup>Fac. des sciences; Univ. Chouaib Doukkali, B.P: 20, 24000 El Jadida, Morocco

The design and construction of a real-time system is described with reference to applications in quality control of frying oil. This system, developed using the LabVIEW<sup>TM</sup> software, controls the ultrasonic velocity by receiving the signals backscattered by a recipient full of oil. Measurements on samples of frying oil and salad oil are described and the results of velocity measurements on a group of samples of varying frying time taken in 160°C are reported. The new system is built around three main elements: acquiring the oil signals, automating the signals control, and several calculations to determine in real-time the phase velocity of the oil. The results obtained show the feasibility of assessing the quality of oils using ultrasonic waves through monitoring the frying process. This system can be used also to control other industry products such as the canned fish oil, milk, and the cement.