

*Machine for Microparts Moulding based on UltraSound Excitation*

**Background:**

Biomedicine, electronics, optics, precision engineering..., are currently strategic fields with increasing trend of miniaturization. In this context, polymers play a critical role due to their competitive price, adjustable properties by the use of fillers and reinforcements and good processability.

Up to now, injection moulding has proved to be the most precise, flexible and cost efficient technology for the large-scale replication of thermoplastic parts. In spite of the economic potential, the current micro moulding market still present many limitations in terms of investment required, time-to-market of products and production reliability. The reason behind is that existing technologies for manufacturing of plastic  $\mu$ -components are not fully developed up to now. They are simply based on the same concepts (process and tooling) used for the injection of bigger parts. This results in technical problems such as dosage precision, process accuracy and repetitiveness.

Many efforts have been done in order to overcome it.

However, only ultrasound injection moulding was able to face the main difficulties mentioned previously which has been demonstrated in the Sonoplast project. Sonoplast project has built a prototype of a Micro-moulding machine based on the ultrasound, which allowed defining, validating and establishing the requirements to properly melt plastic material and fill small cavities. This very stable process was able to produce mini parts with higher quality compared to conventional technologies.

Even though, there are still relevant features to improve in order to achieve a commercial machine.

In this context, SONO“R”US project represents the opportunity to improve and optimize key features of the prototype. Once the technical improvements are implemented, the new ultrasound injection machine will be tested in a real industrial environment. Beside the technical developments, as a parallel issue, a study on some possible new markets will be carried out; the goal here is to assure the solutions fully complies with all the requirements of the identified key-sectors.

**Objective:**

The aim of SONO“R”US is to allow redefining some of the key features of the prototype developed under the Sonoplast project. The result will be a ready-to-market micromoulding machine that represents flexible, reliable and cost efficiency solutions for producing complex shaped and functional  $\mu$ -parts.

**The partners of the project are:** MATEU & SOLE SA, PROMOLDING BV, CEDRAT TECHNOLOGIES, ASCAMM y ULTRASION



<http://www.sonorusproject.eu/>

