



## WP8 – VALIDATION OF HIGH PRODUCTIVITY LASER POLYMER WELDING PROCESSES WITH BREAKTHROUGH REPRODUCIBILITY



### ABSTRACT

Main objectives of this task are:

- To qualify the new polymer welding strategies based on high brilliance lasers
- To demonstrate the project outcome at shop floor level to verify productivity, quality and new product solutions
- To validate quality control systems



INAUXA Stabilizer Link



COLOPLAST's ostomy bag

### METHOD

Development of test case related samples for process development. Each partner has realized samples with simplified but similar geometries and corresponding materials:

- CRF (Automotive sector) investigated the weldability of materials related to lighting systems
- COLOPLAST (Medical sector) performed comprehensive tests with 808 nm diode lasers in combination with different absorbers and colours
- ELUX (White goods sector) is still evaluating different solutions in terms of materials and component geometries
- INAUXA (Automotive sector) selected the component to be welded

### HIGHLIGHTS

The activities have been carried out by using fiber laser ( $\lambda \sim 1 \mu\text{m}$ ) and diode laser (808 nm) too. Different interesting results have been found:

Automotive sector:

- Good weldability combining PMMA with ABS or PC/ABS blend
- Development of the welding process of PP to PA66
- It appears that laser welding is competitive in terms of weld quality and cycle time

Medical sector:

- Materials used for medical application provided good weldability results
- During the welding process, harmful substances have not been released

White goods sector:

- Evaluation of different solutions in terms of materials and geometry
- Tests on ABS, SAN and PC in white (referred to door handles)

### OUTLOOK

The PolyBright users have defined the materials, welding parameters and components to be used at shop floor level, where the project outcome, such as productivity check, quality and new product solutions, will be demonstrated.

### CONTACT

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