

Prototypes

Prototypes made within the PolyMetal project with 4 demonstrators

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Scope of the report: 6 pages

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1 Introduction

The prototypes were produced in selected technologies for the PolyMetal project.

With the close cooperation of all project partners, workshops, fair visits, conferences and knowledge exchange not only the prototypes but also demonstrators for Gorenje and Intra lighting and even two demonstrators for two companies outside the PolyMetal project, due to excellent dissemination of the PolyMetal project results were produced.

The composites were prepared with the use of different thermoplastic materials, fillers, compatibilizers and additives in different ratios. All prepared samples were first compounded and injection moulded at FTPO, tested and the results were evaluated at FTPO, PCCL and MUL. The demonstrators were produced after compounding a bigger quantity of the composites at FTPO at Intra lighting and Gorenje. The dissemination of the project results led to the production of two additional demonstrators in the companies Tehnoplast Povše and Tehnomat.

Challenges at prototypes production:

- **Direct injection moulding technology:** due to highly filled composites with high thermal conductivity the toughness of the injection moulded parts is very low. The second obstacle at processing was high injection pressure, so thin walls or long injection paths are also limitation with the composites with high thermal conductivity.
- **IML technology:** limited selection of thermoplastic matrixes, limited 3D shapes possible.

Below are the production of prototypes and demonstrators presented.

2 Prototypes produced with IML technology

Figure 1 shows the process of making a prototype with IML technology.

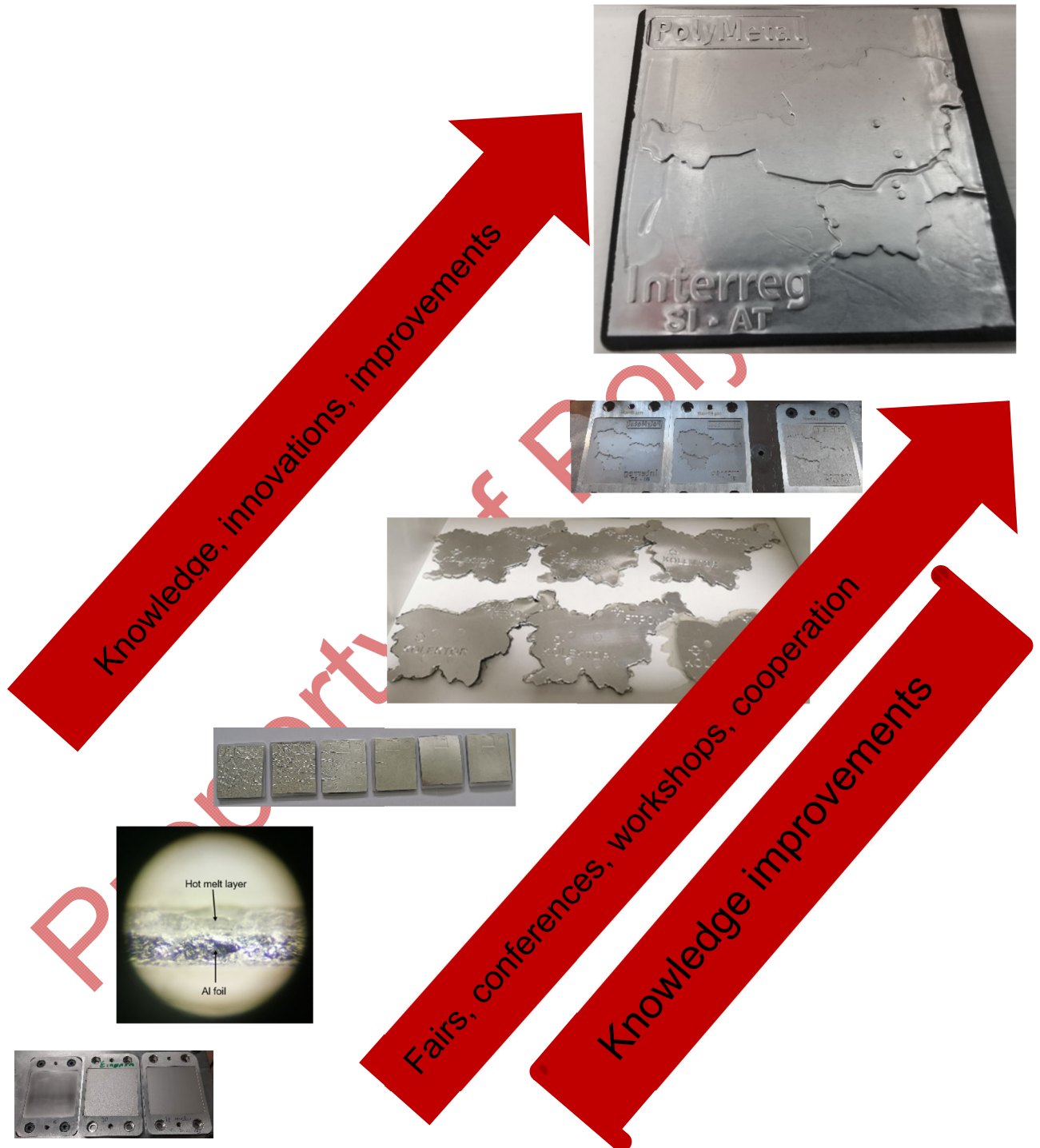


Figure 1: Prototype produced with IML technology

3 Prototypes produced with direct injection moulding technology

Figure 2 shows the process of making a prototype with direct injection moulding technology.



Figure 2: Prototype produced with direct injection moulding technology



Figure 3: Intra lighting demonstrator tested with thermal camera

Proprietary



Figure 4: Gorenje demonstrator mounted into front panel of washing machine