

Analysis of Alloys for the Manufacture of the Satellite Body



The company Impol d.o.o., located in Slovenska Bistrica, which produces satellite castings, has the ambition of creating the best possible alloy (with all required properties) for the satellite operation. Their work has been studied by a group of students.



Problem overview

The goal of this project was to study the construction of satellites, analyzing the materials used in their production, as well as understand the significance of Impol, the company that builds them.

Methods and Data

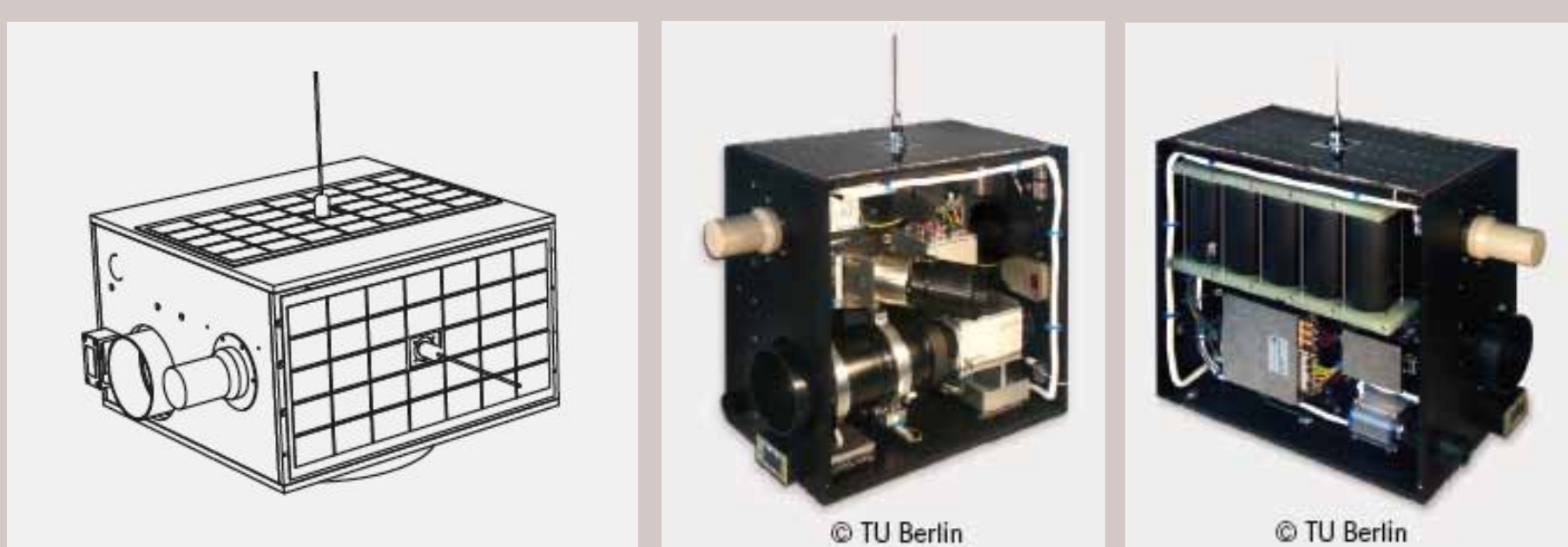
The research mainly used an observation method. We visited two different areas of Impol. In the first part of the tour, we examined the production of pressed rods and foils of various thicknesses from the smelting of aluminium to the storage of finished products. The second part was the visit to the laboratory, where we observed the analysis of samples (hardness, ductility, grain, purity) and oil used in the process of production (purity, viscosity).



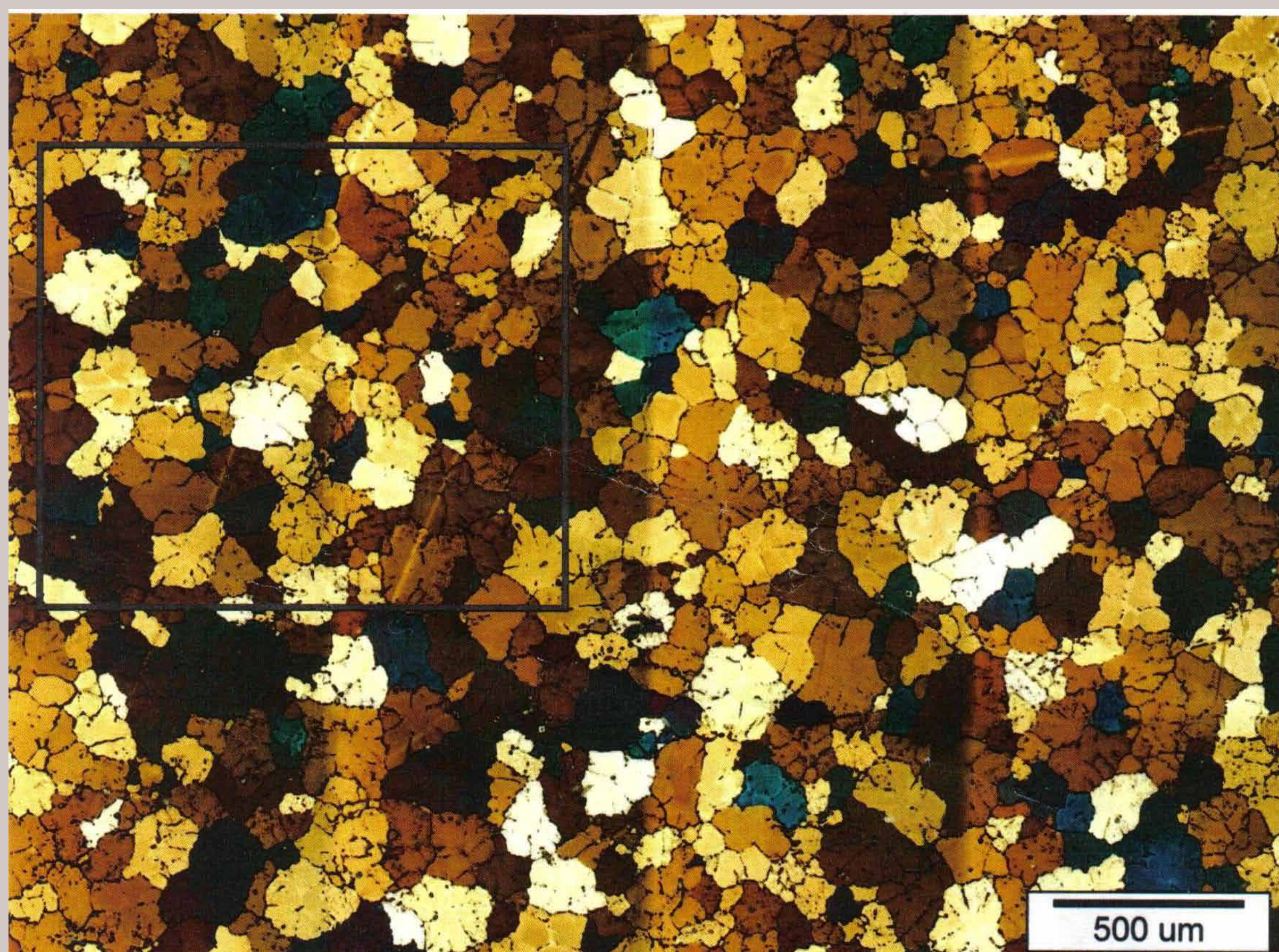
Impol factory.



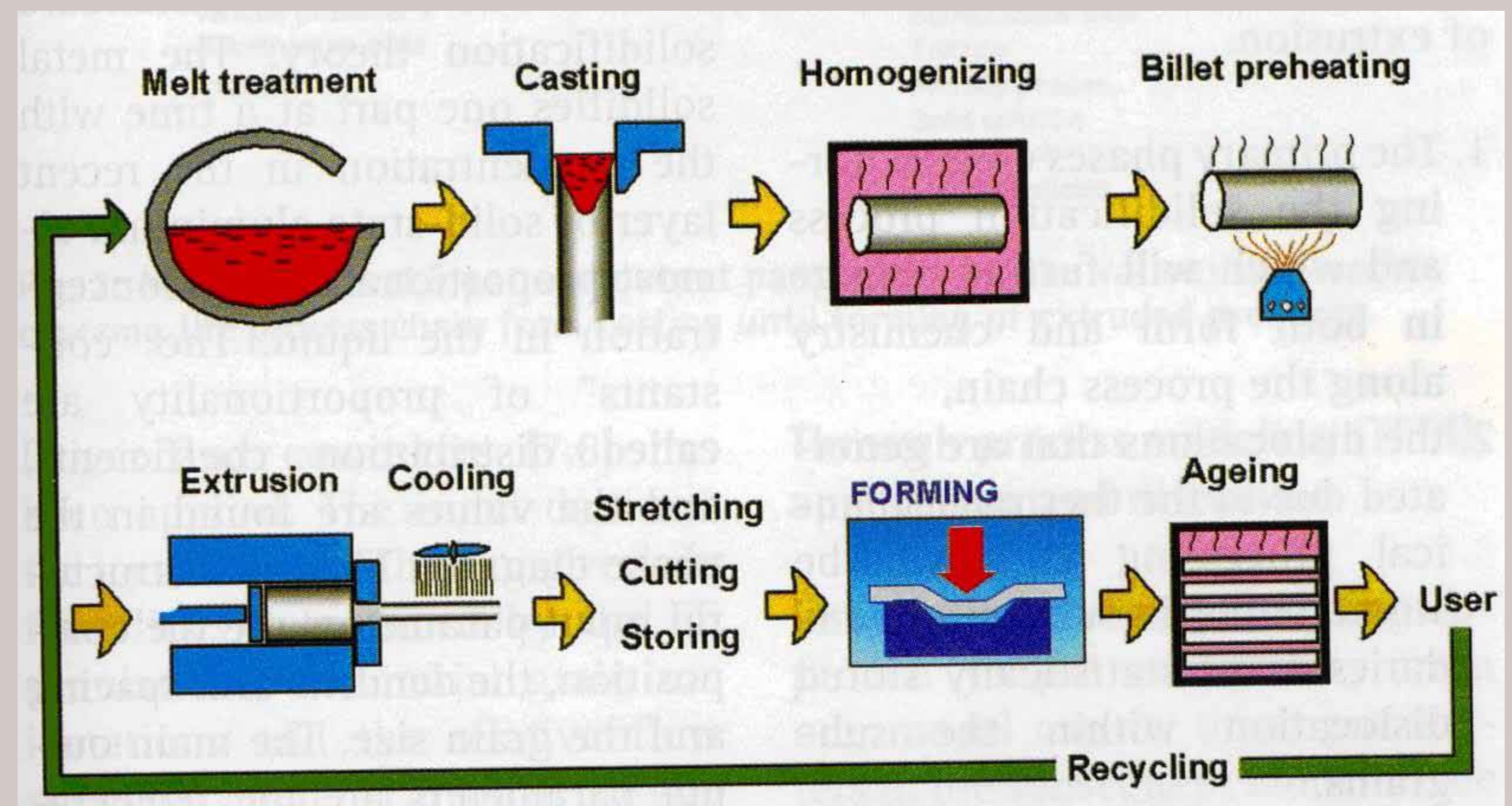
Production premises of Impol.



Small satellite LEOS-50.



Cast bar, AA alloy, homogenized and cooled by spraying water - HP 480°C / 6h.



Process chain of extruded aluminium profiles (Source: Conference Aluminium 2004).

Conclusions

- For the production of a satellite, different alloy ratios are being used, depending on the load and the intended use. Sensors which are being used can be different. With the satellite LEOS-50, the alloy used for housing was AA6082 and other components of Al alloy AA6028.
- Currently, the company has two satellites LEOS-50 under construction.