EffSAFound2

Aim of the project

The EffSAFound$_2$ research project is a definition EffSAFound$_1$ completed by the contact with representatives of companies, associations and government agencies in South Africa. They were informed about energy efficiency, material efficiency and strategies of integrated environmental protection and sustainable development. At the same time information about foundries, foundry companies supplying legal, economic and legislative conditions were collected and analyzed. Measures to improve energy and material efficiency are based on these results in collaborative projects for foundries in South Africa designed to be implemented in the workplace. The development and implementation of these measures is to take place, in cooperation between South African and German companies.

Difference in comparison with state of the art– Innovations

Worldwide cast components in various forms in largely all industrial sectors, such as automotive, mechanical engineering, electrical engineering and civil engineering are required. During the manufacturing process are casting metallic charge materials, such as scrap, melted energy intensive to produce net-shape components. In relation to the international technical level, the desired operational objectives and measures to improve energy and material efficiency of the

South African foundries along the foundry process chain are derived from this:

Work Objective 1: To improve the quality and reduce the liquid cast iron quantity of finished casting of high chromium white cast iron;

Work Objective 2: To improve the work flow in a smelting plant and other energy-intensive production areas of a foundry;

Work Objective 3: Efficient material foundry sand management

Concrete contribution to sustainability

Ensures that the efficiency of the proposed action will be given. Improving energy efficiency also helps to avoid overloading the power grid in South Africa. The increase in energy and material efficiency in conjunction with the improvement of casting quality and training of employees as well as a conservation of resources ensures the competitiveness of South African Foundries, so that in the future in South Africa molded parts can be supplied to mechanical and automotive companies.

Concrete contribution to energy efficiency / climate

The improvement per ton of cast iron is particularly high for the iron and steel foundries. The expected results are, however, also be applicable to the non-ferrous metal foundries. Furthermore, the new target in the joint project activities beyond South Africa will be used to improve the energy and material efficiency in foundries worldwide. The foundry industry in the world is about 100 times as large as that of South Africa, which implies that the potential for sustainability is also about 100 times higher.

Applications and relevance of the project may result in daily life

In this project a number of measures to publication and exploitation of the project results are planned in a separate work package. These include pre-orders at conferences, various trade publications and use of the results in seminars and training activities. For use in practice is crucial that the planned project opening up a large potential in terms of energy and material efficiency is expected and this will reduce the costs in foundries.

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