

Pilot Plant Centre for Polymers Synthesis and Polymers Processing. Cooperation between research and industry for the support of innovation. An example for cluster work.

The idea – providing services for SME

Today, as an intermediate result of the restructuring after the dramatic structural break up of enterprises in Central and East-Germany following the German unification, it can certainly be stated that since the transformation of the East-German economy this region became the leading chemical centre in the newly formed German states.

Equally justifiable is the assertion that most of the enterprises, which are located in the chemical parks are subsidiaries of large corporations, normally without important research capacities. As far as the rubber and plastics processing industries are concerned a number of small and medium-sized enterprises have been developed in Saxony-Anhalt, Saxony and Thuringia, which contribute substantially to economic development and the employment structure. These are divided into a few large-scale companies with 200-400 employees and a large number of small enterprises with an averaged number of employees of 20-30. These small enterprises normally lack their own research and development capacities, though rising competition as a result of globalisation is likely to affect them particularly strongly.

In order to withstand the competition especially with the East-European countries and Asia, and boost the innovation process, both, the rubber and plastics processing industries as well as the enterprises in chemical parks, have a strong need for accessible research capacities on site. Hence, the appropriate solution is to establish service providers for small businesses.

The decision to build the Pilot Centre for Polymers Synthesis and Polymers Processing (PAZ) in Central Germany was a result of such considerations. The concept and the management of the centre have been assigned to the Fraunhofer Institutes IAP (Institute for Applied Polymer Research) in Golm and the IWM (Institute for Material Mechanics) in Halle. The Fraunhofer Institutes are the warranty for the industry-close research that is of particular importance for SME.

Location and Structure of Fraunhofer Pilot Plant Centre (PAZ)

The development of the Pilot Plant Centre meets the concerns of the overall strategic development visions of the polymers chemical and polymers processing industry in the region. At the same time, it will form an integral part of the second stage of expansion of the Innovation and Technology Centre in Merseburg (mitz), in order to facilitate synergy effects through a close linkage between non-academic research and the innovative character of the young enterprise.

Due to the favourable infrastructural conditions for the location of the PAZ the “Value Park” in the Chemical Park of Schkopau has been chosen. Besides the unproblematic integration into existing security management and the existence of

characteristic chemical supply and waste management, there is an opportunity for a direct connection to the pipe-line system for monomer supply.

In the Pilot Plant Centre various processes of polymer synthesis and polymer processing can be realised. It offers the unique opportunity to large enterprises and in particular to SMEs together with the researchers from the Fraunhofer Institutes IAP in Golm and IWM in Halle to develop new products and new solutions for technical processing.

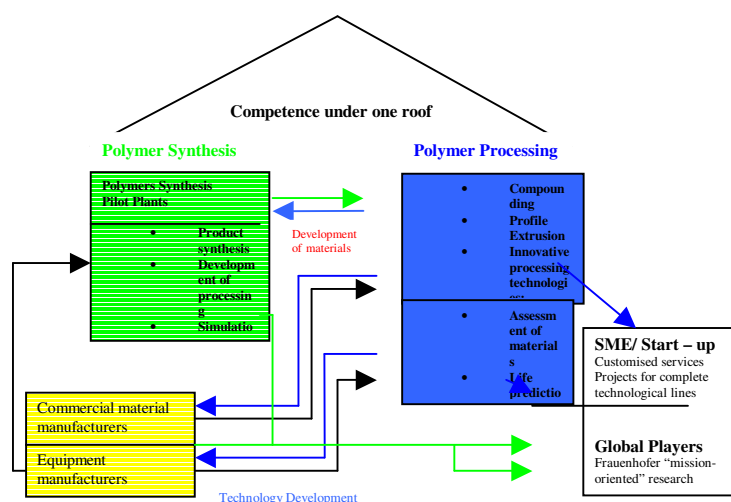
The goal is to maintain the high technical level of all processing lines with state-of-the-art techniques, with a high level of automatisation and on-line-process monitoring. This is necessary in order to achieve high performance with preferably small staff expenses.

With focus on processing and technology development, further expansion will be oriented towards multi-functional synthesis and processing modules, e.g. the synthesis lines “emulsion and multifunctional polymer plant” and “bulk polymerisation”.

In this respect, the Pilot Plant Centre (PAZ) should gain acceptance and be of interest not only for typical chemical enterprises (polymer synthesis, plastics processing), but also for enterprises in the field of chemical plants construction – both, as a potential supplier of modules and a cooperation partner for the development of new innovative technologies.

The following chart demonstrates the idea of cooperation development and the centre’s position in the regional environment.

Fraunhofer Pilot Plant Centre for Polymers Synthesis and Processing (PAZ) From synthesis raw material to customised materials



The managing bodies of the Fraunhofer, with their typically “mission-oriented” research for regional und supra-regional clients, partners of small and medium-sized enterprises, as well as the educational centre, should become representative elements of the pilot plant centre.

Internal close cooperation between polymers synthesis and polymers processing industries is an excellent ground for joint and efficient project work in the field of material- and technology development for large and medium business enterprises. The envisaged development of networks ensures innovative research approaches by providing corresponding inputs from business, and thus the integration of SME and start-ups into the innovation processes. Furthermore, it guarantees tangible results within a restricted time-frame and their accelerated transfer into practice. The formulation of complete solutions for potential clients will be enabled by the integration of areas of applied basic research, conducted in competent laboratories within the institutes, and through intensive cooperation with regional academia¹. The envisaged development of a centre of excellence will attract young researchers, and create awareness for education and training in relevant academic courses, contributing to the expansion and networking of national and international competences.

Classification of PAZ within the Cluster policy of the Land Saxony-Anhalt

The integration of PAZ, research institutions in the area of Central Germany, as well as industrial enterprises in cooperation networks (Cluster), will ensure the use of opportunities, which are created by the PAZ in the field of innovation for and with the industry. The specific goal is to open the centre for small and medium sized enterprises and to overcome the barriers between science and research.

Particular importance will be given to the integration of the scientific environment in the process. The Fraunhofer Pilot Plant Centre is mainly equipped with industry-compatible pilot plants and can only deal with key scientific themes where personnel capacities are concerned. Due to the fact that surrounding universities, colleges and non-academic institutions possess required small technical tools and a number of measuring instruments, it is of particular importance to integrate these potentials for the successful realisation of the pilot plant centre concept. Supporting this bundling is one of the significant tasks of the work of the network.

The organisation of the innovation processes will be supported though the cooperation with the polymers producing enterprises, mainly located in the chemical parks. These are integrated into a CeChemNet network, which combines the chemical parks in Leuna, Schkopau, Bitterfeld, Zeitz und Schwarzheide.

CeChemNet has strong connections with the Association for the Support of Polymers Development – Polykum e.V., that was established in August, 2002 in order to prepare and to organise the utilisation of PAZ by industry.

¹ Joint appointment of a C4- professorship for Reaction Techniques at the Martin-Luther-University in Halle.

Polykum e.V has established and now organises the “Plastics Network of Central Germany”, which unifies academic and non-academic research institutions from Saxony-Anhalt, Saxony and Thuringia, as well as polymers producing and processing enterprises from the three regions. Polykum e.V. takes over the task of integrating these enterprises in Plastics -Network of Central Germany and their coupling with the scientific environment and the PAZ.

Of particular importance are the contacts facilitated through the network between polymers producers (mostly in chemical parks) and polymers processing enterprises (supplier – client- relation).

In order to organise cooperation between the Pilot Plant Centre and scientific environment in the region the network will focus on the establishment of a “bound” (sub-cluster) of cooperating partners. In this respect areas of responsibility in important fields (with a structure of working groups) will be established. The working groups will be managed by specialists from the Pilots Plant Centre or from regional research institutions. The laboratory services of the Pilot Plant Centre will be combined with those of the scientific fields in the region. Thus, the network (cluster) with its body – Polykum e.V. – functions, on behalf of the Fraunhofer Pilot Plant Centre (PAZ), as an intersection between SME and R&D capacities in the region.

The compound between the Pilot Plant Centre and the scientific environment (sub-cluster) will develop to a competence region in plastics and to a plastics competence centre Halle-Merseburg in its core.

Besides its importance for the plastics manufacturers and plastics processing enterprises the scientific sub-cluster has particular effects on the whole Federal Republic and Europe. In this context, the Pilot Plant Centre is looking for its users in this extended geographic area.

On the one hand, this will contribute to a better use of the PAZ capacities and therefore to its financing, and on the other hand, it will ensure its integration in the international research landscape.

For more information see: <http://www.pioneers-in-polymers.com/rd5/index.html>

Contact Details:

Andreas Fiedler, Project Coordinator

isw Gesellschaft für wissenschaftliche Beratung und Dienstleistung mbH

Hoher Weg 3

D - 06120 Halle/Saale

Tel.: +49 345 299 82 70

Fax: +49 345 299 82 711

E-mail: fiedler@isw-gmbh.de



Gesellschaft für wissenschaftliche Beratung
und Dienstleistung mbH

Ana Elena Fernández

Instituto de Desarrollo Económico del Principado de Asturias (IDEPA)

Parque Tecnológico de Asturias

ES - 33420 Llanera (Asturias)

Tel. +34 985 98 00 20

Fax: +34 985 26 44 55

Email: anae@idepa.es



IDEPA

Instituto de Desarrollo Económico
del Principado de Asturias

Paola Peduzzi

**Cestec SpA – Centro Lombardo per lo Sviluppo Tecnologico e Produttivo
dell'Artigianato e delle Piccole Imprese**

Via G. Fara 35

I - 20124 Milano

Tel. +39 0 266 73 731

Fax. +39 0 266 93 147

Email. peduzzi@cestec.it



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