

# A Chemistry Museum at Erkner

Although not many people are aware of it, Erkner played a unique role in the history of industrial chemistry ...

In 1860 **Julius Rüttgers** founded his first industrial tar distillery at Erkner where coal tar was processed to produce impregnating oil for railway ties and benzene derivatives for synthetic dyes („coal tar colors“). Previously coal tar was a waste product of the Berlin Illuminating Gas Company. In 1889 two interesting compounds, indene and cumarone, were isolated from coal tar in the scientific laboratory of this company and transformed to low melting point artificial resins (thermo-plastics).

These coumarone-indene resins were the **very first fully synthetic resins** or plastics **manufactured industrially**, and nowadays they continue to play an important role as special polymers for printing ink, lacquers, adhesives and rubber articles.

In 1909 the Rüttgerswerke, in collaboration with **Leo Hendrik Baekeland** and utilising his patents, produced Bakelite®, the first representative of the hard, thermosetting plastics, from coal tar phenol and formaldehyde. In partnership with Baekeland the Rüttgerswerke founded the Bakelite GmbH, which, under the name of Dynea, has continued to produce phenolic resins at its original historic site until the present day.

This pioneering discovery of the reaction between phenol with formaldehyde to produce an artificial resin by a technically controllable reaction is an important milestone in the history of chemistry. In their pure form phenolic resins are used as raw materials for lacquers („Novolak“). More widely, phenolic formaldehyde resins are processed together with filling materials such as powdered stone, wood chips or fibers to produce valuable and robust materials for many technological applications. In solution they are used for producing size and impregnating resins for wood materials and we also find manifold forms of it in our household. Thus, e.g. the well known veneered composite board used for furniture making, and the very durable plastic laminated coatings for wood are manufactured on a phenoplastic base (Formica, Resopal, Sprelacard). The bodywork of the Trabi was composed of phenolic resin from Erkner reinforced with a cotton fibre matrix (!).

Actually, when reaching Erkner the visitor ought to be greeted by a large sign:

**„Welcome to Erkner, the town where the plastics age began“!**

For a long time Bakelite was the epitome of plastics, before the wide range of plastics available to us nowadays had been developed („Kunststoffe“ - the materials testifying to the art of the chemists). To remind the public of these developments and particularly to make the public aware of the importance of chemistry, which so strongly affects our daily

lives, the Friends of the Erkner Chemistry Museum **Freundeskreis Chemie-Museum Erkner e.V.** was founded on 16 December 2003, in the Year of Chemistry. The Friends intend to draw attention to these events in order to present at Erkner, in cooperation with other museums (including the Deutsches Technik-Museum in Berlin and the Deutsches Museum in Munich), the story of the development of materials technology in the local region and, thereafter, of general developments in other fields of chemistry. As a first, positive step the Friends will support the Erkner Museum of Local History with their presentation of Erkner as an industrial site and will try to promote interest in chemistry with public talks and experimental demonstrations.

The ultimate aim of the Friends is to found a **Chemistry Museum** at Erkner on an historic site, particularly since chemistry is nowhere presented in a **vivid and forward looking fashion** throughout the region of Berlin-Brandenburg.

To initiate appropriate discussions the intention is to offer talks on the history of chemistry and other talks intelligible to a wider public (including e.g. chemistry in our daily lives) within a **Chemistry Forum** and to perform interesting chemical experiments in an **„Experimentarium“**, **„Chemistry made easy and popular“** so to speak.

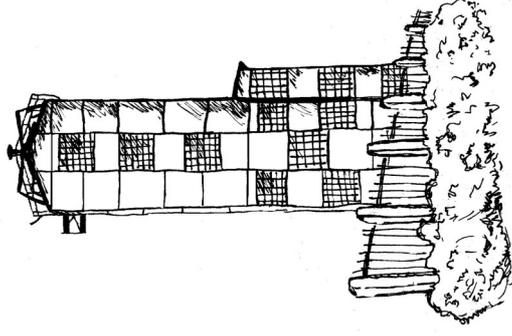
In addition to giving information about the past and the present it is also intended to

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present a forward look showing how developments in scientific research will contribute to shaping our daily lives in the future.

The Friends wish to address open-minded citizens of the region and in particular young people (school pupils, university students). We intend to make the public aware of the positive aspects of chemistry without neglecting the hazards which may arise as a consequence of incorrect use or misuse of products of the chemical industry. The Friends are working in a purposeful manner to create an attractive place where people can come in contact with chemistry as a source of life. We will also wish, occasionally, to commemorate those personalities in the history of chemistry, who, often with great sacrifices, contributed to today's blossoming of this branch of industry.

**The Freundeskreis Chemie-Museum Erkner e. V.**, a non-profit organisation, is very keen to attract new members. If you, your family or your friends wish to participate in shaping this project by personal collaboration, donations or by contributing exhibition objects we heartily welcome you to do so at Erkner, the town between forests and lakes - directly before the gates of Berlin!



Toluene-Tower Erkner (1924 - 1995)

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# Freundeskreis Chemie - Museum Erkner e. V.



Julius Rütgers  
(1833 - 1903)



Leo Hendrik Baekeland  
(1863 - 1944)