



BASF Ludwigshafen site

The world's largest integrated chemical complex

150 years

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October 8, 2015

 **BASF**

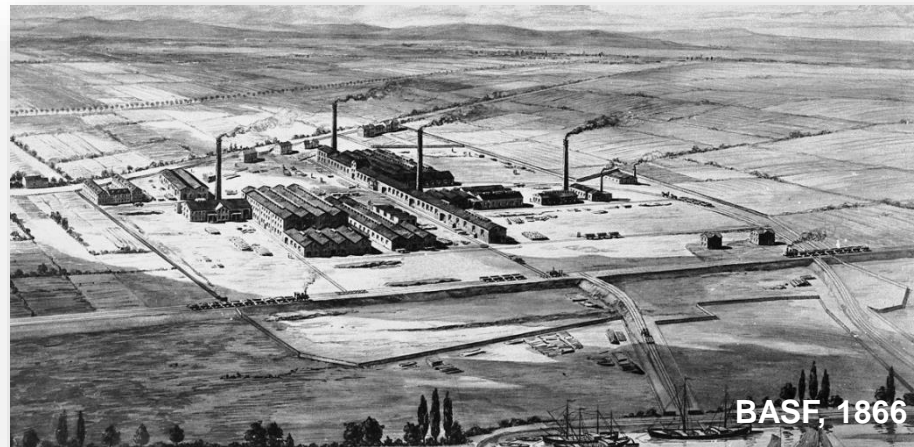
We create chemistry

Facts and figures

BASF – historical eras

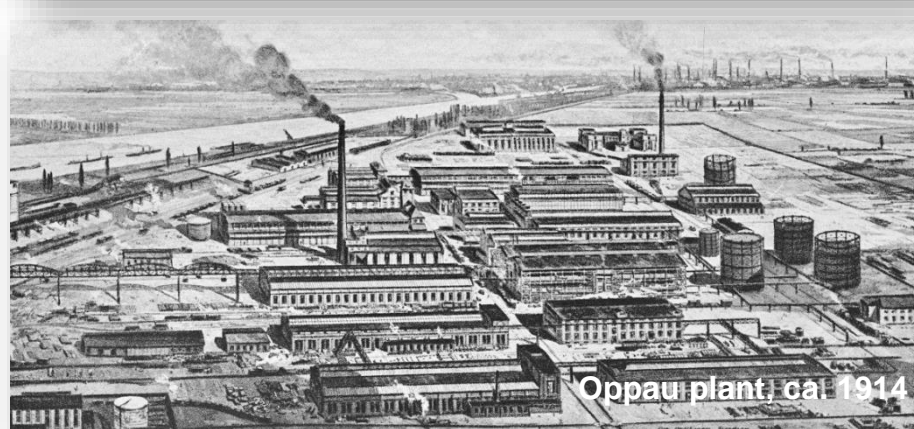
1865 – 1901

The rise of the chemical industry and the age of dyes



1902 – 1924

The Haber-Bosch process and the age of fertilizers



Facts and figures

BASF – historical eras

1925 – 1944

New high-pressure
syntheses



1945 – 1964

From reconstruction to
the age of plastics



Facts and figures

BASF – historical eras

1965 – 1989

En route to
a transnational
corporation

1990 – 2010

Entering the new
millennium with
sustainability

2015

150th anniversary



Facts and figures

BASF – We create chemistry

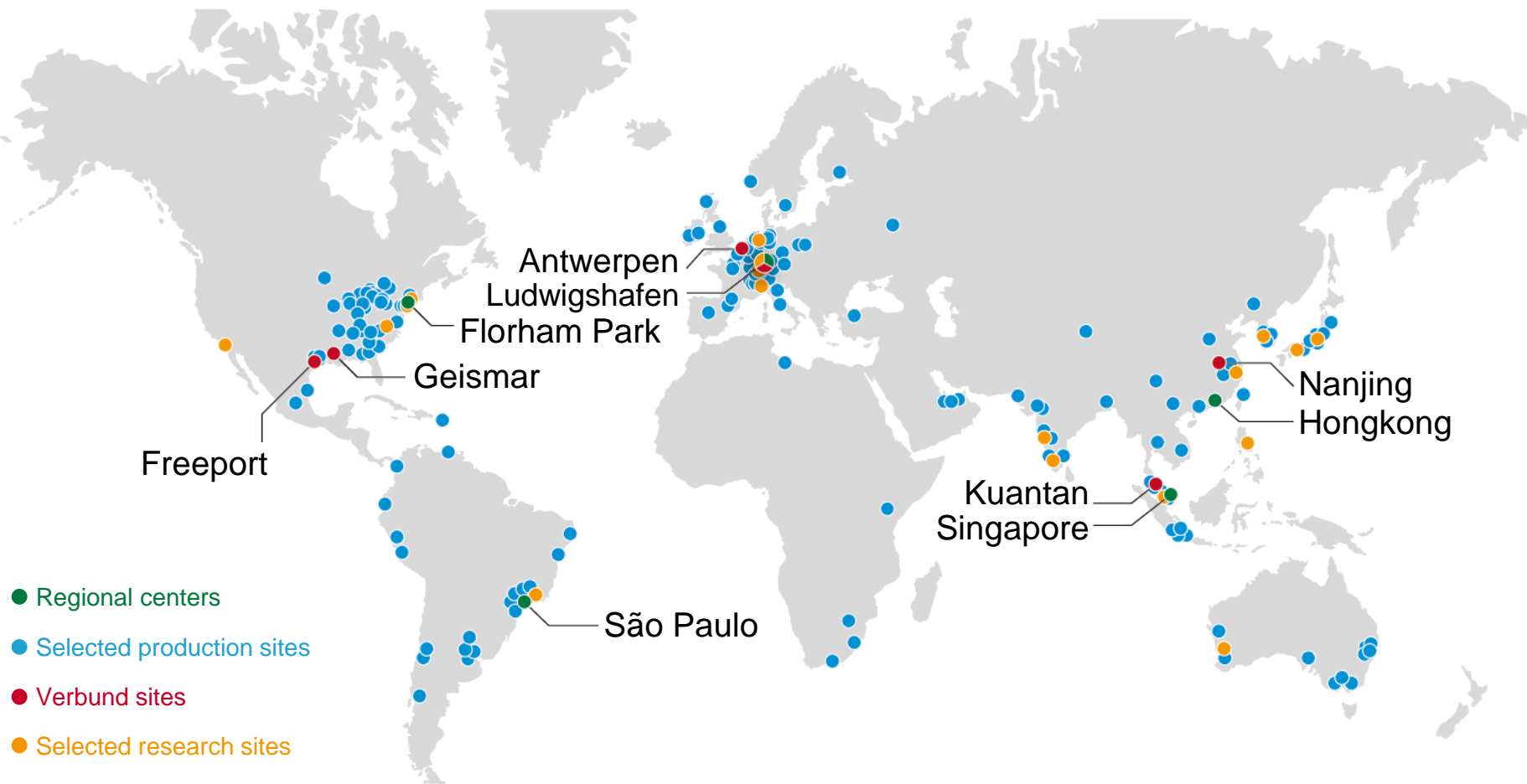
- Our chemistry is used in almost all industries
- We combine economic success, social responsibility and environmental protection
- Sales 2014: €74,326 million
- EBIT 2014: €7,626 million
- Employees (as of December 31, 2014): 113,292
- 6 Verbund sites and 353 other production sites



Structure and organization

Worldwide presence: BASF's Verbund and production sites

150 years



Structure and organization

BASF's segments



Chemicals

Petrochemicals

Monomers

Intermediates



Performance Products

Dispersions & Pigments

Care Chemicals

Nutrition & Health

Performance Chemicals



Functional Materials & Solutions

Catalysts

Construction Chemicals

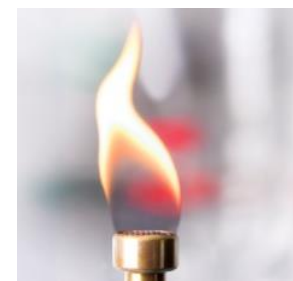
Coatings

Performance Materials



Agricultural Solutions

Crop Protection

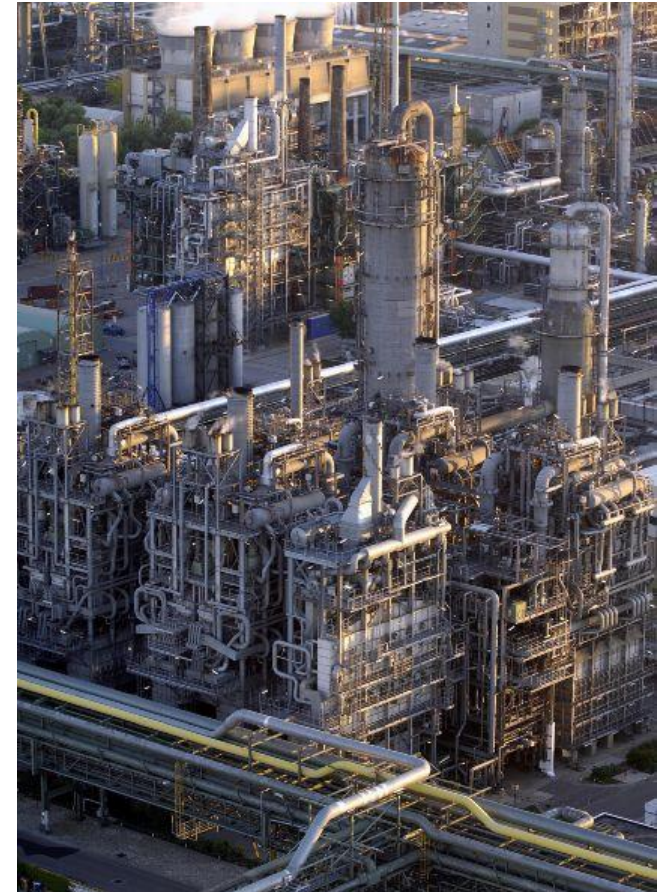


Oil & Gas

Oil & Gas

Ludwigshafen site in figures

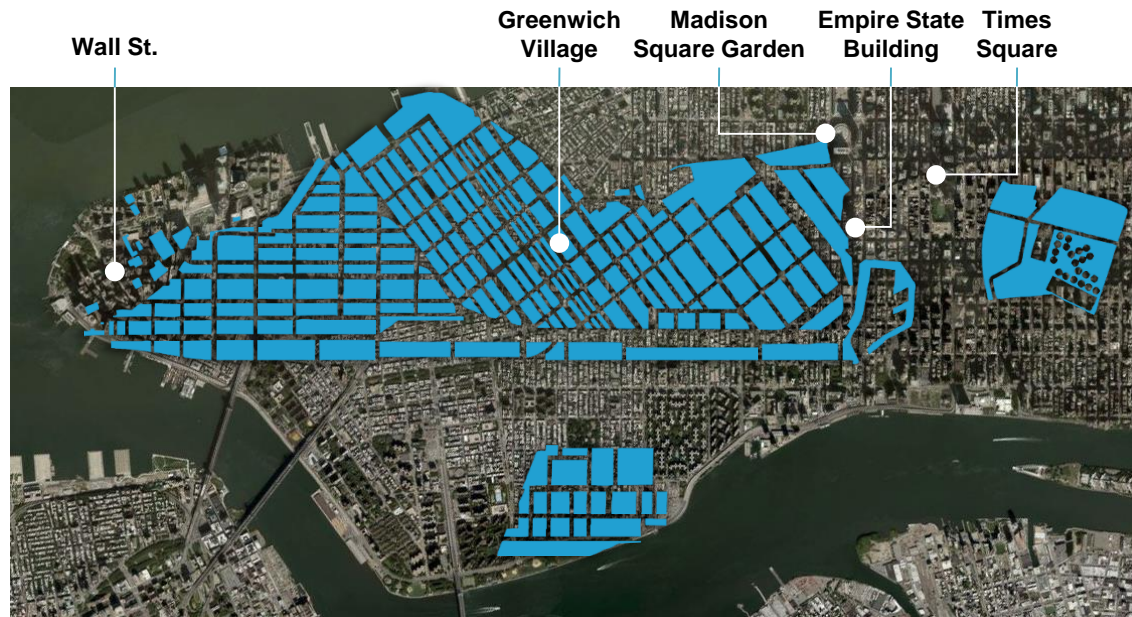
- **Production site:** since 1865
- **Surface area:** with 10 square kilometers, the Ludwigshafen site is the world's largest integrated chemical complex and BASF's largest production site.
- **Employees:** 39,416 employees at the site in 2014, more than one third of BASF workforce worldwide (as of Dec. 2014)
- **Production clusters:** around 110 with about 200 production plants
- **Buildings:** approximately 2,000
- **Products:** inorganic chemicals, petrochemicals and chemical intermediates, human and animal nutrition, raw materials for cosmetics, aroma chemicals, pharmaceutical and crop protection products, plastics, performance chemicals and polymers



Verbund site Ludwigshafen

The largest integrated chemical complex in the world

Verbund site Ludwigshafen v.s. Manhattan, New York City, NY, USA



Logistics keep Ludwigshafen site “on the move“

- **Trucks:** approx. 2,100 daily (33% of transportation volume)
- **Rail cars:** approx. 400 daily (27% of transportation volume)
- **Barges:** approx. 20 vessels daily at docks directly on the Rhine and Landeshafen Nord (40% of transportation volume)
- **Piping:** approx. 2,800 kilometers
- **Roads:** 106 kilometers
- **Railways:** 230 kilometers



Ludwigshafen site

The Verbund

- Not only production plants, energy flow, and infrastructure are intelligently integrated, but also expertise and customers.
- Byproducts are used as raw materials in other plants.
- Efficient and resource-conserving value-adding chains preserve resources and energy, minimize emissions, and reduce logistics costs.

Production Verbund

- more cost-effective, safer and environmentally friendly production
- saves energy by means of efficient processes
- avoids long transport routes

Technology Verbund

- new company unit for technology and innovative excellence
- BASF uses this approach to strengthen its global network

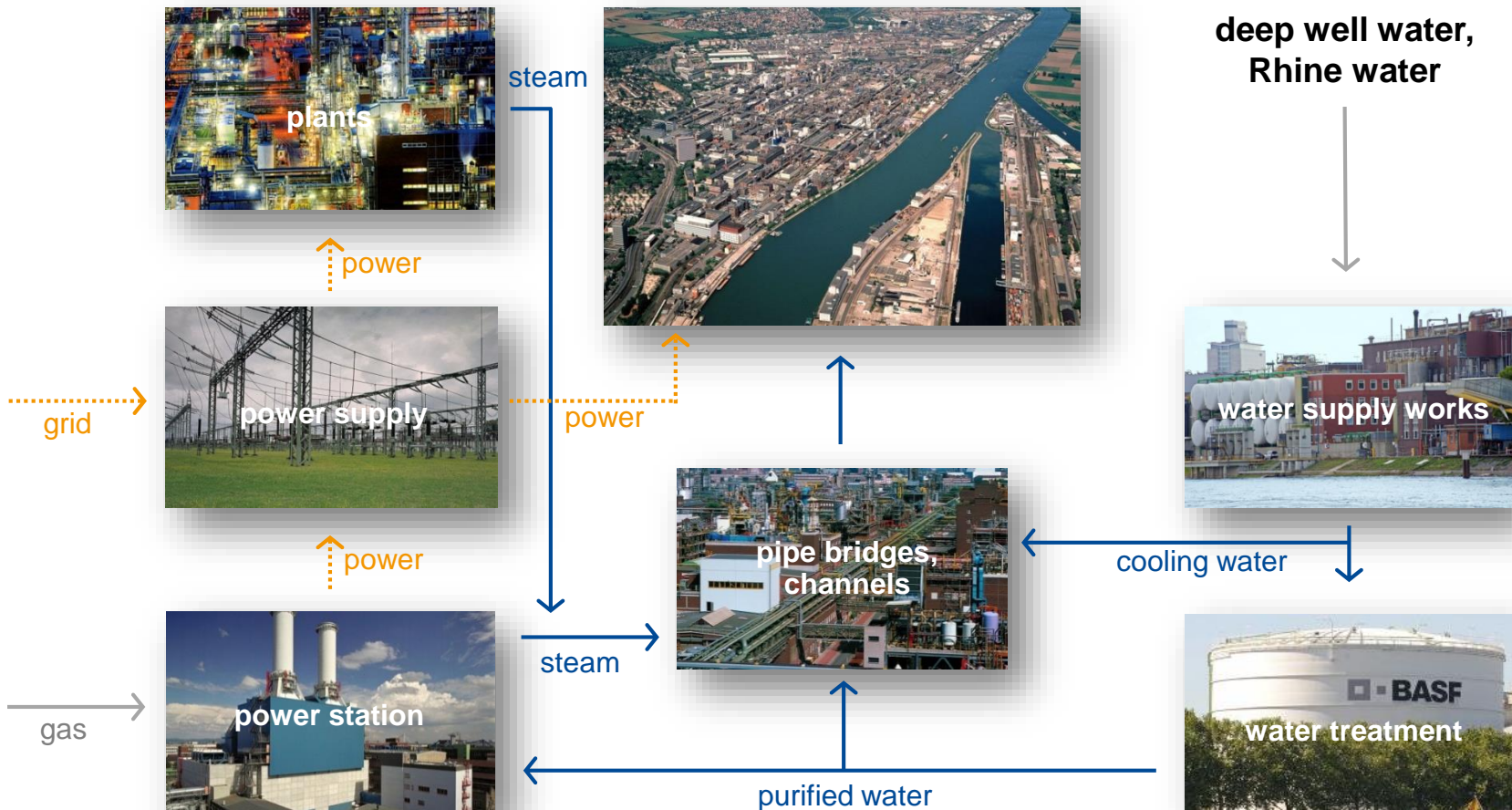
Customer Verbund

- works closely with customers
- interlinks markets and technologies
- example: the “smart forvision” concept car from BASF and Daimler

Employee Verbund

- success as one company
- good networking among employees
- BASF employees share their expertise in the Knowledge Verbund.

Energy supply for Ludwigshafen site



Environment and safety

Wastewater treatment plant

Wastewater is treated in one of the biggest wastewater treatment plants in Europe which has been operational for 40 years.

- treatment of production wastewater from BASF as well as wastewater from Ludwigshafen, Frankenthal, Bobenheim-Roxheim and external wastewater
- treatment of more than 100 million cubic meters a year
- mechanical, biological, chemical treatment

Energy from sludge

- sludge treatment via dehydration and incineration
- 350,000 t of sewage sludge are incinerated per year



Environment and safety

The Environment Monitoring Center

The Environment Monitoring Center is the main contact for all employees and neighbors with environment-related issues.

Environmental monitoring

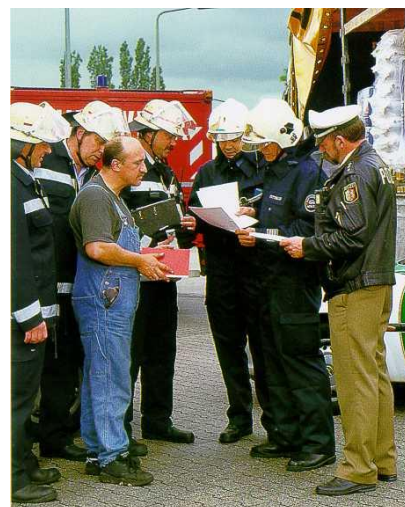
- Regular monitoring tours through the site: each measuring vehicle drives 50,000 km per year – in and around the site.
- Data from 46 environmental measurement stations (air, noise, cooling water, wastewater) are compiled at the center.
- Irregularities are registered and used to take protective measures in advance.
- If internal limits are exceeded the Environment Monitoring Center initiates appropriate actions.



How we contribute: Emergency response

Transportation Accidents Information and Emergency Response System (TUIS)

- About 130 chemical companies in Germany participating the TUIS transportation emergency response system since 1982
- 12 emergency response centers in Germany
- Local authorities (e.g. police and fire brigade) can get expert inputs from TUIS member companies where needed



2. Experts advice on site



1. Advice over phone



3. Technical support on site

How we contribute: Fire-fighting and technical assistance

Plant fire department – fully equipped with the latest technology

- The BASF plant fire service, consisting of around 200 employees, has been providing a broad spectrum of services to internal and external customers for over 100 years
- The importance of preventative work such as risk aversion is increasing
- A fleet of over 60 state-of-the-art vehicles, complemented by the relevant technical equipment, ensures smooth implementation

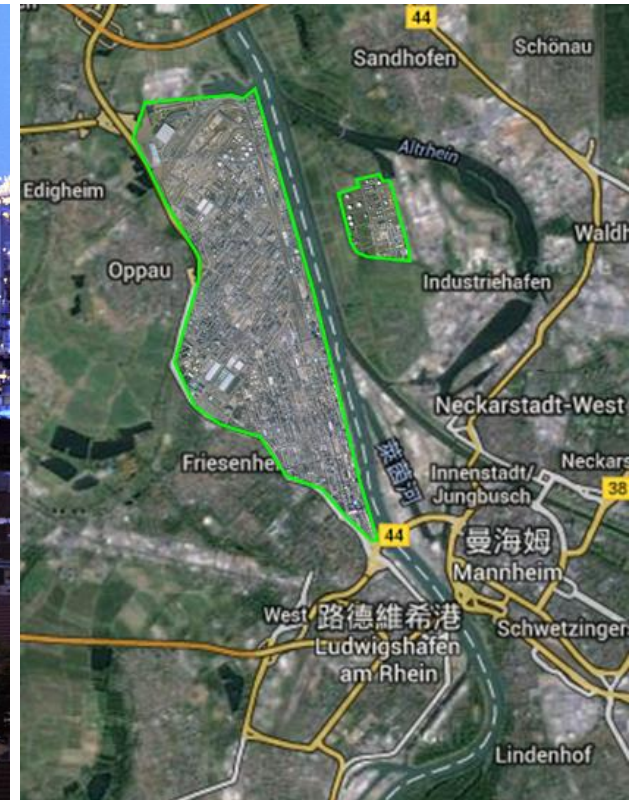


**Everybody loves modern life,
but not everybody loves
the chemical industry**

150 years

Chemical industry and local community: How to live together?

BASF
We create chemistry



150 years

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Why do our neighbors care?



150 years

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Proactive engagement with local communities

Transparency

Social responsibility

Mutual understanding

Make friends

Dialog

License to operate

Create trust!



**Part of our corporate culture:
grow with the local community**

Grow with the local community in the middle of the Rhein-Neckar region

- In the second half of the 19th century, Ludwigshafen was one of the fastest growing cities in Germany
- Housing shortage became an urgent social problem
- Today, BASF is letting more than 7,000 apartments to citizens of Ludwigshafen
- BASF is a forerunner in energy-efficient construction



Grow with the local community

EHS development

- First company doctor hired in 1866
- In 1875, BASF establishes a health insurance fund that pays sickness benefits out of company funds
- Occupational safety and health care establish a strong company tradition of social welfare
- Continuous development of higher standards to the benefit of the employees, customers, and neighbors



**Contributing to
municipal development:
a structured approach**

Shape the society together with our neighbors: Openness and dialog

- BASF Report integrating EHS and sustainability performances
- Community Advisory Panels
- Education activities
- Employees volunteering at local communities
- Events at the site – open days
- Visitors center and site tours
- Emergency response



How we contribute: Community Advisory Panels

- A Community Advisory Panel (CAP) consists of a group of individuals who live near a BASF chemical facility
- A CAP is an independent body, it is not controlled by BASF
- Members should be diverse in regard of age, gender, interest and should be a politics-free zone
- BASF currently has 84 CAPs around the world
- Topics for discussion include all the topics that neighbors and local community members have interest in: investment, education, noise, dust, etc.
- A CAP usually meet 3 to 4 times a year, but we look for continuous engagement opportunities throughout the year

Community Advisory Panel at Nanjing – BASF-YPC Company Limited

- Formed in 2002
- Regular dialogs with local community
- Format: meetings, visits, open days
- Discuss about topics such as environment, investment and education
- The CAP consists of 18 members from the local community including representatives from the local authorities, Nanjing Chemical Park and villagers
- The participants understand BASF-YPC's performance in environment, health and safety, hence their trust level has increased



How we contribute: Education Initiative in Ludwigshafen



- Promoting early education in kindergarten and primary school years helps to make the region more attractive and competitive.
- More than 400 different daycare centers, 16 primary schools and 4 teacher training colleges have participated in the projects thus far.
- More than 3,300 education professionals have been trained.

Projects in these areas:

- natural sciences
- nature studies
- languages
- individual monitoring
- quality assurance
- story-telling
- creativity
- health and exercise
- preparation for entering school
- under 3-year-olds
- resilience
- diversity and inclusion
- apprenticeships in kindergartens

How we contribute: Investing in the future in China

BASF Kids' Lab

- Kids learn about how chemistry can contribute to a better future
- Since 2002, more than 136,000 kids have participated across Greater China



Goodwill Teacher Program Shanghai

- Employees provide English tutoring to students whose parents are disabled
- Over 200 students also received BASF scholarships
- Recognized as one of “2013 Shanghai Top 10 Youth Public Welfare Projects”



Success factors

- We know that community engagement is crucial for our “License to operate”
- We rely on dialog and partnership to create trust
- We think and act from the community’s perspective
- We respect the diversity of community needs all around the world





We create chemistry