

The Chemical Industry of the MentorChem's regions Saxony-Anhalt, Principado de Asturias and Lombardia

The SWOT Analysis and Benchmarking study firstly contains a description of the general development of the regions and a second part in which the Chemical industry is analysed.

This summary is focused on the comparison of the Chemical Industry in Saxony-Anhalt, Principado de Asturias and Lombardia. The studies are based on statistical data related to Chemical activity that has been classified by the European Regulation NACE Review 1.1:

DG24 Chemical Industry
DH25 Manufacturing of Rubber and Plastic Products

Employment

In contrast to the general negative development of employment in **Saxony-Anhalt** the chemical industry could see a very positive development. The employment in the chemical industry in Saxony-Anhalt is also growing against the overall German trend, where the number of employees has declined by 4,7% in the past five years.

There is a growing importance of the chemical sector for the regional economy and employment in Saxony-Anhalt. Actually, the 2287 additional employees in the chemical/plastic industry are responsible for 42% of the employment growth in the whole processing industry in this region. ¹

In **Asturias**, the combined number of employees of the Chemical, and Plastic and Rubber Industries in Asturias represents 4.6% of the total Processing Industry of the region and 1.11% of both the Chemical Industry and Plastic and Rubber in Spain. There has been a sustainable increase in the Chemical Industry (DG/24), as indicated by a 39.6% growth over the last five-year period. Similarly, the Plastic and Rubber Industry has grown by 19.8% in the 1998-2002 periods. ²

Among European chemical regions, **Lombardia** is the second in terms of employees and the first in terms of companies. Its share of chemical employees over total population is one of the largest in Europe confirming that the data doesn't depend on the size of the area, but reflects an actual concentration of chemical industry in the region. Compared to 1971, the chemical industry has experienced a considerable reduction of its employees both in Lombardia and in the rest of Italy. However, in Lombardia this drop has been relatively smaller (-28.8% versus -32.0%) demonstrating a better performance of the chemical companies in the region. ³

It should be emphasised that the loss of chemical employment is somewhat over-estimated as it has been partially compensated by the outsourcing of some activities.

¹ Source: Statistisches Landesamt Sachsen-Anhalt, Statistisches Bundesamt, own calculations

² Source: Encuesta Industrial Anual de Empresas y DIRCE del INE. SADEI own calculations.

³ Source: ISTAT, Census on Industry and Services 2001

Development of number of Employees in the Chemical Industry and the Processing Industry							
<i>Saxony-Anhalt</i>	1998	1999	2000	2001	2002	98-02	in %
1. Chem. Ind. + 2. Plastic and Rubber	18.307	18.230	18.510	19.772	20.594	2.287	12,5%
Processing Industry <i>Saxony-Anhalt</i>	111.192	109.879	110.447	-	116.605	5.413	4,9%
<i>Asturias</i>							
1. Chem. Ind. + 2. Plastic and Rubber	2,123	2,388	2,469	2,722	2,856	733	34.5%
Processing Industry <i>Asturias</i>	59,272	58,663	61,547	63,224	61,971	2,699	4.6%
<i>Lombardia</i>							
1. Chemical Industry	96.732	90.490	91.305	85.236	-	-11496	-11,9%
Processing Industry <i>Lombardia</i>	1.303.264	1.256.206	1.256.228	1.245.973	-	-57291	-4.4%

Turnover

The growth rates between 1998 and 2002 of 75,4% for the plastic/rubber enterprises (DH25) and of 51,4% for the chemical enterprises (DG24) are above the growth rate of 40,5% of the processing industry in **Saxony-Anhalt** and 13,4% of the German chemical industry. Therefore the chemical/plastic industry is responsible for 23,4% of the turnover of the processing industry, which shows the high productivity and added value of the chemical sector analogues to the situation of the employment. ⁴

The turnover in the Chemical sector in **Asturias** during the past 5 years has increased by 67.1%, as a reaction to a growth of 72.1% in the Chemical Industry DG24. This rate is higher than the overall increase in turnover of 37.5% in the processing industry in Asturias and well above the 28.4% increase in the nation's chemical industry. The plastic and rubber sector's turnover has also gone up by 34.8%. ⁵

Concerning **Lombardia**, the threshold of 100 million euro of sales allows to identify a group of medium-large Italian companies that, even if internationalised, maintain their activity focused in Lombardia. These companies are maybe unknown to the public, but they often hold the European or world leadership in their sector of activity and therefore represent cases of success of the Italian chemical industry. ⁶

⁴ Source: Statistisches Landesamt Sachsen-Anhalt, Statistisches Bundesamt, own calculations

⁵ Sources: Statistical Spanish Information (INE) and The Spanish Institute for Foreign Trade (ICEX)

⁶ Sources: EUROSTA and ISTAT elaborated by FEDERCHIMICA

Turnover of the Chemical industry (DG24 and DH25) and the processing industry (in Mio €)						
Saxony-Anhalt						
	1998	1999	2000	2001	2002	98-02
1. Chemical Industry + 2. Plastic and Rubber	3.190	3.477	4.513	4.725	4.978	56,1%
Processing Industry	15.165	16.306	19.552	20.583	21.301	40,5%
Asturias						
	1998	1999	2000	2001	2002	98-02
1. Chemical Industry + 2. Plastic and Rubber	436	484	552	551	729	67,1%
Processing Industry	7.752	8.007	9.287	9.939	10.659	37,5%
Lombardia*						
1. Chemical Industry + 2. Plastic and Rubber						
Processing Industry						

* There are no data for the region of Lombardia available

Trade Balance

The destinations of the chemical exports in **Saxony-Anhalt** show a clear preference to the states in the European Union with a share of 45,1%. In comparison to the overall German trend, the East German exports have grown faster and especially the exports to the growth markets in Central and Eastern Europe (+12,3%) but also China (+34,7) are above the average. The proximity to the new Member States of the European Union is a big advantage here and the trade relations will further develop in the near future. ⁷

Asturias processing industry's exports totalled 1,807.93 mill euros in 2002. The income, only from the chemical industry, represented 8,7% of this figure.

The growth of exports in the Chemical sector is similar in the processing industry. Between the periods 1998-2002, both have considerably grown: the Chemical sector has gone up by 45.4% and the Processing Industry has grown by 35.2%, with a slight fall of the exports for both in 1999. There is an upward trend in exports and imports between 1998-2003. ⁸

In Italy, chemicals show a considerable trade deficit (more than 9 billions euro in 2003). In 2003, **Lombardia** accounted for 77.2% of the overall trade deficit in chemicals, which confirms the concentration of the Italian chemical industry in the area and its role of "purchasing headquarters" for the whole country.

Looking at the composition of the chemical trade balance by sector of activity, it results that most of the deficit refer to basic chemicals (more than 4 billions euro in 2003). On the contrary, an important trade surplus has been consolidating in detergents and cosmetics and in varnishes and adhesives. ⁹

⁷ Source: VCI Nordost

⁸ Source: The Spanish Institute for Foreign Trade (ICEX)

⁹ Source: ISTAT

Distribution of Enterprises and Employees by sector of activity

The biggest part of the chemical enterprises in **Saxony-Anhalt** is working in the area of the basic chemicals with 66,5% of the chemical employment. Compared to the European average the basic chemicals are over represented (more than the double amount of employment). The second most important area is the production of pharmaceuticals with 15,3% of the employment. In the plastic and rubber sector the production of plastic is dominating the industry with 84% of the enterprises.¹⁰

In **Asturias** the majority of firms belong to NACE 25.2 Manufacture of plastic products, although the main activity in Asturias' chemical industry is the production of carbon-based chemicals, fertilizers, pharmaceutical products, cosmetic and paper.¹¹

Lombardia has a share of employment larger than Europe in:

- detergents and cosmetics (15.8% versus 13.3%),
- "other chemical products"(14.9% versus 11.3), a varied aggregate where chemicals for industry prevail,
- and above all in pharmaceuticals (36.5% versus 28.6%) that include also active ingredients for pharmaceuticals.¹²

Energy Consumption

With regards to **Saxony-Anhalt**, The consumption of energy in the chemical sector has generally increased by 15,4%. Additional 10,5 billion MJ were used in the chemical industry in 2002 compared to 1998 (+14,2%). About 1 billion MJ were consumed more in the plastic and rubber sector (+140%). These data reflect the different energy intensity of the production, where especially the chemical industry has a very high energy consumption. But also the high growth of the chemical enterprises has caused additional energy consumption.¹³

In **Asturias**, the energy consumption in the chemical sectors has increased to 29.74% (+1.459 million MJ) in the period 2000-2002. For chemical industry, this growth was by 27.10% (+0.396 million MJ), which is slighter than the growth of this consumption in the plastic sector, by 32,63% (+0.434 million MJ).

Regarding provisional data for 2003 it is observed a significant growth of the energy consumption for both chemical and plastic sectors since 1998 to 2003 (+52.27%).¹⁴

Concerning **Lombardia**, the chemical sector has a high energy consumption, almost the 20% of the total consumption of the industry. Energy is one of the most relevant cost factor for the Italian chemical industry: in the base chemical sector it represents 8% of the total costs, but for other sectors (chlorine-sodium and technical gas) its costs are comparable to those of a raw material. In the years 2000-2001 the energy consumption reached the highest rate, but starting from 2002 the used energy quantity in the chemical industry is decreasing (about 10%). This tendency

¹⁰ Source: Statistisches Landesamt Sachsen-Anhalt

¹¹ Source: Statistical Spanish Information (INE) (Encuesta Industrial Anual de Empresas / DIRCE)

¹² Source: elaboration on ISTAT, EUROSTAT 2001

¹³ Source: Statistisches Landesamt Sachsen-Anhalt, own calculations

¹⁴ Source: IDAE

represents the strong intention of the Italian chemical enterprises to apply an environmental policy based on the consumption reduction and energy efficiency.¹⁵

Enterprises in size category.

In **Saxony-Anhalt** it is very clear that the chemical sector is dominated by SMEs. 88% of the enterprises in the chemical industry have less than 200 employees (96% of the plastic/rubber enterprises). In the chemical industry there are only 2 enterprises above 1000 employees and 3 between 500 and 999.

In the plastic and rubber sector there is only 1 enterprise with more than 500 employees. If we look at the total number of enterprises, we can see the positive development between 1998 and 2002 of additional 66 enterprises in the whole chemical sector, which is a growth of 28%.¹⁶

Asturias chemical sector is, by large, comprised of numerous small-sized companies (86.27%). Only 2 companies employ more than 200 employees and none more than 500.

There has been a slight increase in the total number of companies, from 93 in 1998 to 102 in 2002. The growth rate in the Chemical industry has been of 12.2% and in Plastics and Rubber of 6.8%.

By 83.6% of the Chemistry industry companies (year 2002) have less than 20 employees. In the Manufacturing of Rubber and Plastics sector, the trend is similar and 89.3% of the companies employ less than 20 workers in 2002.¹⁷

The chemical industry in **Lombardia** is above all made of SMEs:

- excluding companies with less than 10 employees, 91% of all chemical companies have less than 250 workers,
- SMEs account for the majority of chemical employment (64%).

These shares are in line with the ones referred to the rest of Italy. On the contrary, the comparison with Europe shows that in Lombardia SMEs play a much greater role in terms of employment (representing 64% of total employment versus 32%). These data confirm that Lombardia is the second European chemical region not because of the presence of many large and integrated sites but rather thanks to a wide net of small and medium chemical companies.¹⁸

Research and Development

The chemical industry in **Germany** has spent 8,17 billion € in Research and Development in 2002, which is a share of 6,2% related to the turnover. About 44.700 employees representing 9% of the total employment are working in the R&D sector. In East Germany the enterprises have spent around 315 million € or 4% of the turnover for research and development in 2002, which is below the German average.

¹⁵ Source: FEDERCHIMICA, IX Responsible Care, ISTAT, GRTN

¹⁶ Source: Statistisches Landesamt Sachsen-Anhalt, own calculations

¹⁷ Source: Statistical Spanish Information (INE) (Encuesta Industrial Anual de Empresas / DIRCE)

¹⁸ Source: ISTAT, EUROSTAT

During the year 2002, medium and high-tech companies (including chemical industry) in **Asturias** has spent 5,782 thousand € in R&D whereas the spent in Spain has gone up to 952,636 thousand €. The chemical sector in Asturias has had a R&D expenditure of 114,586 thousand € versus 5,718,988 thousand € in Spain (year 2000) ¹⁹

The chemical sector in **Lombardia** plays a specific and fundamental role concerning R&D. The nature of such a role can be better understood looking at the spending allocation of innovative activity (data are available only for Italy, but they reasonably apply to Lombardia as well):

- mainly, other industrial sectors get innovative inputs from outside in the form of innovative machinery and equipment (50.2% of total expenses for innovation year 2000),
- on the contrary, chemical companies are deeply involved in internal R&D (42.8% of total expenses for innovation year 2000). ²⁰

Finally, the studies include a list of the main chemical enterprises in the three regions. The overview of biggest chemical companies provides information related to employment and turnover data.

¹⁹ Source: R&D Survey. Statistical Spanish Information (INE)

²⁰ Source: ISTAT

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cofinanced by the European Commission DG Research*

* The Project „Mentoring European Knowledge of the Chemical Regions“ receives a funding from the European Commission. The sole responsibility for the content of this newsletter lies with the author. The Commission is not responsible for any use that may be made of the information contained therein.