

**IL VOLTO NUOVO  
DELLA CHIMICA ITALIANA**



**The importance of medium and small companies  
for the European and Italian Chemical Industry**

**Executive summary**

**May 2004**

# FOREWORD

People thinking to the Chemical Industry generally have in mind big plants, large groups, big scale.

Actually, the overall picture of the European and the Italian Chemical Industry is much more complex and diversified.

Besides many and important large groups, there are thousands of Medium and Small Enterprises, which are little known but whose quality and capability to innovate and grow is crucial for the European Industry.

This phenomenon is not only a typical Italian feature, but it is common to all the biggest European Countries.

The aim of this document is to show in details the importance and the characteristics of this part of the Chemical Industry, which all the stakeholders must be more aware of.

There is in fact a concrete risk behind this poor awareness: too often when regulations are developed, for example in the environmental field, it is believed they must be applied only to large structures.

The result is often disruptive to growth processes: a complex regulation can cause useless costs to a large company, but it may decisively restrict the competitiveness of a small structure, from the cost, flexibility and reaction speed standpoints. Not just costs then, but a stop to growth.

The analysis is based on the available statistics as well as on interviews to a pool of about twenty medium-sized Italian companies representing cases of success. This document provides an insightful synthesis of the main results. It can also be found on Federchimica web-site together with the complete Italian version of the study "Il volto nuovo della chimica italiana"

(<http://www.federchimica.it/content.asp?id=283>).

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## Not only big groups: the European Chemical Industry is made up of thousands of firms

### Firms and employees in the European Chemical Industry

Class of employment	Number of firms			Total
	Up to 249	250-499	>500	
Germany	1,400	132	164	1,696
France	1,335	127	126	1,588
Italy	1,958	67	69	2,094
United Kingdom	1,299	124	102	1,525
<b>EU 15</b>	<b>9,343</b>	<b>697</b>	<b>621</b>	<b>10,661</b>
	Number of employees(,000)			
Germany	90.6	45.9	358.9	495.5
France	84.8	45.9	155.9	286.6
Italy	98.7	23.8	83.8	206.3
United Kingdom	79.9	42.5	124.4	246.8
<b>EU 15</b>	<b>538.5</b>	<b>241.8</b>	<b>905.9</b>	<b>1,686.2</b>

Note: chemical and pharmaceutical industry, the number of firms includes only those employing more than 10 workers  
Source: Eurostat, SBS database (2000)

- Among the many stereotypes pinned on the chemical industry, one that is especially well-rooted is that of being a sector dominated by big dimension: big companies, large plants, mass production. Fostering this opinion is the mistaken identification of chemicals with basic chemicals (where yes - with some exception - large groups prevail).
- Data show instead a more complex picture:
  - even excluding micro-businesses, more than 10 thousand companies work in the European chemical industry, 9,300 of which employing less than 250 workers,
  - in Italy the importance of SMEs is comparatively more relevant, but all European countries have a large number of chemical companies, mainly medium-small sized, employing from 80 to 100 thousand people in each country,
  - not only SMEs represent 90% of the total, but they account for a significant share of employment (and consequently of production), approximately 540 thousand workers equal to about 32% of the total,
  - this share rises to 46% if the threshold increases from 250 to 500 employees.

## Not only SMEs are important for overall chemicals but in some sectors they represent the majority

Employment in the European Chemical Industry by sector and class of employment (share on total)

	SMEs	250-499	>500	Total
<b>Chemicals and pharmaceuticals</b>	<b>31.9</b>	<b>14.3</b>	<b>53.7</b>	<b>100.0</b>
Base chemicals and fibres	22.1	10.4	67.5	100.0
Consumption chemicals	36.6	16.0	48.4	100.0
Downstream chemicals	43.7	15.1	40.3	100.0
- varnishes, adhesives and inks	53.5	15.1	31.4	100.0
- other chemicals	46.4	17.2	36.4	100.0
<b>Pharmaceuticals</b>	<b>19.0</b>	<b>11.7</b>	<b>69.3</b>	<b>100.0</b>

Note: estimates made on Big 4 Countries (Germany, France, Italy, UK)

Source: Eurostat, SBS database (2000)

- Not only medium-small companies are many and important, but in some sectors they represent the majority of workers and production. These are mainly fine chemicals and specialty sectors where economies of scale and size are less important and where downstream markets justify the development of hundreds of niches where these specialised companies operate.
- These are the sectors selling intermediate inputs to all the industrial sectors. For this reason SMEs play a key role in transferring the technological innovations created by the chemical supply chain that determine innovative development and defend the competitiveness of hundreds of thousands of firms in all European industrial sectors. The chance for many European sectors and companies to fight the growing aggressiveness of new competitors is closely tied to how partnerships grow and strengthen also with this part European chemical industry.

## Thanks to SMEs, the Chemical Industry is widespread across Europe

### Geographical location of the top 20 European chemical regions and top 10 regions for number of chemical employees

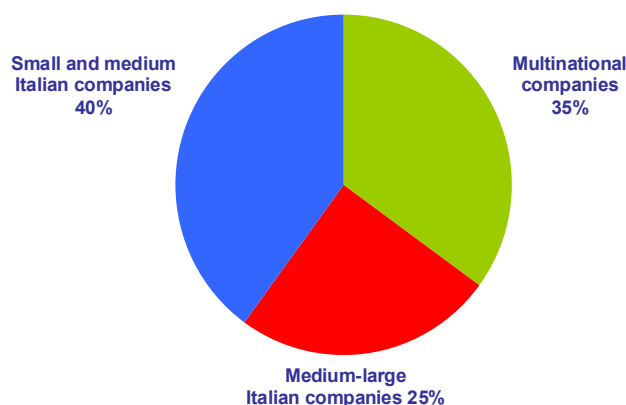
n° of regions		Total n° of employees	
Germany	6	1. Nordrhein- Westfalen (DE)	138,045
United Kingdom	3	2. <b>LOMBARDIA (ITA)</b>	<b>91,305</b>
France	2	3. Rheinland-Pfalz (DE)	66,823
Italy	2	4. Hessen (DE)	65,927
Netherlands	2	5. Bayern (DE)	60,920
Spain	2	6. Cataluña (ES)	60,458
Belgium	2	7. Baden-Württemberg (DE)	58,936
Ireland	1	8. Ile de France (FRA)	57,855
		9. Vlaams Gewest (BE)	47,054
		10. North West (UK)	38,340

Note: chemicals and pharmaceuticals  
Source: Eurostat, REGIO database

- When thinking about chemicals, large petrochemical sites come to mind, thereby giving the impression that production is concentrated in a limited number of sites.
- But surprisingly enough, thanks to thousands of small and medium firms, chemical companies are widespread across Europe:
  - as many as 50 European regions out of 116 employ more than 10 thousands chemical workers each,
  - there are more than 100 chemical local units in 75 regions.
- Among European regions, Lombardia is the second largest in terms of employees (accounting for 40.3% of Italian chemical employment):
  - without big companies but thanks to an extensive net of SMEs,
  - being specialised in downstream chemicals and not in base chemicals.
- Being present in many and many different sites means having a strong impact on the European regions in terms of qualified employment, linkages with industrial districts, other companies and universities. Therefore it means creating widespread pro-business culture, because a chemical company is an advanced kind of firm.

# The Chemical Industry in Italy: three actors, each very important

## The actors of the Chemical Industry in Italy (2003, share of production)



Note: medium-large companies include those with worldwide sales bigger than 100 million euro  
Source: Federchimica

- The Chemical Industry in Italy is made up of three main actors:
  - multinational companies, generating 35% of overall production,
  - medium-large Italian companies, representing 25% of overall production,
  - small and medium Italian companies, accounting for the remaining 40%.
  
- The threshold of 100 million euros of sales allows to identify a group of medium-large Italian companies, maybe unknown to the public, but often world or European leader in their sector of activity.

## Main Italian Chemical Companies

Worldwide sales 2003, million euro

	World sales	Production in Italy		World sales	Production in Italy
Polimeri Europa	4484,0	3367,0	Ferrania Imaging Technologies	179,0	154,0
Gruppo Mossi & Ghisolfi	1307,0	481,0	Zobebe Industrie Chimiche	178,0	81,0
Radici Group	1087,0	715,0	Italsilva	175,0	175,0
Mapei	935,0	420,0	3V Partecipazioni Industriali	158,0	100,0
Gruppo Snia <sup>(*)</sup>	849,1	485,8	Gruppo Isagro	153,0	130,0
Gruppo Bracco <sup>(*)</sup>	841,6	680,8	Guaber	146,5	146,5
Syndial-Attività diversificate	671,0	671,0	Mirato	146,0	146,0
Gruppo Sir Industriale	590,0	395,0	Indena	138,0	117,0
Montefibre	430,0	305,0	Sinterama	135,3	112,0
Gruppo C.O.I.M.	350,0	200,0	Bembergcell	130,0	130,0
Lamberti	300,0	225,0	Gruppo Nymco	118,9	74,4
SOL Group	298,5	212,9	Intercos Group	118,4	103,1
SIPCAM-OXON Group	290,0	140,0	Fillattice	111,0	29,0
Sapio Industrie	283,0	278,0	Gruppo Lechler	105,0	100,0
IVM Group	275,0	220,0	Zambon Group	104,0	84,0
ACS Dobfar	251,0	251,0	Gruppo Boero	102,0	94,0
Siad	243,0	150,0	Colorobbia Italia	101,0	82,0

Note: companies with a majority of Italian capital share, excluding pharmaceuticals  
(\*) referred also to biomedical  
Source: Federchimica

## Medium-large Italian chemical companies: operating in niches but at a worldwide level

- The main feature all these cases of success share is that they adopt niche strategies:
  - focusing their activity on very specific “families” of goods,
  - but offering a wide variety of products in order to satisfy every demand of a particular market.
  
- Products have a very high value added because of their technology content and of the embedded immaterial component in terms of service for the customer. This is possible through:
  - the development of a close relationship between the enterprise and its customers culminating in partnerships for the design and production of on-demand specific chemical products,
  - the emphasis put on the sales network and on the training of human capital with specific technical and scientific skills, able to perceive and immediately transmit the evolution of demand,
  - the key role given to R&D activity, developed inside the company but also nourished with profitable partnerships with the University,
  - the incessant innovation, which regards first of all the product but often also the process, involving the design and building of equipments.
  
- Other factors of success are flexibility and speed in reacting to changes that these companies have developed from the experience in the Italian market, which is characterised by a myriad of end-users with specific needs.
  
- Being very specialised, these companies have to make a continuous effort to enlarge their own niche. In a globalised world, this means progressively moving from exporting to opening selling agencies and then production facilities abroad.
  
- The analysed cases of excellence show the winning strategy of some medium Italian chemical companies that have been able to avoid the risks and to get the opportunities of the global market, focusing on innovation and R&D, undertaking the process of internationalisation while remaining very specialised, flexible and organised as a family owned company. In other words, these are cases of small enterprises having succeeded in growing and turning themselves into global players. As a consequence, the success of these companies provides useful indications on the way small chemical companies may overcome the restraints deriving from their size and keep on growing.

# Italian chemical SME show an excellent performance

**Business development in Italy, 1996-2000**  
( percentage change )

	Chemical companies			Total Industry
	Medium	Large	MNE	Medium comp.
<b>Turnover</b>	<b>32.0</b>	<b>28.7</b>	<b>44.5</b>	<b>29.7</b>
<b>Exports</b>	<b>49.0</b>	<b>42.2</b>	<b>36.3</b>	<b>36.4</b>
<b>Value added</b>	<b>22.9</b>	<b>6.5</b>	<b>41.3</b>	<b>24.6</b>

Source: Mediobanca-Unioncamere, "Le medie imprese industriali italiane (1996-2000)"

**Chemical Industry in Italy: composition of employment by company size**

(,000 workers)	1991	2001
<b>SMEs</b>	<b>74.7</b>	<b>79.1</b>
<b>250-499</b>	<b>20.9</b>	<b>14.0</b>
<b>500 and more</b>	<b>75.5</b>	<b>45.4</b>
<b>Total</b>	<b>171.1</b>	<b>138.5</b>

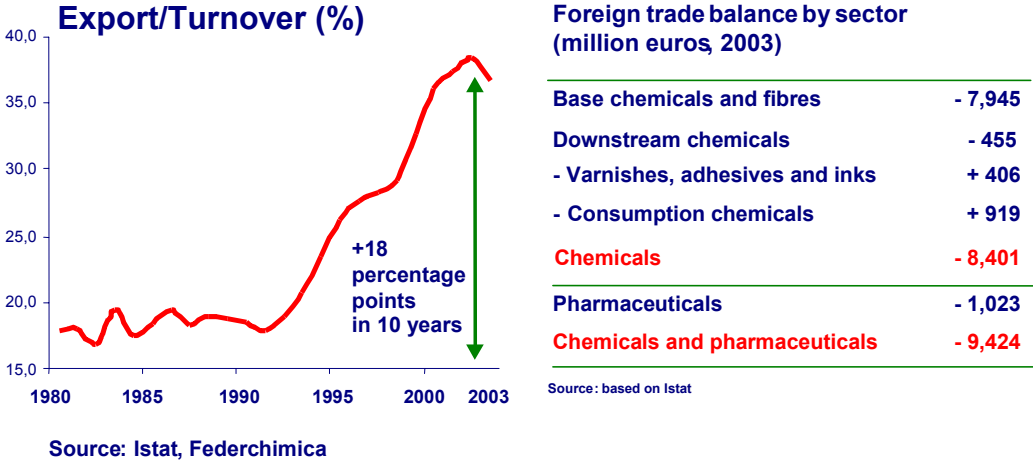
Excluding pharmaceuticals

Source: ISTAT

- The importance of chemical SMEs in Italy is self-evident when looking at their performance:
  - they have grown more than large chemical companies and than medium companies in other industrial branches,
  - while overall chemical employees have decreased (almost 35 thousand workers lost between 1991 and 2001), they not only preserved their workers but even increased them,
  - the importance of downstream sectors, those where SMEs are concentrated, on total chemical industry has been growing.

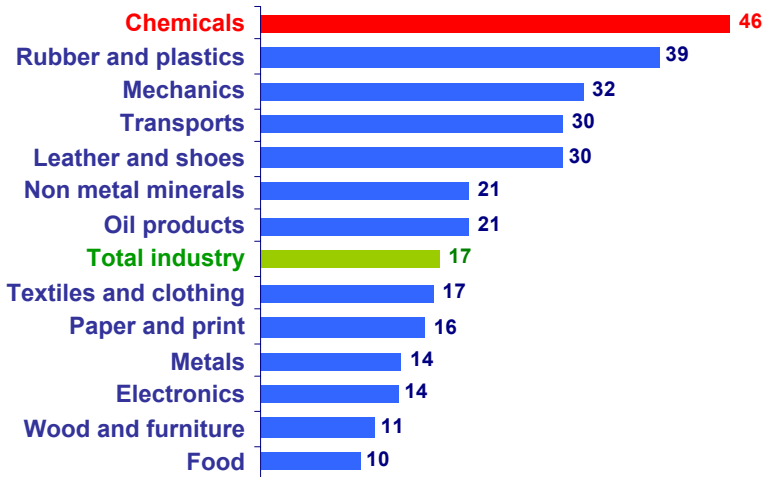


# Italian Chemical SMEs are oriented to international markets



- Italian chemical SMEs are strongly oriented to international markets:
  - their export attitude has led to a relevant increase of external trade and to a specialisation in those sectors where SMEs prevail (downstream chemicals in general, especially, varnishes, paints and inks, detergents and cosmetics),
  - in particular, Italy is world leader in active pharmaceutical ingredients with its companies exporting about 80% of their production,
  - compared to other sectors, chemicals show the highest percentage of exporting companies,
  - this is due to the fact that not only large companies but also SMEs are export-oriented accounting for about one half of total chemical exports.

## Exporting Italian companies by sector (% on total companies, 2001)



## Chemical SMEs are good performers also in Europe

### Companies profitability by size and sector in Europe

n° of employees	GOS/VA (%)	VA/employees (,000 euros)
1-99	45.7	59.2
100-249	39.4	73.3
<b>SMEs</b>	<b>42.9</b>	<b>64.7</b>
250-499	46.8	90.0
>500	36.7	89.5
<b>TOTAL CHEMICALS</b>	<b>40.0</b>	<b>80.9</b>
Base chemicals and fibres	40.7	90.3
Downstream chemicals	39.0	71.9
- Fine and specialty chemicals	38.0	72.3
- Consumption chemicals	40.7	71.2
<b>Pharmaceuticals</b>	<b>44.5</b>	<b>96.9</b>
Chemicals and Pharmaceuticals	41.4	85.4

Source: Federchimica based on Eurostat

- European Chemical SMEs show high levels of profitability proving to be false the opinion that considers small and medium companies as less attractive:
  - companies with less than 250 employees generate 30% of the gross operating surplus of total chemicals (this share reaches the 50% for companies with less than 500 employees),
  - the incidence of gross operating surplus on value added is even higher for SMEs than for large companies.

## Chemical SMEs are high quality companies

### SMES in Italy: Key ratios by activity

<b>,000 per employee</b>	<b>CHEMICAL INDUSTRY</b>	<b>TOTAL INDUSTRY</b>
<b>Production</b>	<b>263.5</b>	<b>125.5</b>
<b>Value added</b>	<b>62.7</b>	<b>36.3</b>
<b>Investments</b>	<b>14.0</b>	<b>6.3</b>
<b>Personnel costs</b>	<b>34.3</b>	<b>25.1</b>
<b>ROE (in %)</b>	<b>13.6</b>	<b>9.3</b>

Excluding pharmaceuticals

Source: Istat, Mediobanca-Unioncamere

- Where does this capability to grow and generate income come from? It is not a given, but it depends on the fact that Chemical SMEs are high quality companies, as they make more material and immaterial investments than the firms of other industries.
- Among the largest sectors, Chemical workers show the highest productivity and are the best paid making the Chemical Industry particularly fit to an Advanced Economy as Europe. This applies to chemical SMEs as well.
- In order to guarantee high productivity levels and a persistent propensity to innovation, it is necessary to invest on training: in Italy, the companies engaged in non-stop training are 929, a number so high that certainly involves many SMEs.
- This strategy is fruitful for chemical companies: not only chemical SMEs show high growth rates, but they result more profitable than other companies of the same size.

## Chemical Industry is a major source of innovation for the European and Italian manufacturing industry thanks to the effort of all Chemical companies

- What distinguishes the chemical sectors is that it is a science-based industry. Having to change the matter, the chemical company cannot innovate only in the process, but has to innovate also in the product: that is to say, to do research.

- Differently from other sectors, making process-innovation and getting innovative inputs from outside, the chemical companies are deeply involved in internal R&D (41.5% of total expenses for innovation).

- In this respect, it becomes clear the importance of the chemical industry in order to transfer technology and innovation to user sectors.

- Another element that distinguishes the chemical industry is that innovation is widespread across many and many companies.

- In Europe, 70% of chemical companies can be defined as "innovative" (only 51% in manufacturing): this percentage is far more than the weight of large groups meaning that many SMEs are making innovating activities.

- In Italy, this is maybe the only sector where innovation is not concentrated among few protagonists: 32% of small companies spend on R&D and this share gets to 56% for medium companies (up to 250 workers).

### Italy: Spending allocation of innovative activity (% share on total)

	<b>Chemical Industry</b>	<b>Total Industry</b>
Internal R&D	<b>41.5</b>	<b>29.2</b>
Purchase of innovative machinery and equipments	<b>23.0</b>	<b>50.2</b>
Training	<b>15.9</b>	<b>3.1</b>
Other	<b>19.5</b>	<b>17.5</b>

Excluding pharmaceuticals  
Source: Istat (2000)

### Innovating Italian companies with R&D (% share on total)

class of employment	<b>Chemical Industry</b>	<b>Total Industry</b>
10-49	<b>31.9</b>	<b>13.5</b>
50-249	<b>55.9</b>	<b>40.9</b>
More than 250	<b>64.8</b>	<b>65.5</b>
<b>Total</b>	<b>38.3</b>	<b>17.3</b>

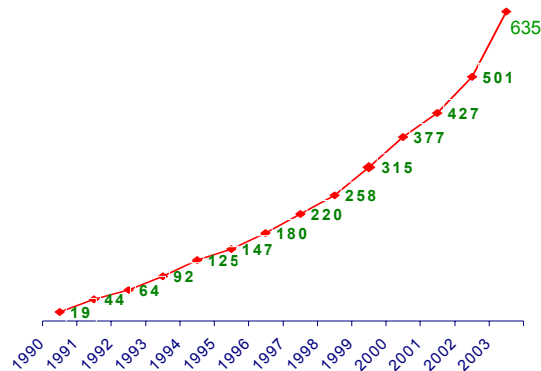
Excluding pharmaceuticals  
Source: Istat (2000)

## Pursuing the goals of Sustainable Development is one of the most complex problems a chemical SME has to face

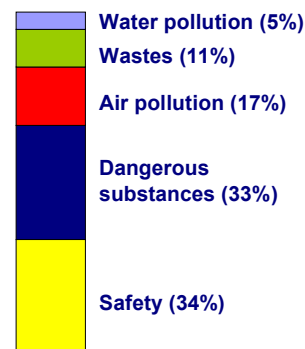
- Chemical SMEs are strongly committed to the goals of health and safety of employees and citizens and of environment protection. However, this is certainly one of the most complex problems a chemical SME has to deal with and something that distinguishes it from all other companies.
- In Europe, the amount of existing regulations and of those under discussion represent an increasing burden for all chemical companies, but especially for those already suffering from scarce economic resources as a consequence of their size.

### Increasing weight of rules in E.U.

Cumulated number of rules approved by the European Parliament



Areas of interest



Source: Federchimica

- Chemical SMEs are penalised under two points of view:
  - compared to large chemical companies, they have less human and economic resources for the management of a complex system of regulations,
  - compared to SMEs in other sectors, they operate in a much regulated framework.

## **There is a high fixed cost component in conforming to such regulations**

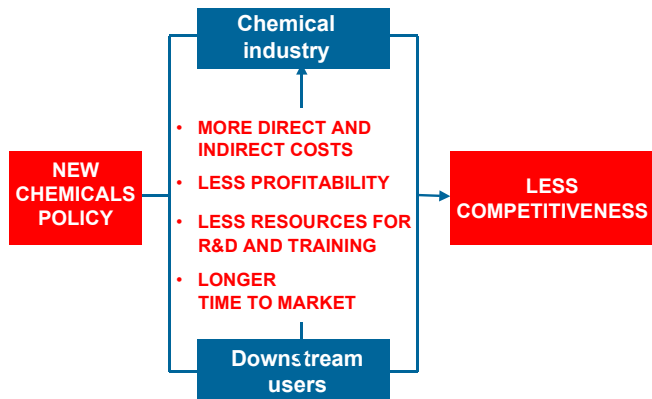
- The requirements of the single rules on Health, Safety and Environment (H.S.E.) are identical for a large or a small company. In other words, the costs to conform to such regulations have a high fixed component meaning a disproportionate larger impact on small companies.
- One of the most relevant costs has to deal with the organisation and training of human resources:
  - there are all the activities and procedures preceding the individual training, like identifying the key positions at each level of the organisation chart, defining the interfacing among these position and with the top management, establishing the required skills and training,
  - while a large company can easily employ professional figures highly specialised on H.S.E., a SME suffers from the absence of specialised and dedicated professional figures,
  - in a small structure, a person covering a certain role being absent because involved in other activities may imply subtracting role to the well-functioning of the company and have a significant impact.

## Regulations are not conceived having SMEs in mind

- When producing regulations, European Authorities still think about the chemical industry as made only of large companies.  
This attitude further compromises the already fragile situation of a SME:
  - making rules that are complicated and difficult to manage,
  - creating problems in the relationship with the Public Administration because of the large number of interlocutors the company has to deal with and the different procedures of prevention and control each Local or National Entity want to be fulfilled,
  - not providing assistance, advice and support.
- As a consequence, regulations turn out to represent an unbearable cost for SMEs:
  - not only in terms of direct costs, as those connected with the personnel, the external advisers and experts,
  - but also in a more indirect way, restraining the possibilities to grow, to develop new products and to preserve the organisation flexibility.
- As a consequence, whereas hyper-regulation can cause useless costs to a large company, it may decisively restrict the competitiveness of a small structure, from the cost, flexibility and reaction speed standpoints. It means not just costs then, but a stop to growth.
- Given the role and the spreading of chemical SMEs in Europe, it is then fundamental to conceive rules having in mind their effects for the competitiveness of small and medium companies.

## The case of R.E.A.CH.

- The case of R.E.A.CH., the new European regulation on Registration, Evaluation and Authorisation of Chemicals, shows the risks of a policy conceived without taking into serious consideration the need to safeguard industrial competitiveness.



producer.

- The new system will apply to producers, importers as well as downstream users. All existing chemical substances (around 30,000 with the exception of production under 1 ton) will have to be registered by each producer.
- Moreover, unintended uses of substances or articles containing chemical substances released unintentionally must be covered by R.E.A.CH.
- Considering the role of the chemical industry as a producer of formulations, it is clear that the New Chemicals Policy will represent a burden not only for chemical companies, but for the European industrial system as a whole:
  - increasing the costs of chemicals,
  - closing plants or transplanting outside E.U the production of certain chemicals,
  - forcing to substitute substances even if not generating any kind of benefit,
  - absorbing R&D resources not to find new substances or uses,
  - increasing the time to market.
- In particular, REACH will have a disproportionate negative impact on chemical SMEs as:
  - they normally produce a large variety of chemical formulations in small quantities,
  - producing small quantities, they have less possibilities to share the costs with other companies by creating a consortium,
  - REACH will hit especially the sectors of downstream users where SMEs concentrate.
- Considering that SMEs already suffer of scarce organisational and financial resources, it is obvious that REACH risks to paralyse them.

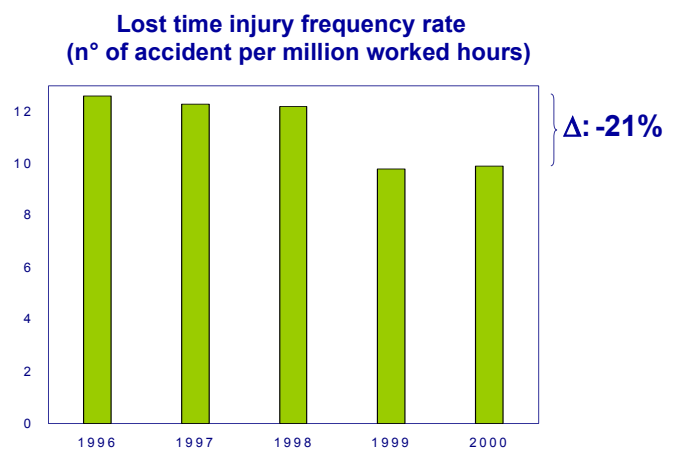


## European authorities should encourage the culture of voluntary instruments

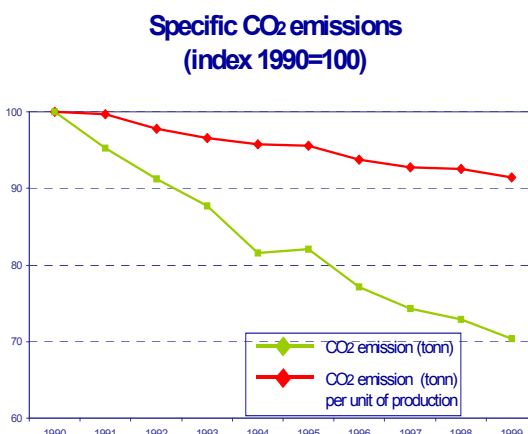
- While large companies have already adopted integrated system of management on H.S.E., SMEs often have not. This does not reflect less care about the goals of Sustainable Development, but simply the difficulty to dispose of sufficient resources (human and financial).
- It has been calculated that an integrated system of management on environment, safety and health would require an investment of approximately 200 thousand euros per year. For a SME making a turnover of about 5-10 million euros, this would represent a major cost without any evident benefit.

### Performance of European companies having subscribed Responsible Care

- The alternative is to provide technical and organisational support to SMEs.
- In this respect, Cefic and Federchimica respectively promote in Europe and in Italy the voluntary program "Responsible Care". It is a worldwide initiative designed to provide support particularly to SMEs:
  - it offers Practical Guides, Technical Manuals to analyse in detail the themes under discussion,
  - it provides Training Seminars releasing SMEs from the burden of organising by themselves such activities,
  - it supports with several instruments an effective communication policy towards local communities.
- European Authorities should recognise and promote voluntary instruments, considering them a more flexible way to attain the goals of Sustainable Development and a substitute to bureaucracy.



Source: Cefic



Source: Cefic

## MAIN CONCLUSIONS

- Even if many analyses in this study are focused on Italian data, the fact that SMEs are important all over Europe (not only in Italy) easily lead to understand that the conclusions can be drawn at a more general European level.
- The weight and importance of SMEs find expression in several aspects:
  - their role is not marginal at all in the European chemical industry, on the contrary, in some countries and sectors they represent the majority,
  - with their large number, they give chemical activity a territorial diffusion, avoiding the chemical industry from being concentrated in few big areas,
  - thanks to their specialization and entrepreneurial drive they have recently increased their weight, demonstrating higher profitability levels and defending, or even increasing, employment,
  - compared to similar sized companies in other sectors, chemical companies have a clearly stronger and broader innovative attitude,
  - they have an employment quality (expressed as average cost, productivity/value added per worker, education level) that makes also this part of chemicals as responding to the employment needs of an advanced area as Europe.
- To sum up, SMEs play a crucial role in the European industrial system and deserve to be defended by policymakers with a proactive and positive industrial policy.  
Two fields have to be stressed in this contest.
  1. Chemicals SMEs are actively facing the challenges of innovation, but in this respect, the size might become binding as the passage from informal innovative to a more structured R&D activity requires a wide quantity of organisational and managerial resources.  
It is thus important to promote stricter and more profitable links with Public Research and Universities, which could help to overcome the size constraints.
  2. For a chemical SME the commitment for sustainable development is more onerous than for a large company as there are high fixed-cost components whose weight is higher for smaller companies.  
Policymakers and stakeholders must be aware that rules should be designed taking into account the real face of the European Chemical Industry, which is made of many SMEs and not only of big groups.  
In fact, if at a general level it can be said that a bad designed regulation would likely damage all companies, we have to understand that it would certainly dramatically hit SMEs, with the utmost result of compromising the growth or even the existence of hundred of companies.