



joint research centre
EUROPEAN COMMISSION

Implementation of REACH in the New European Member States

General Overview and Case Study Analysis

Conclusions

**Contribution of the DG JRC to the Complementary work for the
Impact Assessment of REACH**

7 April 2005

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1. Competitiveness of the chemicals industry in the NMS and REACH

During the period 1995-2004 the total economy of the NMS as a whole grew at an annual average rate of 4.3 % in terms of gross domestic product (GDP), to which the value added of the manufacturing industry contributed 20% in 2001.

The chemical industry contributed approximately 13% of the total value added of the manufacturing industry, which was about EUR 11.000 million and about 3% of its GDP in 2001. The total turnover (EUR 22.000 million in 2003) of the sector has increased by 74% from 1995 to 2003, with an annual growth rate of 3% before 1999 and more than 10% since then. As a whole, the sector employed nearly 480.000 persons, accounting for 8% of total employment for the manufacturing industry in 2001. Employment decreased slightly in the last few years, while labour productivity has been increasing though this is still about 35% of the average for the EU25.

Total external trade flow of the NMS (export and import) in 2002 amounted to 371.000 EUR million, with a trade deficit (export minus import) of EUR 37.000 million. Trade performance (trade deficit as % of trade flow) of the NMS has continuously improved from -16% in 1996 to -10% in 2002, though still with a negative balance. In the same period, the trade performance of the NMS as a whole with EU-15 has improved even further from -16% in 1996 to -2% in 2002.

The total trade flow of chemicals in the NMS amounted to EUR 33.000 million in 2003 and has increased at an average rate of 10% per annum since 1999. The trade deficit was EUR -9.500 million, attributed by a trade surplus with non-EU15 countries of EUR 46 million and a trade deficit with EU-15 of EUR -9575 million. All countries have a trade deficit with EU15, their main trading partner. Slovenia, Hungary and Slovakia reported trade surpluses with non-EU15 countries, and their export has been maintained relatively stable in the past years. REACH may affect the competitiveness and market share in non-EU market for the three countries, if they have to increase prices to absorb the costs incurred by REACH.

Trade deficit in chemicals represents 88% (2003) of the total trade deficit of the NMS in relation to the EU-15. This implies that chemical industry, although growing, is evolving at a much slower pace than the other manufacturing sectors and maybe, to a large extent, unable to meet the demand of domestic industry. As a consequence, other manufacturing sectors are increasingly dependent on chemicals imported from EU15. One of the key bottlenecks to the development of the chemical industry is the availability of raw materials. Many of the NMS are largely dependent on Russia for oil and gas, and until now this has been beneficial for some of the NMS since the price of fuel from Russia is still relatively low. Many substances derived from petrochemicals as raw materials particularly for the production of specialty chemicals are, to a large extent imported from EU-15 as well as from Russia and Ukraine, where REACH does not apply. Many companies importing directly from the non-EU region will have to register the substances as an importer. They may have constraints in obtaining data and information needed to register the substance under the REACH requirement, and therefore they may be obliged to change to suppliers within the EU. Those suppliers within the EU would also need to register the substances and in this case, the companies may need to bear part of the cost passed down to them.

In general, NMS, in comparison to the EU-15, have less specialised production of fine and specialty chemicals and account for a relatively small share in the value added of the chemical industry. Thus, the impact of REACH is expected to be relatively less important in the NMS. However, since many producers of the non-basic chemicals in NMS do not have the scale of production and a relatively secure market position as being the case for their counterparts in EU15, they could face more difficulties and be more sensitive to REACH.

A detailed examination of the specialty chemicals sector has been carried out in the three selected countries for the case study, i.e. the Czech Republic, Poland and Estonia. The evolution of the sub-sector appears to be similar in the Czech Republic and Poland. In terms of turnover the specialty chemicals production has grown much faster than the chemical sector as a whole and such growth has been even more pronounced in terms of value added. In comparison, specialty chemicals contribute 38% and 24% to the total turnover of the chemical industry in Poland and the Czech Republic respectively.

In both countries, export and import of specialty chemicals increased with export increase much faster than import. Despite this growth there is still a trade deficit in specialties in both countries, that amounts to 27% of total chemicals trade deficit in the Czech Republic and to 23% in Poland.

Data show that the chemical sector and specialty chemicals in particular in Estonia have stagnated and there has been very slow development in production and productivity. The specialty chemicals sub sector takes a prominent position within the chemical industry (50% of sector's value added). Trade with eastern non-EU countries plays a dominant role for this country, especially for specialty chemicals (74% export to non EU countries).

Trade with non-EU countries may be particularly affected by REACH. Regarding imports, the need for registration of imported chemicals raw material and the potential lack of necessary information from the supplier might have a negative impact. Regarding exports, the price increases of chemicals after registration might lower their competitiveness on markets abroad.

For Poland, this situation is aggravated by the lower degree of vertical integration and the less organised structure of the sector will increase the risk of non-availability of these substances after the implementation of REACH. Due to its much larger share of exports to non-EU countries and stronger reliance on raw material imports from outside the EU, Estonia may be more affected by the implementation of REACH.

Chemical companies in the NMS are well aware of the different factors impacting on them as mentioned above, and fear that the implementation of REACH might increase the competitive pressure on them. The main concerns expressed are:

- Many SMEs, especially in the production of paint and varnish and plastic products, use thousands of chemicals and serving a profitable niche market. These companies are considered to be vulnerable to REACH because they can not anticipate or avoid decisions from suppliers regarding substance withdrawal.
- Companies expect increasing cost through testing and registration, without being able to pass the costs on through of the supply chain.
- Some companies expressed the worry that potential withdrawal of substances under REACH would result in a reduced number of suppliers. This might lead to increased dominance of the remaining suppliers and consequently, price increases may exceed the actual REACH cost.
- One of the key concerns of the companies is the administrative efforts required by REACH. Companies, particularly SMEs, may have difficulties to find additional resources to implement REACH. As the niche market is small and competition is generally high, the formation of consortia may not be easily achieved. On the other hand, branches of multinational companies, although classified as SMEs, are thought to be able to manage REACH.

- It is expressed that REACH might result in competitive advantages for EU15 companies and may eventually drive local companies out of business. This reflects the currently experienced competitive pressure from their EU15 counterparts.

The quantitative analysis on the selected cases showed very limited impacts on the competitiveness of the **chemical manufacturing** companies due to REACH testing and registration costs. However, the one-off (over one year) costs of registration in one company represented, in a worst case scenario, 9.6% of profits. The vulnerability analysis carried out using the NPV methodology shows that specialty chemicals produced in large quantities are not likely to be affected by REACH and the estimated price increase is negligible. NPV calculation has also been performed for a number of substances used in the selected preparations. One substance, a polymer, has a negative NPV value. Should polymer be subjected to REACH registration, this substance would be considered vulnerable and, consequently, the preparations using this substance would need probably to be reformulated. The possibility of the non-registration of other substances produced by few manufacturers can not be excluded

REACH may lead to difficulties for **importers** of chemicals in the NMS who have a large share of imported substances from Russia or other non-EU countries. Currently their competitive advantage results from the import of cheap raw materials from non EU markets. It was found from the analysed sample that the raw material price level is on average 35 % below the cost of material of EU origin. Keeping access to these raw materials under REACH requires investment in registration. The analysis of the registration cost impacts on the interviewed importer showed, that even when passing on registration cost through price increase, a number of imported substances from non-EU countries are still cheaper than those of EU origin. But for other low volume substances this might not hold true. In cases where it is possible to enter a registration consortium, future trade with those substances may be maintained by the importer. In other cases the importer has to switch to substances from EU origin. Both options result in increased prices for industrial customers.

Similarly to the substance manufacturers, the case studies did not show significant impacts on the competitiveness of the **formulators** due to REACH, as very limited increases in raw material costs could be identified. Additionally, sufficient suppliers for input substances are available to avoid the risk of raw material shortages. Moreover very limited risk of withdrawal could be found at manufacturer level, implying on the whole the low risk of deselection of the components for the preparations. One exception was found in the case of a formulator handling large numbers of substances and preparations.

No interviews with **downstream users** were carried out in the context of this study. However, based on the cost impacts calculated at the level of manufacturers and formulators, the price increase that a downstream user would absorb was not found to be significant. This has been calculated for the application of one example preparation in one typical manufacturing process (steel coating), and no significant price increase could be determined. However the cumulative effect of REACH on different preparations has not been taken into account.

The analysis of price elasticity of demand on investigated chemicals did not show significant reaction of the market on the actual price change in the past few years. This implies that currently in the NMS, the demand for chemicals has been triggered more strongly by factors other than price. The reason for this atypical market behaviour lies in the above mentioned strong growth of manufacturing sectors in the NMS, implying a permanently increasing demand for input materials, including chemicals, even if prices increase.

As a consequence, it is considered in this study that the possibility to pass on REACH related cost is substantial, in particular when taking into account the moderate cost impact of REACH observed for the chemicals calculated in this study. A limit to potential sales price increases is

given by the relative competitive situation of companies. Smaller manufacturers may not be able to pass on registration costs fully to product prices, if larger producers of the same product and with a higher output, and in principle lower registration costs, decide not to increase prices above the emerging cost. However, this market self-regulation is not a NMS specific issue.

In summary, the concerns expressed by NMS specialty chemicals with regards to negative impacts on their competitiveness due to REACH costs were not confirmed by the quantitative analysis, except from companies importing raw material from eastern non-EU countries, and for companies which are already now in a difficult economic situation.

2. Impacts on the product portfolio

Changes in the product portfolio of specialty chemicals companies in the past few years occurred in the frame of normal operational business, i.e. addressing customer needs or developing new products for new markets. According to industry associations interviewed, the product range of the sector as a whole in selected countries lacked innovativeness, whereas the development of high value added new products was needed. In the Czech Republic the number of products on the market was even shrinking, although the market volume remained unchanged. Industry associations stated that due to the increasing competitive pressure from abroad the domestic sectors product portfolio has to be developed towards higher competitive chemicals. However, it was consistently reported that the occurring changes of the product portfolio were not triggered by the implementation of the Chemical Acquis, nor by Accession to the EU, which was seen to be one part of increasing globalisation in the chemicals market.

Industry associations and companies expressed the concern that REACH might increase cost for specialty chemicals producers directly through cost passed through from substance manufacturers and suppliers, or indirectly through increased bargaining power of fewer suppliers. Some input substances might be withdrawn from the market. As a result, these companies may need to restructure their products portfolio towards high value added products and become more innovative in product design and marketing.

In the quantitative analysis of the case studies these concerns could not be substantiated. Only a small number of the analyzed substances have been identified as vulnerable. A number of non-profitable substances was identified, which may be particularly vulnerable to REACH. According to this study's methodology, the fact that a substance has been found to be vulnerable does not automatically mean that its production will be phased out under REACH by the individual manufacturing company, because alternatives for cost reduction, e.g. entering consortia for registration and sharing of test results, have not been analysed in detail. Against this background, and assuming that manufacturers and importers will try to keep their product portfolio intact, significant changes of the product portfolio at supplier level are not expected.

The analysis further showed that for the assessed example preparations the cost impact was in most cases manageable with one case going up to 7% under a worst case scenario assumption. Under the worst case assumptions are not significant. Again it can be assumed that formulator companies will try to keep their product range unchanged, so that no major impacts on the portfolio should be expected under REACH.

Example calculations showed that the cost impacts of REACH on downstream users in the manufacturing sector and consumer market are for all example preparations almost negligible. The likelihood of phasing out the production of chemical preparations as a consequence of declining demand is, therefore, rather low. This holds even more for phasing out the

production of certain end products which use these preparations for production or as components.

Overall, except for extra EU importers, considerable changes of the product portfolio of companies are not likely to happen because the identified REACH impacts are in nearly all cases limited. Some adjustment of the chemical supply network may arise, following purchase price increase for substances currently imported from non-EU Eastern imports. However, companies saw the need to develop their product portfolio towards higher added value products in the future in order to stay internationally competitive, confirming results from the general analysis on the whole sectors product range.

3. Impacts on innovation

In general, chemical companies in the NMS seem to have well qualified personnel and good links with technical institutes, which implies a well established condition in the field of R&D and innovation, which are crucial particularly to the development of specialty chemical products. Scattered pieces of information shows that the share of R&D expenditure in value added has kept relatively stable in recent years, although the share, as well as the number of R&D personnel is still small compared to the EU-15, except in Slovenia and Slovakia, where the figures are comparable. Information from all sources consistently indicated that there is strong pressure on the chemical sectors as a whole to become more dynamic and innovative, and to change the profile of the product portfolio towards higher value added products. However, the current R&D infrastructure in the NMS does not seem to have the critical mass to achieve these objectives rapidly on a broad scale.

This lack of innovative performance is reflected in the rather low number of notified new substances in the NMS. Between 2001 and 2004, seven new substances were subject to notification, six of them in the Czech Republic, one in Estonia. Thus, substance manufacturers in most of the NMS have no experience with the procedures of testing and notification and the necessary financial and personnel expenditures for this. The lack of experience in this respect will not facilitate the adoption of REACH.

If the general overview of this study has already indicated rather low expenditures for R&D in the NMS chemical sector, the case studies revealed that in all analysed companies the expenditures for innovation activities are strikingly low compared to EU-15 standards. In the interviewed companies in Poland and the Czech Republic, the R&D budget stays partly far below 1 % of turnover. In the Estonian average companies spend around 2.7 %. Average in EU-15 is a share of 5 to 8 %, according to CEFIC.

This unfavourable position in the innovation competition is certainly a strategic disadvantage, endangering success of companies in the future competition with EU-15 companies, which the interviewed companies themselves feel have toughened since accession. The personnel and intellectual capacity to cope with REACH is, at least in part, located in the innovation management staff. Among these tasks are testing of substances, finding substitutes and reformulation of preparations. Hence, understaffed R&D departments may make it more complicated to find the right answers to REACH challenges.

Overall it can be concluded that the capacity for R&D and innovation in the chemical sector as a whole is limited in the NMS when compared to the EU-15. In the single market, this is a strong competitive disadvantage in itself, and might also hamper the implementation of REACH.

4. Impacts on HSE management

Compliance with the Chemicals Acquis is well in progress or finalised in all NMS in public authorities and at company level, which increases their preparedness for REACH. As a result of the Acquis implementation at company level, the uptake of environmental and quality management systems is reported to grow steadily throughout the chemical sectors as a whole, at least in larger companies. As a result, these companies are better prepared for the implementation REACH, as they will have the capacities to take over and fulfil their responsibilities under the new system. SMEs are catching up, although slowly. ISO standards dominate, EMAS plays practically no role.

The standard of the HSE management seems close to that of the EU-15. This was primarily a consequence of the implementation and enforcement of the Chemicals Acquis, which is fairly complete. All companies stated that neither big efforts nor excessive costs were necessary for compliance. IT aided management systems for bookkeeping and tracing of chemicals are quite common, although not 100% available. When quality management systems are well established, environmental management systems become more important. Company's units for the classification and labelling scheme of substances and preparations, as well as the management of SDS are well staffed. Responsible staffs have to handle far lower numbers of SDS per person than in EU-15 companies.

Considering the cooperation along the supply chain of chemicals, the situation is similar to that of EU-15 companies. Support of downstream users of chemicals by the manufacturers of that preparation is business as usual. But regular contacts of substance suppliers with downstream users in the manufacturing sectors are rare. The establishment and maintenance of such cooperation, which is not driven by the operational business, is one of the new experiences coming up with REACH.

The number of testing laboratories is regarded as appropriate for the implementation of the current chemicals legislation. But it can be foreseen that the need for testing of the phase-in substances under REACH cannot be met with the current number of GLP certified laboratories. As an example, in Poland with its big chemical industry, only two GLP certified laboratory are present, which is clearly insufficient for the implementation of REACH. According to the chemicals industry association, this situation is expected to change in the upcoming years due to the incentive created by REACH.

Overall, the companies are in a relatively good position for adoption of REACH with regard to their HSE staff and related management systems, in particular when the key element, maintenance of SDS, is taken as an indicator.

5. Ability of companies to cope with REACH

As a result of progress made in implementing the Chemicals Acquis in the NMS, public infrastructure (authorities with clear responsibilities) is in place, staff has been trained on instruments of EU chemicals legislation, although understaffing remains a problem in most NMS and might lead to a bottleneck when REACH will be implemented. On the other hand, the level of enforcement of the chemicals legislation at inspectorate level can still be improved. Experience with the notification of new substances in the NMS is very limited. This might lead to a bottleneck for REACH implementation, although a large amount of training courses are being provided to companies in the NMS. However, from the regulatory point of view, the NMS appear in some cases to be not in a disadvantaged position, as the full body of chemicals legislation has yet to be fully implemented in the EU-15.

The awareness of REACH in chemical companies is limited. As a general rule, it turns out that the degree of awareness decreases with the size of the company. In the NMS, information on REACH is mainly communicated through the national chemicals industry associations, and these have a coverage in some countries of less than 10% of the chemical sector, with exceptions such as in Slovenia. Not even all companies in the sample of the case studies are members of their respective national chemical industry associations. For that reason, information concerning REACH diffuses only slowly and from diverse sources into the sector. This fact is further aggravated through the language barrier, which resulted to be a serious issue in all analysed countries.

Implementation and enforcement of the Chemicals Acquis brought companies in a favourable starting position for future REACH adoption. SDS, the central information tool under REACH for information exchange along the supply chain, is well established in all companies. Nevertheless, implementation and enforcement of the heavy investment directives under the Environmental Acquis is not yet complete. As a number of countries have requested transition periods for these directives, in some cases until 2011, this effort will still be ongoing when REACH comes into force. As a result, companies in the NMS could be stressed by the implementation of two legislations at the same time, finding themselves in a less favourable position than EU15 companies.

The raw material supply from non-EU eastern countries, which will not be covered by the REACH registration scheme, may in some cases be a serious obstacle for REACH implementation. It may force some individual companies to adapt their past chemicals supply scheme, but no appreciable impact on the chemical industry as a whole is expected. The most affected are especially importers in the NMS for whom import of cheap raw materials from non-EU eastern countries was a lucrative business in the past.

The interviews confirmed that the knowledge about REACH in the companies of the NMS is still fragmentary. The priority for preparatory activities for REACH, which enters into force at the earliest in 2006, is seen as rather low, although its importance is acknowledged. The reason is not lack of strategic foresight, but the other more urgent challenges which they face. These are mainly the ongoing privatisation, the restructuring and modernisation of production, the efforts to comply with the Environmental Acquis, and the dramatically increasing competition with EU-15 companies after accession, which absorb much of the companies' management capacity. To cope with all these changes within a relatively short time span is a typical challenge for companies in the NMS, which is not the situation in EU-15, and represents a general competitive disadvantage for NMS chemicals companies already now. However, the question of relocation to other countries or withdrawal of processes and products was not an issue for any the interviewed companies.

Under this context, it is no surprise that companies have not yet assessed impacts of REACH on their own company, nor have they developed strategies to cope with the foreseeable changes of the future chemical regulation regime. The ongoing discussion about the design of key REACH elements may puzzle companies and give them the impression that it is too early to start activities, because of unclear future provisions. However, the perception of the forthcoming challenges by REACH is growing.

Almost all companies see a need to improve the information exchange about handled chemicals along the supply chain. The tradition of such cooperation as part of the supply chain management is restricted to operational business needs. A typical example for this is support and service of preparation makers for the application technique of chemicals users. Such competences are a good starting point for establishing the information exchange provisions coming up with REACH. The challenge is to build an information network which covers all levels of the supply chain, the substance manufacturers or importers, the preparation formulators, and the downstream users. This will become one of the essential new

elements companies will have to establish under REACH. Currently, there is only little understanding of this future need. None of the interviewees were able to draw even a rough picture of company's approach to identify substance uses and to perform exposure assessments and risk characterisations at downstream users.

The perception of REACH by the companies is rather negative. Positive effects like enhanced supply chain management for chemicals are acknowledged but not taken into consideration in the overall rating of REACH. Bureaucracy, high cost burdens, and the gain of competitive advantage of EU-15 companies are the main worries expressed by companies.

Quantitative analysis showed that all except one of the interviewed companies will be able to cope with REACH. The cost impacts on the individual companies remain moderate, even under the assumption of worst case effects. Nevertheless, some adaptations may become necessary to comply with REACH provisions in an efficient way. Among them are improving company's chemicals inventory database, switching to other raw material suppliers, or mainstreaming reformulations of preparations. One of the interviewed companies could be affected seriously by cost impacts caused by REACH. This is a middle sized preparation maker with a large number of handled substances.

Overall, after implementation of the Chemicals Acquis, in principle the starting point for REACH implementation seems to be at a common level between EU-15 and NMS companies. However, lack of experience, low innovation capacity, a general competitive disadvantage, combined with increasing competitive pressure from the EU-15, and the ongoing effort for implementing the heavy investment directives under the Environmental Acquis might be drawbacks for the implementation of REACH in the New Member States.

Annex – Results overview

Parameter	
Number of substances producers in the sample (and SME in this)	7, 0 SME
Number of produced substances in product portfolio	419
Type of substances (e.g. intermediates, commodities, specialities)	Intermediates, Commodities Specialties
Total registration costs as % of one single year turnover	7.5 % CZ
Number of produced substances assessed for vulnerability	21
Produced substances found to be vulnerable	1
Size of raw material (substances) portfolio	347
Share of raw material (substances) imported from non EU	14 % CZ, 8.5% EE
Number of imported raw material (substances) assessed for vulnerability and/or price increase	7
Share of raw material (substances) found vulnerable	
Share of raw material (substances) with significant price increase	2 EE
Number of formulators in the sample (and SME in this)	5, 1 close to SME
Number of produced substances in product portfolio	156
Type of products (including whether for consumers, professionals or industrial use)	industrial use, consumer use
Number of products assessed in the study	12
Number of components assessed with regard to i) likelihood of withdrawal (based on ESIS analysis or other information) and ii) increase of purchase price if registration costs are passed on through the chain within pay back time	105
Share of substances assumed vulnerable	n. a.
Range of purchase price increase found for the formulators' input chemicals	n. a.
Resulting price increase of preparations	0.03% – 7.3%
Resulting end product price increase of assessed preparation applications	0.02 – 0.9 %

Parameter	
Number of trading importers in the sample (and SME in this)	2
Size of import portfolio	148
Type of substances (commodities [organic, inorganic], specialities, intermediates)	Specialties, Commodities
Total registration costs as % of turnover	80% one company
Number of substances assessed for vulnerability	8
Share of substances found vulnerable	6
Share of substances in the vulnerable group for which consortia and data sharing is possible	6
Price increase for substances if the importing trader switches to EU sources	40-67% ; (10%; 110 %)
Share of substances for which availability on the market could be affected	0