Air Liquide / Messer: addressing the changes brought about by the concentration in the industrial gases industry

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On 15 March 2004, the European Commission approved, subject to conditions, the acquisition by L’Air Liquide SA (‘Air Liquide’) of Messer Griesheim KGaA’s (‘Messer Group’) activities in Germany, the UK and the US (‘Messer’). The Commission was concerned that the merged entity would have become dominant on the European market for tonnage gases and jointly dominant with Linde in the German markets for bulk and cylinder gases.

The Commission’s concerns were removed following Air Liquide undertaking to sell two pipeline networks, tonnage plants and bulk and cylinder businesses covering a large part of Germany.

This case illustrates how quantitative tools may allow a thorough assessment of the impact of a concentration and of proposed divestitures, within the short deadlines of first phase investigations, when remedies and market data are provided at an early stage.

I. Introduction

a. The notified operation

Air Liquide and the Messer Group are both active worldwide in the production and distribution of industrial and medical gases and the services associated with these products. They supply industrial gases to various industries including iron, steel, refining, chemicals, glass electronics, paper pulp, food processing, health care and aerospace industries. Air Liquide is the world leader in the production and distribution of industrial gases.

The operation, signed on 19 January 2004 and notified on 30 January 2004, consisted in two interlinked operations: the acquisition by Air Liquide of the whole of the Messer Group’s activities in Germany, the UK and the US, along with the acquisition of sole control of the remaining business by the Messer family.

b. The market definitions retained by the Commission

The products in this case are industrial and medical gases, such as gaseous or liquid oxygen, nitrogen or argon, which are extracted from the air and various other gases produced through chemical reactions, such as hydrogen, carbon dioxide, acetylene.

In this case, the Commission confirmed the product market definitions of previous decisions (2) in the sector. Given the lack of demand-side substitutability, each gas (e.g. oxygen, nitrogen, hydrogen, argon, carbon dioxide, acetylene, helium, each of the Electronic Specialty Gases (‘ESG’)) and each distribution format thereof (i.e. tonnage, bulk, cylinder) had to be considered as a distinct product market.

The tonnage business involves building and operating plants to produce gases (as opposed to liquefied gases) on a customer’s site. The gas is supplied under long-term supply agreements, typically for fifteen years. The tonnage gases are oxygen and nitrogen (produced simultaneously by separation from air), hydrogen, carbon monoxide or a mixture of both (so-called ‘syngas’). The tonnage gas customers usually have requirements in excess of 100 ton per day (‘T/day’) and include steel mills, refineries or the chemical industry.

Bulk deliveries are made for industrial customers with lower gas requirements, ranging from 0.1 T/day to 100 T/day. The gas is produced in a standalone plant or in a tonnage plant serving the tonnage customer (‘piggy-back’ solution). It is then liquefied and transported by road tankers to the customer’s site where the liquid gas is stored before being used. The gases delivered in bulk are oxygen, nitrogen, argon, hydrogen and carbon dioxide.

Deliveries in cylinders are used when the quantities requested by the customers are small. Cylinders may be filled at and distributed from the

(1) The authors thank the other members of the Air Liquide/Messer Targets case team, Sandra KIJIEWSKI and Katharina KRAAK.
(2) Decisions in case COMP/M.1630-Air Liquide/BOC and COMP/M.1641-Linde/AGA.
production plant or cylinder filling centres. From these filling centres cylinders in various sizes are transported directly to the customer, or to depots which supply to retail customers. The gases distributed in cylinders are to a large extent the same as those delivered in bulk but also include helium, acetylene and the various ESGs used in the electronics industry.

As to the geographical scope of the markets, the Commission concluded that the markets for ESGs were EEA-wide and that those for bulk and cylinder gases were national although competition takes place at the local level (1). The Commission did not find any strong evidence pointing towards worldwide or quasi-worldwide markets for tonnage gases as suggested by the notifying party. In line with previous decisions, the relevant market for tonnage gases was found to be the EEA or the extended EEA including the ten Accession countries at most.

On the basis of these market definitions, the proposed operation would have given rise to the following affected markets: the European tonnage markets for oxygen, nitrogen), hydrogen, carbon monoxide and synthesis gas; the various markets for bulk and cylinder gases in Germany; and the European market for ESGs.

In order to address the competition concerns identified by the Commission, the notifying party submitted a set of divestitures at an early stage of the procedure (2). This early submission, together with the provision of relevant market data, made it possible for these remedies to be market-tested and subsequently modified to address the issues identified by the Commission following its investigation.

The final version of the commitments comprises divestitures the sales of which exceeded EUR 200 million in 2003.

II. Tonnage markets

a. Possible single dominance in the EEA markets for oxygen and nitrogen

Market shares and purchasing process

Both companies are in the tonnage markets. For the standard air gases (oxygen and nitrogen), Air Liquide/Messer would have had by far the highest market shares in the EEA (40-50% in each market). For Linde, the next largest supplier, market shares would have been only half of the combined entity's. Despite the contention that tonnage markets are bidding markets, the Commission took the view that the way in which tonnage contracts are currently awarded does not undermine the significance of market shares as a first proxy for market power. Market shares remained very stable over time and the tendering procedures sometimes used by tonnage customers were different from formal bidding process. In particular, even when suppliers made offers in response to requests for quotations (RFQs) significant modifications to these offers were made, in some cases, during subsequent negotiations.

Against this background, the question arose as to whether the merger would result in significant changes on the markets. The Commission's market investigation confirmed that, with EEA market shares of 5-10%, Messer was a second-tier player with much lower market shares than the first-tier players (i.e. Air Liquide, Linde, Air Products, Praxair, and to some extent BOC). Messer had limited presence outside Germany and lacked engineering capabilities. In addition, the data collected (3) by the Commission from all major players with regard to their past tonnage offers indicated that, outside its entrenched position in Germany, Messer had not exerted a strong competitive constraint on Air Liquide prior to the merger.

Messer's pipeline networks

The Commission found that a substantial change resulting from the merger concerned Messer's pipeline networks in Germany, where a significant part of EEA tonnage gas customers are located. Messer's activities in the tonnage business are concentrated in the Rhine-Ruhr and Saar regions, where it is the only industrial gas company to own pipeline networks delivering oxygen and nitrogen to industrial customers. The pipelines gave Messer a strategic position in these industrial basins where important clusters of customers for air gases are active, such as steel producers or chemical companies. The market investigation revealed that such infrastructures can give incumbents a structural advantage over rivals competing with on-site

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(1) Due to transport costs, bulk and cylinders can be delivered economically within a radius that does not exceed 100-150 km and 150-200 km respectively. However, market players’ economic radii largely overlap one another, hence leading to a larger relevant market.

(2) The first version was offered by the notifying party four working days after notification.

(3) The Commission gathered information on all RFQs to which the main market players replied worldwide over the past five years.
plants when tonnage customers are located in the catchment area of the pipeline. Messer has thus been able to maintain its market share over the years thanks to its entrenched position in those German regions, despite competition from mainly Air Liquide and Linde.

The Commission considered that, following the proposed transaction, the competitive constraint that Air Liquide had exerted on Messer (Rhine-Ruhr) or was likely to exert in the near future (Saar) would have been definitively eliminated, and would have strengthened the merged entity's position in the EEA market. In the Rhine-Ruhr region, in the recent years, both Linde and Air Liquide had competed with Messer sometimes successfully, with offers from on-site plants. By contrast, other competitors had not been present or were present only to a much more limited extent. In the Saar/Lorraine region, ‘pipeline-to-pipeline competition’ between Messer’s network in Saar and Air Liquide’s in Lorraine was likely to intensify in the near future following the announcement of plant closures in Lorraine by one of Air Liquide’s major customers. The plant closures would leave Air Liquide with unused capacity. Given that Air Liquide already holds an entrenched position in other key regions of the EEA as a result of its pipeline networks, the Commission concluded that Air Liquide/Messer would have gained a significantly larger (and to some extent captive) customer base and thereby a dominant position in the EEA.

b. The proposed remedies

Description of the remedies

In the final set of remedies, the notifying party proposed to divest the whole of Messer’s Saar pipeline network, the southern half (1) of Messer’s Rhine-Ruhr pipeline network as well as Air Liquide’s tonnage plants located in the neighbourhood of, or connected to, the divested pipelines.

Assessment of the remedies

The competition between Air Liquide and Messer in the tonnage market has predominantly occurred in the catchment area of Messer’s pipeline networks in Germany, where the main suppliers exercising competitive pressure on Messer have been Linde and Air Liquide. By divesting a significant part of the tonnage activity in the Rhine/Ruhr area, the remedies prevent Air Liquide from adding to its already strong position in the EEA and restore the number of players effectively competing for tonnage contracts in this region.

In addition, the acquirer will have the ability not only to supply customers located in its pipeline catchment areas but also, by extending the one of the pipelines, to supply customers located in the northern part of the Rhine/Ruhr valley. The Commission’s investigation confirmed that this extension was possible since the northern end of the divested pipeline is only 25km away from Air Liquide/Messer’s customers. The remedies will therefore lead to ‘pipeline-to-pipeline competition’ that did not exist prior to the merger and, given the advantage that such infrastructure confers to the supplier, the competitive constraint exerted on Air Liquide/Messer is likely to be at least as effective as that exercised by Air Liquide pre-merger.

Similarly, the divestiture of the Saar pipeline will ensure that the competition existing prior to the merger in this industrial basin will be maintained.

III. Bulk and cylinders

a. Joint dominance in Germany

On the bulk and cylinder markets in Germany (for all gases except hydrogen and ESGs), the Commission considered that the proposed transaction was likely to lead to the creation of joint dominant position between Air Liquide/Messer and Linde.

Symmetric market structure and elimination of Air Liquide as an aggressive player

The proposed operation would have led to further concentration on the already highly concentrated German markets. Air Liquide/Messer and Linde would have held symmetric market positions, totalling together between 65% to 90% depending on the gas. In addition, on the cylinder markets where, as a result of the limited distance over which it is economic to transport cylinders, competition has a more local dimension, the strategic positions of the two main national players would have been almost perfectly symmetrical. Air Liquide/Messer would have been the leading player in the East and West with Linde, the main challenger. Conversely, Linde would have held a leading position in the North and South.

(1) Air Liquide committed to divest the Southern (i.e. the Rhine) part of the Rhine/Ruhr pipeline network, which is [500-600]km long in total.
The existence of joint dominance before the merger between Messer Targets and Linde had been considered but rejected in a previous Commission decision (1), in particular because of the growth of Air Liquide. The Commission's market investigation confirmed that, in recent years, Air Liquide has been the most aggressive player on the bulk and cylinder markets and has represented a strong competitive constraint on Linde and the Messer Group. Consequently, the Commission took the view that Air Liquide played a disruptive role on the German markets and has been the main obstacle to the creation of collective dominant position.

**Likelihood of joint dominance**

The Commission considered that Air Liquide would cease to be an aggressive player in the German markets and its combination with one of the major incumbents would be likely to lead to coordinated effects. In that regard, both members of the duopoly would have had common incentives not to compete effectively, through customer sharing or market partitioning. In particular, Air Liquide's pre-merger incentive to increase its customer base through all possible means would be very different from Air Liquide/Messer's post-merger incentives. Evidence of past collusion on the same product markets but in another EEA country provided an important indication in this respect (2).

The Commission's market investigation further revealed that there was sufficient transparency, in particular (but not exclusively) with respect to customer allocation, to make monitoring effective. This transparency would have been greatly enhanced by the proposed transaction because of the reduced uncertainty on the main competitor's identity. Tacit coordination also appeared to be sustainable because for each of the players could make a credible threat of future retaliation in case of deviation. The Commission identified several means of effective retaliation and underlined that it could have taken place either on the same markets or in other product or geographic markets. Finally, several elements indicated that neither competitors nor customers would have had the ability and/or the incentive to significantly disrupt the stability of the duopoly.

Consequently, the Commission concluded that, in the absence of remedies, Air Liquide/Messer and Linde would have held jointly a dominant position.

**b. The proposed remedies**

**Description of the remedies**

The notifying party proposed to divest, as regards the bulk markets, four plants producing bulk gases and the customer base around each plant. As regards the cylinder markets, ten cylinder filling centres and service centres covering most parts of Germany would be divested. In addition, the party committed to divest all Messer's activities in ESGs.

**Assessment at the national level**

Depending on the market concerned, these divestitures remove entirely or to a large extent the overlap brought about by the transaction. Most importantly, the final version of the divestitures significantly disrupts the symmetry between Linde's and Messer's market positions, both in terms of markets shares and geographic positioning, and thereby removes the serious doubts as to the risk of the creation of joint dominance. In cylinders, for instance, the operation as modified by the proposed divestitures, will strengthen the merged entity in the regions where Linde is the leader ([30-40]% instead of [20-30]% in the North; [20-30]% instead of [10-20]% in the South) and reduce its market shares as compared with the notified operation in the areas where it would have been the leading player: [30-40]% instead of [50-60]% in the East and [30-40]% instead of [40-50]% in the West.

In addition to its geographic coverage, the final remedies ensure that the divested entity will have the critical mass to be a viable and competitive player. The market shares that will be divested will confer to the acquirer a position close to that of Air Liquide prior to the merger for most gases and, therefore, the ability to play a similar disruptive role.

**Assessment at the local level**

Given that competition takes place at a local level, the Commission also checked whether the transaction, as modified by the proposed remedies, would not lead to high concentrations in some local areas.

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(1) Commission Decision M. 1641 – Linde/AGA.
Bulk gases can be transported economically within a 200km radius. As the production capacity of each liquid plant is in the public domain, the Commission asked the notifying party to consider each liquid plant serving the German bulk market as the centre of a hypothetical bulk (1) market of 200km radius and to calculate the hypothetical market share of each player in the area. These market shares were based on each player’s level of bulk production (2) in the hypothetical 200km-radius market. Based on these market shares the level of concentration in each of these hypothetical local markets has been calculated using the Herfindahl Hirschman Index (HHI), prior to the merger (‘initial’), after the merger as notified (‘Combined’) and finally, after the merger as modified, for each acquirer of the divested business (Air Products, Praxair or other competitors). This analysis shows that while the notified operation would have increased local HHIs by as much as 1000 significantly reducing competition, the local HHIs after the divestitures are similar to those pre-merger.

Contrary to liquid plants, no production capacity can easily be attributed to filling centres whose production varies greatly according to the number of shifts operated. For these products the Commission analysed the number of effective players remaining in each local area after the proposed operation. For this end, Germany was divided in 720 clusters of customers, based on the German zip codes. For each cluster, the number of effective players was established as the number of players operating a cylinder centre within 120km of the cluster. This being the distance over which cylinders can economically be transported.

The study led to the following results: without the remedies, the operation would have led to a reduction of the number of effective players from three to two in a number of zip code areas, mainly in the Eastern part of Germany. Similarly, there would have been a reduction from four to three players in a number of areas in the East, Centre and the North. The remedies restore the number of effective players in the vast majority of the zip codes. As a result, the proposed remedies ensure that competition be preserved locally at the pre-merger level.

IV. Conclusion

Due to the fact that it was possible to gather and analyse a large quantity of market data in a relatively short period of time, this case shows that quantitative tools enable the assessment of both the changes brought about by a notified merger and the appropriateness of proposed remedies to be carried out quickly and effectively. Relevant examples include the analysis of commercial offers by market players in response to RFQs as well as the extensive assessment, both at the national and local level, of the likely impact of the transaction, as notified and as subsequently modified by remedies.

These quantitative approaches were useful and complemented the more classical qualitative investigation carried out by the Commission. It should nevertheless be emphasised that such developments have been made possible by the notifying party’s early submission of remedies and by the large quantity of information obtained by the Commission from both the merging parties and third parties. Under these circumstances, it has been possible to assess and address very different types of competition concerns within the time constraints of a first-phase procedure.

(1) The notifying party submitted that it was not possible to carry out this study on LOX and LIN separately since, for a given total production capacity, the LOX/LIN ratio can be significantly modified. They nevertheless constitute distinct markets, as explained above, in particular in view of the absence of demand-side substitutability.

(2) The actual sales could not be used as their geographical distribution was not available, particularly for competitors. These figures overestimate the concentration in the market since they do not take swaps into account (which allow a competitor to be present in an area without any local means of production).