

***Case No COMP/M.4091 -  
LINDE / SPECTRA***

Only the English text is available and authentic.

**REGULATION (EC) No 139/2004  
MERGER PROCEDURE**

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Article 6(1)(b) NON-OPPOSITION  
Date: 20/09/2006

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COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 20/09/2006

**SG-Greffe(2006) D/205296**

In the published version of this decision, some information has been omitted pursuant to Article 17(2) of Council Regulation (EC) No 139/2004 concerning non-disclosure of business secrets and other confidential information. The omissions are shown thus [...]. Where possible the information omitted has been replaced by ranges of figures or a general description.

PUBLIC VERSION

MERGER PROCEDURE  
ARTICLE 6(1)(b) DECISION

To the notifying party

Dear Sir/Madam,

**Subject : Case No COMP/M.4091 - Linde / Spectra**

1. On 16 August 2006, the Commission received notification of a proposed concentration pursuant to Article 4 and following a referral pursuant to Article 4(5) of Council Regulation (EC) No 139/2004 (the “Merger Regulation”) by which the undertaking Linde AG (“Linde”, Germany) acquires within the meaning of Article 3(1)(b) of the Council Regulation control of the whole of the undertaking Spectra Gases, Inc. (“Spectra”, USA) by way of purchase of shares.

## **I. THE PARTIES AND THE OPERATION**

2. Linde is active in the production and distribution of industrial and specialty gases, including plant construction. Spectra is active in the production and distribution of specialty gases. This industry has been analysed by the Commission in previous decisions, especially in *Air Liquide/Messer Targets*<sup>1</sup>, *Air Liquide/BOC*<sup>2</sup> and most recently in *Linde/BOC*<sup>3</sup>.

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1 M.3314 – Air Liquide/Messer Targets, case notified on 30 January 2004 and cleared with commitments (article 6(2) decision) on 15 March 2004

2 M.1630 - Air Liquide/BOC, case notified on 13 July 1999 and cleared with commitments (article 8(2) decision) on 18 January 2000. The transaction was later abandoned due to the opposition from the US FTC.

3 M. 4141 - Linde/BOC, case notified on 06/04/2006 and cleared with commitments (article 6(2) decision) on 6 June 2006.

## II. COMMUNITY DIMENSION

3. The notified concentration does not meet the turnover thresholds of Article 1(2) and 1(3) of the Merger Regulation, because the aggregate Community-wide turnover of each of at least two of the undertakings concerned is not more than EUR 250 million (Linde EUR [...] million, Spectra EUR [...] million in 2005).
4. On 1 February 2006 the parties to the proposed transaction Linde/Spectra informed the Commission in a reasoned submission, that the transaction, which is a concentration within the meaning of Article 1 of the Merger Regulation and is capable of being reviewed under the national competition laws of more than three Member States, should be examined by the Commission. The Member States which according to the reasoned submission are competent to examine the concentration did not within 15 working days express their disagreement to the request of referral. The case was therefore deemed to have a Community dimension.

## III. RELEVANT MARKETS

### 1. Relevant product markets

5. The notified concentration concerns the production and distribution of specialty gases and gas mixtures. In essence, this group comprises all gases which are usually distinguished from standard industrial gases on the basis of price, quantities sold, application or method of supply. Specialty gases and specialty gas mixtures are usually sold in much smaller quantities than industrial gases. They are therefore predominantly supplied in cylinders and only to a small extent in bulk. The specialty gases in the affected markets are only sold in cylinders.
6. Specialty gases and specialty gas mixtures are offered in a large number of different compositions with varying applications. The parties estimate that approximately 1,000 different specialty gases and specialty gas mixtures are offered in the EEA. Most of these products have very specific fields of applications. As a result, the total market volumes for the sales of these products are usually very small.
7. In order to facilitate the analysis in view of the large number of individual gases, the Commission based its analysis of specialty gases in the previous decision in this sector *Linde/BOC*<sup>4</sup> on the following five product groups: (i) noble gases and noble gas mixtures; (ii) electronic specialty gases - ESGs; (iii) refrigerants; (iv) chemicals; and (v) calibration and other gas mixtures. However, the Commission assumed distinct product markets for every individual gas concerned due to the limited demand-side substitutability between the different gases. The present transaction concerns different gases in the categories of noble gases and noble gas mixtures and –to a more limited extent- in the category of calibration gas mixtures (environmental gas mixtures). Furthermore, it concerns helium isotopes which do not belong to any of the five categories.

### Noble gases and noble gas mixtures

#### **Pure noble gases**

8. Noble gases share distinct chemical characteristics. They have a very low level of reactivity, which means that they are widely considered to be chemically inert.

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<sup>4</sup> M.4141 – Linde/BOC

9. The merger affects the noble gases neon, krypton, and xenon. All of them are used in the lighting industry for the production of light bulbs, in the electronics industry and for laboratory research. Additionally, neon is used in the electronics industry for plasma displays and neon signs, krypton for window insulation and xenon for satellite propulsion and medical applications.
10. The parties submit that the equipment for analyzing and filling neon, krypton, and xenon is similar and that gases companies switch analytical / filling equipment between the three different gases if necessary. In the market investigation, competitors have indicated that to a certain extent they use the same analyzing and filling equipment for the different noble gases.<sup>5</sup> However, the degree of supply-side substitutability is not sufficient to indicate a single market for all pure noble gases. Therefore and furthermore due to demand side considerations which indicate a generally only limited demand-side substitutability for each gas and in line with the previous Commission's decisions where the Commission took the view that there is only limited interchangeability between different gases and accordingly defined separate markets for each individual gas, the parties submit that the different gases neon, krypton and xenon each constitute a separate product market. This definition has been confirmed by the market investigation. The Commission therefore considers also in this case neon, krypton and xenon as separate product markets.

#### **Noble gas mixtures**

11. Concerning noble gas mixtures, the parties submit that they can be categorized into mixtures comprising only inert components and mixtures comprising (also) reactive components.

#### *Inert noble gas mixtures*

12. Inert noble gas mixtures are mixtures that comprise neon, krypton and/or xenon. They are primarily used in the lighting industry for the production of light bulbs, but also as insulating gas mixtures for double and triple pane windows in the window production.
13. The parties submit that different inert noble gas mixtures may be used in the same area of application because they share many common characteristics. However, the specific mixtures are often tailor-made according to the requirements of the customers. The market investigation furthermore indicates that the different mixtures are not fully substitutable on the demand side.
14. However, the parties submit inert noble gas mixtures only differ from each other as to the exact composition of the mixture. Due to supply-side substitutability, the parties therefore consider inert noble gas mixtures, to constitute one single product market. In the market investigation, a large majority of the competitors indicated that they either already use the same analyzing and blending equipment for different inert noble gas mixtures or that they would at least be able to switch their equipment between different inert noble gas mixtures if necessary.<sup>6</sup> Therefore, for the purpose of this decision, due to supply-side consideration, inert noble gas mixtures constitute one single product market.

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<sup>5</sup> See questionnaire to competitors, question 15.

<sup>6</sup> See questionnaire to competitors, question 22.

*Specialty gas mixtures using a reactive component*

15. The parties submit that specialty gas mixtures utilizing a reactive component, such as bromine, fluorine or hydrogen chloride, can be distinguished according to the reactive component used. In addition to the reactive component, these specialty gas mixtures include one or more inert balance gases, which are mainly noble gases, but also nitrogen or hydrogen.
16. The main specialty gas mixtures containing toxic and highly reactive components are brominated gas mixtures, fluorine gas mixtures and hydrogen chloride gas mixtures. The gas companies typically purchase the respective reactive components from large chemical companies and blend them with the inert balance gases. The parties submit that they first prepare the cylinders, mainly by eliminating the moisture. They then send the cylinder to the suppliers of the reactive components. When the cylinders are sent back, the parties then add noble gases in their filling lines.
17. The parties submit that there is limited demand-side substitutability between all gas mixtures using a reactive component. However, from a supply-side point of view, mixtures that use the same reactive gas belong to the same product market. The parties indicate that for all reactive gas mixtures, it is the ability to handle the respective reactive components that defines the ability of a competitor to produce any of the mixtures and that a further distinction according to the different inert balance gases (noble gases, nitrogen, hydrogen) is not necessary because of supply-side substitutability.

*Brominated compound gas mixtures*

18. Brominated compound gas mixtures utilize bromine (Br) atoms and may include different inert gases. They are particularly used in the lighting industry for the production of light bulbs and, to a more limited extent, as a material for window insulation. They are often tailor-made according to customer requirements but the parties submit that because of supply-side substitutability all brominated compound gas mixtures constitute one single product market. This has been largely confirmed by the market investigation where a large majority of competitors considered brominated compound gas mixtures to constitute one single product market.<sup>7</sup> Therefore, for the purpose of this decision, the Commission considers that brominated compound gas mixtures constitute one single product market.

*Fluorine gas mixtures*

19. Fluorine gas mixtures utilize fluorine (F) atoms. They further include either different noble gases or nitrogen as an inert component. Fluorine noble gas mixtures are used inter alia for the operation of excimer lasers mainly for the use in eye-surgery equipment and for the production of semiconductors (lithography) and fluorine nitrogen mixtures mainly for the special treatment of plastics. They are to some extent tailor-made according to customer requirements. The market investigation indicates that there is only a very limited degree of demand-side substitutability

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<sup>7</sup> See questionnaire to competitors, question 27.

between the different fluorine gas mixtures, in particular between fluorine noble gas mixtures and fluorine nitrogen mixtures.<sup>8</sup>

20. The parties however submit that because of supply-side substitutability, all fluorine gas mixtures constitute one single product market. They submit that in particular there is in principle no difference between blending the reactive fluorine component with nitrogen or with a noble gas. They therefore submit that due to supply-side substitutability, these two groups of fluorine gas mixtures constitute one single product market.
21. The market investigation has shown indications that fluorine noble gas mixtures and fluorine nitrogen gas mixtures might not constitute one single product market. While it was confirmed that the ability to blend reactive fluorine is the key know-how which is essential in both market segments, some suppliers also indicated that additional know-how and equipment might be necessary for the blending of fluorine noble gas mixtures.<sup>9</sup> This might be the reason why not all suppliers of fluorine nitrogen mixtures blend fluorine noble gas mixtures.
22. A significant number of competitors, however, indicated that the degree of supply-side substitutability would be sufficient to justify a single market covering all fluorine gas mixtures.<sup>10</sup> For the purpose of this decision, it can, however, be left open whether fluorine noble gas mixtures and fluorine nitrogen mixtures constitute one single product market or two separate ones since under none of the two alternatives competition concerns arise.
23. The market investigation has not shown indications that any further distinction of individual fluorine gas mixtures within these two markets might be necessary since apparently all suppliers of these two types of mixtures are flexible as to the production of individual mixtures within these two groups.<sup>11</sup>

#### *Hydrogen chloride gas mixtures*

24. Hydrogen chloride gas mixtures utilize hydrogen chloride (HCl) molecules and may include different noble gases, or nitrogen and hydrogen. Mixtures of hydrogen chloride and noble gases are primarily used for the operation of excimer lasers in various industries, but may also be used for substance processing in the biotechnology sector and air testing. Mixtures of hydrogen chloride and nitrogen/hydrogen are also used in the process, instrumentation and semiconductor industries. The respective mixtures are often tailor-made according to customer requirements. This would exclude any demand-side substitutability. However, the parties submit that because of supply-side substitutability all hydrogen chloride gas mixtures constitute one single product market.
25. The market investigation has largely confirmed that hydrogen chloride noble gas mixtures and hydrogen chloride-nitrogen/hydrogen mixtures constitute each one single product market and no further distinctions are necessary within these two

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<sup>8</sup> See questionnaire to customers, question 6; minutes about conversations with customers; questionnaire to competitors, question 32, 34 and 36.

<sup>9</sup> See questionnaire to competitors, questions 32, 36, 71 and 72.

<sup>10</sup> See questionnaire to competitors, question 36.

<sup>11</sup> See questionnaire to competitors, question 36.

markets. There are further indications that, due to supply-side substitutability, the relevant product market might comprehend all hydrogen chloride mixtures. However, for the purpose of this decision, it can be left open whether hydrogen chloride noble gas mixtures and hydrogen chloride-nitrogen/hydrogen mixtures constitute one single product market.

### **Environmental gas mixtures**

26. Environmental gas mixtures belong to the group of calibration gas mixtures and other gas mixtures. They are used for measuring air quality according to standards set by regulatory agencies. The respective mixtures are often tailor-made according to customer requirements but the parties submit that because of supply-side substitutability at least all environmental gas mixtures constitute one single product market. In its decision *Linde/BOC*<sup>12</sup>, the Commission considered all environmental gas mixtures to constitute one single relevant product market. This view has also been confirmed in the present market investigation.<sup>13</sup> Therefore, for the purpose of this decision, the Commission considers all environmental gas mixtures as a single product market.

### **Helium Isotopes**

27. The parties' activities overlap in helium-3 isotopes. Isotopes are forms of an element whose nuclei have the same atomic number – the number of protons in the nucleus – but different atomic masses because they contain different numbers of neutrons.
28. Helium-3 is a product of the natural decay of radioactive tritium and can only commercially be sourced from the Russian and US governments. Helium-3 isotopes have very special fields of application in national security and laboratory research. While “plain” helium<sup>14</sup> is supplied by the large industrial gas companies, helium-3 isotopes are produced and sold by highly specialised small gas companies. Linde is the only large industrial gas company which is – to a marginal extent - active in helium-3.
29. In line with the previous decisions in this sector and the Commission's practice to define separate markets per individual gas, the Commission considers helium-3 as a separate product market.

## **2. Relevant geographical markets**

30. The parties submit that in contrast to industrial gases, specialty gases in general have a very high value. In consequence, transportation costs play a minor role. Furthermore, Linde only has a limited number of production sites for specialty gases while Spectra only has [a much smaller number of cylinder filling stations] located in the United States. Spectra therefore produces its gases exclusively in the United States and serves its European customers either through its two European

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<sup>12</sup> M.4141

<sup>13</sup> See questionnaire to competitors, question 42.

<sup>14</sup> The Commission has in the past defined distinct markets for “plain” helium on a wholesale and on a retail level (see M.4141 – Linde/BOC, para. 34-40) – the latter constituting national markets similar to those of the standard industrial gases supplied in cylinders. “Plain” helium is a by-product of the production of natural gas

distribution subsidiaries in Germany and the UK or directly from the United States. Furthermore, the parties submit that since there are no particular regulatory or other barriers to purchase the gases in the affected markets abroad, cross-border sales within the EEA play an important role in all affected markets.

### **Noble gases and noble gas mixtures**

31. The parties submit that noble gases and noble gas mixtures have a very high value compared to industrial gases. Transportation costs are low and account for less than 3% of the total sales price. According to the parties, there are also no particular regulatory or other barriers to purchase noble gases and noble gas mixtures abroad. Correspondingly, price levels are similar across all EEA Member States. The activities of non-European companies like Akela, Iceblick, and Spectra might even suggest that the geographic scope of the market for the supply of noble gases and noble gas mixtures may be broader than EEA-wide. However, the parties submit that the competitive conditions appear not to be sufficiently homogenous worldwide to conclude that there is a uniform global market.
32. The parties therefore submit that the markets for neon, xenon, krypton, inert noble gas mixtures, brominated compound gas mixtures, fluorine gas mixtures and hydrogen chloride gas mixtures are EEA-wide.
33. The market investigation overall confirmed the parties' submission showing that there are no regulatory barriers between the Member States which would prevent intra-European trade. For noble gases and noble gas mixtures, transport costs were estimated to be slightly higher than the parties indicated but were still confirmed to be low. The average estimates submitted by competitors reached values of 4 to 8%.

### **Pure noble gases**

34. The market investigation indicates that from a supply-side perspective, the markets for neon, krypton, and xenon are at least EEA-wide with uniform prices and no regulatory barriers inside the EEA. According to the parties' competitors, markets might even be global due to low transport costs with respect to the final price. Customers confirmed that no significant price differences occur inside the EEA but some respondents indicated lower prices for xenon and krypton in the US compared to the EEA. On the other hand, customers indicate that delivery centres inside the EEA are of crucial importance for a timely and reliable supply.<sup>15</sup> Consequently, for the purpose of the present decision, the Commission considers the relevant geographic markets for pure noble gases to be at least EEA wide.

### **Noble gas mixtures**

#### **Inert noble gas mixtures**

35. The market investigation indicates that from a supply-side perspective the market for inert noble gas mixtures is at least EEA-wide with uniform prices and no regulatory barriers inside the EEA. According to a number of competitors, the market might even be global due to low transport costs with respect to the final price. Customers confirmed that no significant price differences occur inside the EEA.<sup>16</sup> Therefore, for

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<sup>15</sup> See questionnaire to customers, questions 13 and 14.

<sup>16</sup> See questionnaire to customers, question 15.



the purpose of the present decision, the Commission considers the relevant geographic market for inert noble gas mixtures to be at least EEA wide.

*Specialty gas mixtures using a reactive component*

*Brominated compound gas mixtures*

36. The market investigation indicates that from a supply-side perspective the market for brominated compound gas mixtures is at least EEA wide with uniform prices and no regulatory barriers inside the EEA. Furthermore, competitors indicate that transport costs are low with respect to the final price. However, a number of customers indicated that delivery centres inside the EEA are of crucial importance for a timely and reliable supply.<sup>17</sup> Therefore, for the purpose of the present decision, the Commission considers the relevant geographic market for brominated compound gas mixtures to be at least EEA wide.

*Fluorine gas mixtures*

37. The market investigation indicates that from a supply-side perspective the fluorine gas mixtures market (or alternatively the separate markets for fluorine noble gas mixtures and fluorine nitrogen gas mixtures) is at least EEA wide. The majority of customers were not aware of significant price differences<sup>18</sup> and there are no regulatory barriers inside the EEA<sup>19</sup>. According to a number of competitors, the market might even be global due to low transport costs with respect to the final price.<sup>20</sup> However, a number of customers indicated that regional presence mainly in form of distribution centres is important.<sup>21</sup> For the purpose of the present decision, the relevant geographic market for fluorine gas mixtures can be considered to be at least EEA wide.

*Hydrogen chloride gas mixtures*

38. The market investigation indicates that from a supply-side perspective the market for hydrogen chloride gas mixtures is at least EEA wide with uniform prices and no regulatory barriers inside the EEA. Furthermore, competitors indicated that transport costs are low with respect to the final price. Customers moreover seem to source on an EEA wide basis.<sup>22</sup> Therefore, for the purpose of the present decision, the Commission considers the relevant geographic market for hydrogen chloride gas mixtures to be at least EEA wide.

**Environmental gas mixtures**

39. The parties submit that environmental gas mixtures have a very high value compared to industrial gases. According to the parties, transportation costs are low and account for less than 3% of the total sales price and, there are also no particular regulatory or

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<sup>17</sup> See questionnaire to customers, questions 13 and 14.

<sup>18</sup> See questionnaire to customers, question 15.

<sup>19</sup> See questionnaire to customers, question 18.

<sup>20</sup> See questionnaire to competitors, questions 48 and 54.

<sup>21</sup> See questionnaire to customers, questions 13 and 14.

<sup>22</sup> See questionnaire to customers, questions 12 and 17.

other barriers to environmental gas mixtures abroad. Correspondingly, price levels are similar across all EEA Member States.

40. In Linde/BOC<sup>23</sup> the Commission considered the broader group of calibration gas mixtures and other gas mixtures, which includes environmental gas mixtures, to be national. However, for the reasons mentioned above, the parties submit that the smaller market for environmental gas mixtures is EEA-wide.
41. However, the present market investigation largely confirmed that customers are sourcing at national level.<sup>24</sup> Moreover, a number of suppliers consider the market to be national. This might be due to fact that transport costs as a percentage of the final price are higher if compared to other specialty gases. The market investigation showed that for environmental gas mixtures the highest transport costs as percentage of the product's total value were estimated. It was the only gas for which these estimates by competitors resulted in average transport costs of 10%. However, for the purpose of the present decision, it can be left open whether the relevant geographic market for environmental gas mixtures is national or EEA wide.

### **Helium isotopes**

42. The parties submit that helium isotopes have a very high value compared to industrial gases. Transportation costs are low and account for less than 0.5% of the total sales price. While there may be certain restrictions relating to the export of helium isotopes from the source countries (Russia and United States), there are no particular restrictions limiting the sale of helium isotopes within the EEA. Consequently, price levels are similar across all EEA Member States.
43. The parties submit that even though the high value of helium isotopes and the fact that there are only two worldwide sources for the production of helium isotopes might suggest that the geographic scope of the market is broader than EEA-wide, the competitive conditions appear not to be sufficiently homogenous worldwide to conclude that there is a uniform global market.
44. However, in the market investigation, a large majority of the parties' competitors indicated the market for helium isotopes to be global due to transport costs which were estimated at higher values than the parties had indicated but were still regarded as low (competitors' average estimate was 4%). Moreover, a number of customers seem to source on a global basis. No significant price differences between the US and the EEA were reported.<sup>25</sup> However, for the purpose of the present decision, it can be left open whether the relevant geographic market definition for helium isotopes is global or EEA wide.

## **IV. COMPETITIVE ASSESSMENT**

45. The total number of specialty gases supplied by the parties is significantly larger than the number of those affected by this transaction. The transaction leads to overlaps between Linde (including the recently acquired company BOC<sup>26</sup>) and

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<sup>23</sup> M.4141 – Linde/BOC

<sup>24</sup> See questionnaire to customers, questions 12, 13 and 17.

<sup>25</sup> See questionnaire to customers, question 16.

<sup>26</sup> M.4141 – Linde/BOC

Spectra only on a small number of individual specialty gases markets mostly with very small total market volumes on an EEA-wide basis<sup>27</sup>.

46. In general, the activities of the two companies seem to be to a large extent complementary. Traditionally, Linde focused its supply on industrial gases offering also some specialty gases while Spectra is a highly specialized company and active only on certain specialty gas markets. Although some competitors raised the issue that Linde would significantly improve its competitive position by offering the full range of gases, a large number of customers indicated that it is not crucial to source the full range of products from one and the same supplier, particularly in highly specialized niche markets.

### **Noble gases and noble gas mixtures**

#### **Pure noble gases**

##### *Neon*

47. The parties submit that at an EEA-level, the market for neon is characterized by a particularly small size (less than EUR [0-5] million). On the EEA market for neon, the parties' combined market share in 2005 was [30-40]% (Linde [10-20]%, Spectra [20-30]%). Major competitors include Air Liquide ([10-20]% market share in 2005), Praxair ([10-20]% market share in 2005), Iceblick ([0-10]% market share in 2005), and Akela ([0-10]% market share in 2005). On a global market for neon, the parties' combined market share in 2005 was [30-40]% (Linde [20-30]%, Spectra [10-20]%). Major competitors include Iceblick ([30-40]% market share in 2005), Airgas ([10-20]% market share in 2005), Praxair ([10-20]% market share in 2005), and Air Liquide ([0-10]% market share in 2005).
48. According to the parties, companies from the former Soviet Union, most notably Iceblick from Ukraine and Akela from Russia, have recently entered the European market and compete very aggressively. This has been largely confirmed by in the market investigation. Furthermore, the parties submit that the available volumes of crude and purified neon are expected to increase in the future due to the expansion of steel production in China and increased supplies from the former Soviet Union. Respondents to the market investigation confirmed this capacity development but indicated that these additional quantities might be consumed in China.<sup>28</sup>
49. According to the market investigation, the fact that neon is a homogenous product makes switching easy. Current suppliers have indicated to have enough capacity available to increase production in case of a price increase. Furthermore, big gas companies could relatively easily expand their activities on the market for neon. Finally, after the transaction, the parties will continue to face effective competition from big gas suppliers like Air Liquide and Praxair.
50. The present transaction therefore does not give rise to any competition concerns on the market for neon.

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<sup>27</sup> Estimated EEA-market volumes in million Euro; neon ([0-5]), krypton ([5-10]), xenon ([10-15]), inert noble gas mixtures ([5-10]), brominated compound gas mixtures ([0-5]), fluorine noble gas mixtures ([0-5]), hydrogen chloride noble gas mixtures ([0-5]), helium isotopes ([0-5]). Only environmental gas mixtures have a more substantial market volume of [40-50] million Euro EEA-wide.

<sup>28</sup> See questionnaire to competitors, questions 66, 74 and 75.

### *Krypton*

51. On the EEA market for krypton, the parties' combined market share in 2005 was [30-40]% (Linde [30-40]%, Spectra [0-10]%). Major competitors include Air Liquide ([30-40]% market share in 2005), Air Products ([0-10]% market share in 2005), Iceblick ([0-10]% market share in 2005), and Akela ([0-10]% market share in 2005). On a global market for krypton, the parties' combined market share in 2005 was [40-50]% (Linde [20-30]%, Spectra [10-20]%). Major competitors include Air Liquide ([20-30]% market share in 2005), Iceblick ([10-20]% market share in 2005), Promexport ([10-20]% market share in 2005), and Praxair ([10-20]% market share in 2005).
52. According to the parties, companies from the former Soviet Union, most notably Iceblick from Ukraine and Akela from Russia, have recently entered the European market and compete very aggressively. This has been largely confirmed by in the market investigation. Furthermore, the parties submit that the available volumes of crude and purified krypton are expected to increase in the future due to the expansion of steel production in China and increased supplies from the former Soviet Union. Respondents to the market investigation confirmed this capacity development but indicated that these additional quantities might be consumed in China.<sup>29</sup>
53. According to the market investigation, the fact that krypton is a homogenous product makes switching easy. Current suppliers have indicated to have enough capacity available to increase production in case of a price increase.<sup>30</sup> Furthermore, big gas companies could relatively easily enter the market for krypton. Finally, after the transaction, the parties will continue to face effective competition from big gas suppliers like Air Liquide and Air Products.
54. The present transaction therefore does not give rise to any competition concerns on the market for krypton.

### *Xenon*

55. On the EEA market for xenon, the parties' combined market share in 2005 was [10-20]% (Linde [0-10]%, Spectra [0-10]%). Major competitors include Air Liquide ([30-40]% market share in 2005), Air Products ([0-10]% market share in 2005), Praxair ([0-10]% market share in 2005), Messer ([0-10]% market share in 2005), Iceblick ([0-10]% market share in 2005), and Akela ([0-10]% market share in 2005). On a global market for xenon, the parties' combined market share in 2005 was [10-20]% (Linde [0-10]%, Spectra [0-10]%). Major competitors include Air Liquide ([30-40]% market share in 2005), Iceblick ([10-20]% market share in 2005), Praxair ([10-20]% market share in 2005), and Promexport ([10-20]% market share in 2005).
56. The parties' combined EEA-wide market share for xenon does not exceed 15% and that they face strong competition from various strong suppliers. Furthermore, after the transaction, the parties will continue to face effective competition from big gas suppliers like Air Liquide, Air Products, and Praxair.

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<sup>29</sup> See questionnaire to competitors, questions 66, 74 and 75.

<sup>30</sup> See questionnaire to competitors, question 64.

57. The present transaction therefore does not give rise to any competition concerns on the market for xenon.

### **Inert noble gas mixtures**

58. The parties submit that at an EEA-level, the market for inert noble gas mixtures is characterized by a particularly small size (less than EUR [5-10] million). On the EEA market for inert noble gas mixtures, the parties' combined market share in 2005 was [60-70]% (Linde [40-50]%, Spectra [10-20]%). Major competitors include Air Liquide ([20-30]% market share in 2005), Air Products ([0-10]% market share in 2005), and Praxair ([0-10]% market share in 2005). On a global market for inert noble gas mixtures, the parties' combined market share in 2005 was [40-50]% (Linde [10-20]%, Spectra [30-40]%). Major competitors include Air Liquide ([10-20]% market share in 2005), Praxair ([10-20]% market share in 2005), and Taiyo Nippon Sanso ([0-10]% market share in 2005).

59. According to the parties, every gas company has easy access to the noble gases contained in noble gas mixtures. All large gas companies and several smaller, specialized gas companies have the technology and know-how necessary in order to blend the noble gas mixtures and could easily expand their actual output of noble gas mixtures. This has been largely confirmed by the market investigation.<sup>31</sup> Furthermore, after the transaction, the parties will continue to face effective competition from big gas suppliers like Air Liquide, Air Products, and Praxair who are comparably stronger in the supply of the individual noble gases. The market investigation has not shown any indications why these competitors who are already active in the blending of inert noble gas mixtures could not transfer their competitive strength in individual noble gases to a larger extent to inert noble gas mixtures if the merged entity tried to raise prices.

60. Furthermore, the parties submit that customers of inert noble gas mixtures, in particular in the lighting industry may not only switch to third party suppliers but may also blend their inert noble gas mixtures on their own. According to the parties, all major lighting companies already have the necessary technology and know-how available. The parties also submit that customers of inert noble gas mixtures are able to exercise significant countervailing buyer power.

61. The market investigation has confirmed that the customer structure in the market for inert noble gas mixtures is very concentrated. Linde's biggest five customers account for [50-100]% and Spectra's biggest five customers for [50-100]% of their respective sales of inert noble gas mixtures. Furthermore, a number of the larger customers indicate that they would be able to sponsor entry or/and blend the required mixtures in-house. Finally, the majority of the parties' customers multi-sources.

62. The present transaction therefore does not give rise to any competition concerns on the market for inert noble gas mixtures.

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<sup>31</sup> See questionnaire to competitors, question 23.

## Specialty gas mixtures utilizing a reactive component

### *Brominated compound gas mixtures*

63. The parties submit that at an EEA-level, the market for brominated compound gas mixtures is characterized by a particularly small size (less than EUR [0-5] million). On the EEA market for brominated compound gas mixtures, the parties' combined market share in 2005 was [60-70]% (Linde [40-50]%, Spectra [10-20]%). The major competitor on this market is Air Liquide ([20-30]% market share in 2005). On a global market for brominated compound gas mixtures, the parties' combined market share in 2005 was [30-40]% (Linde [10-20]%, Spectra [10-20]%). Major competitors include Taiyo Nippon Sanso ([10-20]% market share in 2005), Airgas ([0-10]% market share in 2005), Air Liquide ([0-10]% market share in 2005), and Japan Air Gas ([0-10]% market share in 2005).
64. The parties submit that the relatively high market shares are due to particular conditions on the market for brominated compound gas mixtures. According to the parties, brominated compound gas mixtures are almost entirely used in the lighting industry and the number of customers is very limited. Most lighting companies, mainly for historic reasons, blend their brominated compound gas mixtures on their own which leads to a comparably small number of customers on this market. In consequence, if one gas company is supplying a major customer, its market share is automatically rather high. However, if this particular customer were to switch its supplier, the market share of the gas company would drop significantly. Furthermore customers may not only switch to third party suppliers but may also blend their inert noble gas mixtures on their own. According to the parties, all major lighting companies already have the necessary technology and know-how available. The parties also submit that customers of inert noble gas mixtures are able to exercise significant countervailing buyer power.
65. The market investigation has confirmed that the customer structure in the market for brominated compound is highly concentrated. Linde's biggest customer accounts for [50-100]% and Spectra's biggest customer for [50-100]% of their respective sales of brominated compound gas mixtures, which indicates that there is some degree of buyer power. The market shares moreover do not seem to be indicative of the real market power of the merging parties since with the switch of only one customer these market shares would dilute significantly. Furthermore, the majority of the customers indicate that they would be able to sponsor entry. Some customers already blend the required mixtures in-house and would be able to extend their own production if needed. The majority of the parties' customers multi-source and would therefore be able to switch to an alternative supplier without major effort.
66. Even though there are only few suppliers on an EEA market for brominated compound gas mixtures and the parties' market shares are relatively high, competitors from outside the EEA are likely to enter this highly specialized market in case of a price increase. According to some respondents, the market might indeed be global as there are no significant barriers for non-European companies willing to enter into the supply of EEA-customers.
67. The present transaction therefore does not give rise to any competition concerns on the market for brominated compound gas mixtures.

*Fluorine gas mixtures*

68. According to data submitted by the parties, on the EEA market for fluorine gas mixtures (including both inert balance gases nitrogen and noble gas), the parties' combined market share in 2005 was [10-20]% (Linde [0-10]%, Spectra [10-20]%). Major competitors include Air Liquide ([20-30]% market share in 2005) and Praxair ([30-40]% market share in 2005). On a narrower EEA market for fluorine noble gas mixtures, the parties' combined market share in 2005 was [70-80]% (Linde [20-30]%, Spectra [50-60]%). The major competitor in this market is Air Liquide (estimated [10-20]% market share in 2005<sup>32</sup>). The parties submit that at an EEA-level, the market for fluorine noble gas mixtures is characterized by a particularly small size (less than EUR [0-5] million). On a possible EEA market for fluorine-nitrogen gas mixtures, the parties are both not active.
69. On the global market for fluorine gas mixtures, the parties' combined market share in 2005 was [0-10]% (Linde [0-10]%, Spectra [0-10]%). Major competitors include Air Liquide ([10-20]% market share in 2005), Praxair ([10-20]% market share in 2005), and Air Products ([10-20]% market share in 2005). On a narrower global market for fluorine noble gas mixtures, the parties' combined market share in 2005 was [60-70]% (Linde [10-20]%, Spectra [50-60]%). Major competitors include Nova Gas ([10-20]% market share in 2005), Japan Air Gas ([10-20]% market share in 2005), and Air Products ([0-10]% market share in 2005). On a possible global market for fluorine nitrogen gas mixtures, only Linde is active with a market share in 2005 of [0-10]%
70. On the wider market of fluorine gas mixtures including both fluorine noble and fluorine nitrogen gas mixtures, the parties only reach very low combined market shares ([10-20]% EEA-wide, [0-10]% globally). There are a number of stronger competitors. It can therefore be concluded that the transaction does not raise any competition concerns on the market for all fluorine gas mixtures.
71. Concerning the narrowest possible market definition (the market for fluorine noble gas mixtures), the parties submit that a number of companies, in particular Praxair and Air Products, have the ability to handle fluorine, or are already supplying fluorine noble gas mixtures in some Member States. They could easily supply fluorine noble gas mixtures in larger quantities.
72. The market investigation has shown that the other large industrial gas companies are comparably stronger in the supply of fluorine nitrogen gas mixtures than of fluorine noble gas mixtures. Two of them moreover currently do not produce fluorine noble gas mixtures themselves but act only as re-sellers. However, a large number of competitors indicated that in their view at least the large industrial gas companies have the necessary know-how to handle fluorine noble gas mixtures or can obtain it in order to also enter into or expand production of fluorine noble gas mixtures.<sup>33</sup>
73. Furthermore, customers of fluorine noble gas mixtures are mainly producers and integrators of excimer lasers and exert a certain degree of countervailing buyer power. The demand side of this market is concentrated with the five biggest

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<sup>32</sup> According to another estimate, Air Liquide's market share might be slightly lower ranging between [10-20]%.

<sup>33</sup> See questionnaire to competitors, question 77.

customers accounting for [50-100]% of the parties' sales. The factual buyer power of the excimer laser producers might be even higher than the percentages indicate. It was reported that a few of the excimer laser producers who generally define the exact gas mixtures to be used in their lasers keep the exact recipe confidential and disclose it only to their selected supplier. Consequently, all subsequent buyers of lasers (such as system integrators and hospitals) who need refills of these gases are in such cases only supplied by the respective supplier selected by the excimer laser producer. Moreover, the laser producers in some instances also informally recommend their suppliers to the re-fill customers. It can therefore be assumed that these producers can potentially exert significant buyer power in particular against the background that the market for excimer lasers appears to have a very concentrated structure.

74. Moreover, even though there are only few suppliers on an EEA market for fluorine noble gas mixtures and the parties' market shares are relatively high, competitors from outside the EEA could, as Spectra before the merger, enter this highly specialized market should there be sufficient customer demand. A number of these potential entrants confirmed that they ship the product worldwide and that an entry or a further expansion into Europe would not face major difficulties.<sup>34</sup> The second largest producer of fluorine noble gas mixtures worldwide is Nova Gas. Two other potential suppliers in Asia are Central Glass and Taiyo Nippon Sanso, with the latter currently expanding into other EEA gas markets. It can therefore be concluded that potential entrants into the European market are available. There are even certain indications that the market might be global. It is therefore unlikely that the parties would be able to increase prices after the merger.
75. The present transaction therefore does not give rise to any competition concerns on the market for fluorine gas mixtures.

#### *Hydrogen chloride gas mixtures*

76. On the EEA market for hydrogen chloride -gas mixtures, the parties' combined market share in 2005 was [10-20]% (Linde [0-10]%, Spectra [0-10]%). Major competitors include Air Liquide ([30-40]% market share in 2005), Air Products ([10-20]% market share in 2005), and Praxair ([0-10]% market share in 2005). On a narrower EEA market for hydrogen chloride-noble gas mixtures, the parties' combined market share in 2005 was [20-30]% (Linde [0-10]%, Spectra [20-30]%). Major competitors include Air Liquide ([30-40] % market share in 2005), Air Products ([0-10]% market share in 2005), and Praxair ([0-10]% market share in 2005). On a possible EEA market for hydrogen chloride - nitrogen/hydrogen gas mixtures, only Linde is active with a market share in 2005 of [0-10]%.
77. On the global market for hydrogen chloride gas mixtures, the parties' combined market share in 2005 was [10-20]% (Linde [0-10]%, Spectra [0-10]%). Major competitors include Praxair ([20-30]% market share in 2005), Air Liquide ([20-30]% market share in 2005), and Air Products ([10-20]% market share in 2005). On a narrower global market for hydrogen chloride-noble gas mixtures, the parties' combined market share in 2005 was [20-30]% (Linde [0-10]%, Spectra [20-30]%). Major competitors include Nova Gas ([10-20]% market share in 2005), Air Liquide ([10-20]% market share in 2005), Air Products ([10-20]% market share in 2005), Taiyo Nippon Sanso ([10-20]% market share in 2005), and Japan Air Gas ([10-20]% market share in 2005).

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<sup>34</sup> See questions sent to the potential entrants mentioned in this paragraph per e-mail.



market share in 2005). On a possible global market for chloride - nitrogen/hydrogen gas mixtures, only Linde is active with a market share in 2005 of [0-10]%.

78. On the wider market of hydrogen chloride gas mixtures including both mixtures of hydrogen chloride with the balance gases nitrogen and noble gases noble, the parties do not reach high combined market shares ([10-20]% EEA-wide, [10-20]% globally). There are a number of stronger competitors. It can therefore be concluded that the transaction does not raise any competition concerns on the market for all hydrogen chloride gas mixtures.
79. Even on the narrow market for hydrogen chloride-noble gas mixtures, the transaction results in a very small overlap. The present transaction therefore does not give rise to any competition concerns on the market for hydrogen chloride gas mixtures.

#### **Environmental gas mixtures**

80. On the EEA market for environmental gas mixtures, the parties' combined market share in 2005 was [10-20]% (Linde [10-20]%). The increment accounted for by Spectra is insignificant at below [0-10]%. On possible national markets for environmental gas mixtures, the parties combined market shares in 2005 would exceed 15% in Germany only (Linde [30-40]% in 2005) with again an insignificant increment by Spectra.
81. Therefore, under both alternative geographic market definitions the present transaction does not seem to alter the existing competitive conditions and does not give rise to any competition concerns on the market for environmental gas mixtures.

#### **Helium isotopes**

82. On the EEA market for helium-3 isotopes, the parties' combined market share in 2005 was [30-40]% (Linde [0-10]%, Spectra [30-40]%). Major competitors include Chemgas ([40-50]% market share in 2005), Air Liquide ([0-10]% market share in 2005), and Mayak ([10-20]% market share in 2005). On the global market for helium-3 isotopes, only Spectra is active with a market share of [30-40]% in 2005.
83. Due to the small increment accounted for by Linde, the present transaction does neither give rise to any competition concerns on the EEA-wide nor on the global market for helium isotopes.

#### **IV. CONCLUSION**

84. For the above reasons, the Commission has decided not to oppose the notified operation and to declare it compatible with the common market and with the EEA Agreement. This decision is adopted in application of Article 6(1)(b) of Council Regulation (EC) No 139/2004.

For the Commission,  
signed  
Neelie KROES  
Member of the Commission