COMMISSION DECISION

of 24 April 1996

declaring a concentration to be incompatible with the common market and the functioning of the EEA Agreement

(Case No IV/M.619 — Gencor/Lonrho)

(Text with EEA relevance)

(Only the English text is authentic)

(97/26/EC)

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community,

Having regard to the Agreement on the European Economic Area, and in particular Article 57 thereof,

Having regard to Council Regulation (EEC) No 4064/89 of 21 December 1989 on the control of concentrations between undertakings [1], as amended by the Act of Accession of Austria, Finland and Sweden, and in particular Article 8 (3) thereof,

Having regard to the Commission Decision of 20 December 1995 to initiate proceedings in this case,

Having given the undertakings concerned the opportunity to make known their views on the objections raised by the Commission,

Having regard to the opinion of the Advisory Committee on Concentrations [2],

Whereas:

(1) The procedure under consideration concerns Gencor Limited of South Africa ('Gencor') and Lonrho plc of the United Kingdom ('Lonrho') who have jointly notified a transaction whereby they will acquire joint control of the company Impala Platinum Holdings Limited ('Implats'). Implats currently holds all of Gencor's platinum group metal (PGMs) mining and refining interests. Lonrho's platinum activities are held in the companies Eastern Platinum Limited ('Eastplats') and Western Platinum Limited ('Westplats'), together forming the Lonrho Platinum Division ('LPD'). Gencor is jointly controlled by the South African National Life Insurance Company ('Sanlam') and the Rembrandt Group Limited ('Rembrandt') within the meaning of Article 3 (3) of Regulation (EEC) No 4064/89 (hereinafter 'the Merger Regulation').

(2) By decision dated 8 December 1995, the Commission ordered the suspension of the concentration as a whole, pursuant to Article 7 (2) and Article 18 (2) of the Merger Regulation, until it took a final decision.

(3) By decision dated 20 December 1995, the Commission found that the concentration raised serious doubts as to its compatibility with the common market. The Commission accordingly initiated proceedings in this case, pursuant to Article 6 (1) (c) of the Merger Regulation.

I. THE PARTIES

(4) Gencor is an international metals and minerals resource group based in South Africa. Lonrho is a British company with interests in mining and refining, hotels, agriculture and general trade.

II. THE OPERATION

(5) The proposed transaction leads to Lonrho and Gencor acquiring joint control of the whole of Implats and LPD.

(6) This operation involves two steps: (a) the acquisition of joint control by Lonrho and Gencor of Implats in which Gencor currently holds 46,5 %, the rest of the share capital being held by the public; and (b) the acquisition of sole control by Implats of the two companies Eastplats and

[1] OJ No L 395, 30. 12. 1989, p. 1 (corrected version OJ No L 257, 21. 9. 1990, p. 13).
[2] OJ No C 13, 14. 1. 1997.

Westplats which today hold all the platinum activities of Lonrho, and in which Lonrho currently holds 73 % and Implats 27 %.

(7) In return for the transfer by Lonrho to Implats of its interest in Eastplats and Westplats Lonrho will receive new shares in Implats. The shares will be listed on the Johannesburg Stock Exchange and the International Stock Exchange in London. Following the issue of new shares Gencor and Lonrho will each hold about 32 % of the shares in Implats and the remaining shares will be held by the public.

III. THE CONCENTRATION

Joint control

(8) The parties will each appoint four directors to the board of Implats. The board will also include two independent non-executive directors and four executive directors none of whom will be an employee or director of either the Lonrho or the Gencor groups of companies. One of the Gencor nominees will be appointed Executive Chairman and will have a casting vote. However, this casting vote will not be used in the case of 'board affected items', where a voting pool agreement ensures that the nominees of the parties vote together. A similar mechanism will apply to ensure that the parties vote together in matters proposed at the general meetings of Implats. Board affected items include:

(a) the entry into, variation of or termination of any agreement or contract between Implats and Gencor or Lonrho;

(b) disposal or acquisition in a single transaction of assets whose combined value exceeds R 50 million (about ECU 10 million);

(c) approval of the budget;

(d) dividend payments and the issue of shares.

The management structure following the operation will, therefore, give the parties joint control over Implats.

Full function on a lasting basis

(9) Implats will continue to be active in the production and refining of PGMs. The effect of the operation is to combine the activities of Implats with those of the LPD companies, Westplats and Eastplats. The operation will thus create a larger company containing all the PGM interests of the parents. Implats and LPD are already full functioning companies and the combination of the current Implats with Westplats and Eastplats does not change anything in this respect. The joint venture is, therefore, full function.

Absence of coordination

(10) Implats, Eastplats and Westplats represent the entire interests of Lonrho and Gencor in the mining, production and refining of PGMs. Furthermore, the parties have agreed, as part of the operation, that Implats will be the sole medium through which any future interest in primary mining, processing, refining or trading operations in PGMs are acquired and/or held by either of the two groups for the purpose of exploitation of such platinum group metals. There is therefore no potential for coordination between Gencor or Lonrho with Implats arising from the operation, nor any risk of re-entry by the parties into the PGMs markets.

(11) According to the parties, Rembrandt has an effective 14 % stake in Northam Platinum Limited ('Northam') whose other major shareholders are Anglo American Corporation of South Africa Limited ('AAC') 21 %, and Liberty Life (a Gencor shareholder) 7 %, with the rest of the shares in Northam being widely held. In addition, it has been stated that Sanlam does not have any material interest in other PGMs mines and that neither Sanlam nor Rembrandt have any material links to AAC. In any case, Lonrho will not, in the future, have any PGM mining and refining interest outside Implats. There is, therefore, no potential for coordination between Lonrho and the parents of Gencor arising from the notified transaction.

Conclusion

(12) The joint venture will be jointly controlled by Gencor and Lonrho and it will be full function. There is no risk of coordination between the parties arising from the operation, since only Rembrandt, one of the parents of Gencor, will have PGM mining and refining interests outside the joint venture. Therefore, the resulting joint venture has a concentrative character within the meaning of the Merger Regulation.

IV. COMMUNITY DIMENSION

(13) The concentration has a Community dimension as specified in Article 1 (2) of the Merger Regulation. The undertakings concerned have an aggregate worldwide turnover of more than ECU 10 billion, which is above the ECU 5 billion required by the Merger Regulation. Gencor and Lonrho both had a Community-wide turnover of more than ECU 250 million in the latest financial year and they do not achieve more than two thirds of their aggregate Community-wide turnover within one and the same Member State.

V. IMPACT IN THE EUROPEAN ECONOMIC AREA

(14) The parties' total sales in the EEA are as follows: Lonrho ECU 1 281 million in 1994 and Gencor ECU 1 164 million in 1995. Furthermore LPD's sales of PGMs are made through Western Metal Sales, a Lonrho subsidiary, based in Brussels.

(15) AAC's platinum operation ('Amplats'), the third major South African supplier also sells a significant proportion of its metal through its exclusive sales' agent, Johnson Matthey in the UK. Johnson Matthey then sells to its customers and subsidiaries throughout the world.

(16) During the period 1993 to 1995 western European consumption of PGMs accounted for some 20 % of world demand. However this statistic must be treated with caution because, as concluded below, the PGM markets are worldwide. Accordingly PGMs travel freely, widely and easily; a sale in one region incurs a use in another. Some of the parties' sales to customers located in the EEA are exported to third countries, for example LPD sells to Mitsubishi in the UK which then sells to ultimate customers based in Japan. Conversely, Implats' largest customer is General Motors which makes its purchases in North America. General Motors then resells to its subsidiaries in the Community.

(17) There is a considerable presence of the downstream 'fabricator' industry (turning PGMs into semi-finished and finished products) in the EEA and includes multinational companies based in the UK, Germany and France. Furthermore one of the three international markets for PGMs is based in London with good delivery, for this market, taking place in Zurich.

(18) On the basis of the above it has been concluded that any effects on the world market would be fully reflected in the European Union and the EEA.

VI. RELEVANT MARKETS

A. *Relevant product markets*

A.1. Background: the platinum group metals

(19) Both parties are active in the mining and refining of certain metals known collectively as PGMs. They are refined to defined purity standards through a series of complex processes.

(20) PGMs occur naturally together in the same ore body. In addition, they tend to be concentrated together with the ferrous metals (iron, nickel, copper, chromium and cobalt) as a result of natural geological processes. However, PGMs do not constitute a single relevant product market, but, instead, six individual markets, specifically: platinum, palladium, rhodium, iridium, ruthenium and osmium. In their notification the parties stated that PGMs 'may be combined for use in autocatalysts but are otherwise used in a variety of different applications and are not substitutable for each other, having different properties.' Furthermore, in reality substitution is limited for PGMs. As one fabricator noted:

'PGMs have many unique properties and ... complete substitution tends to take place rarely or slowly, although 'thrifting' (i.e. reducing the quantity of PGMs used per unit of production) is a regular feature of the market.'

(21) Total worldwide sales of PGMs amounted to about ECU 2,3 billion in 1994. Platinum is the most important (65 % of sales) and most widely used of the PGMs (hence, the origin of the group's name). Palladium and rhodium are ranked as the second and third most important PGMs with 23 and 12 % of sales, respectively. The remaining three PGMs (iridium, osmium and ruthenium) are of lesser commercial importance and together they account for less than 1 % of total sales of PGMs. They are commonly used in alloys with platinum or palladium. In addition, they each have a small number of specialized applications, where their use

is preferred because of their particular physical or chemical characteristics.

(22) The PGMs are classified as precious metals, due to their scarcity. Only one twentieth as much platinum is produced as gold, which is itself a rare metal. They are also classified as noble metals. Specifically, PGMs demonstrate great resistance to oxidation and corrosion, an ability to withstand severely high temperatures (with melting points above 1 500 °C), they do not dissolve in acid and are excellent conductors of electricity. Finally, they display excellent catalytic properties (a catalyst initiates or speeds up a chemical reaction, without undergoing any change itself). Because of these outstanding physical and chemical properties, they are found in a wide range of applications, including:

— jewellery;

— catalytic converters for cars, and other automotive applications, such as spark plugs and oxygen sensors,

— general industrial catalytic applications, industrial production processes such as petroleum refining, and the production of liquid crystal display (LCD) glass,

— electronic equipment such as the hard disks of personal computers,

— electronic components of the multilayer ceramic capacitors (MLCC) type which are widely used in computer and telecommunications equipment.

(23) Clearly, PGMs' properties render them important in the automotive, electronics and chemicals industries, and in the case of platinum, for jewellery products as well. It is considered, as explored below, that the affected markets in this operation are the markets for each individual refined PGM.

A.2. Platinum

(i) *Main uses of platinum*

(24) The main applications of platinum are in autocatalysts (32 %), industrial (20 %) and jewellery (38 %), while the residual (10 %) is basically sold for investment purposes (see Section VII.B.1). As discussed below, the substitution of platinum with other metals is limited for all these purposes.

Automotive applications

(25) Autocatalysts based on platinum, palladium and/or rhodium have been developed to eliminate the three most dangerous gases emitted by motor vehicle exhausts, namely, carbon monoxide (CO), nitrous oxides (NO_x) and unburnt hydrocarbons (HC). The function of autocatalysts is to convert these noxious gases to less harmful components (carbon dioxide, nitrogen and water).

(26) Essentially two types of commercial autocatalysts are currently manufactured. The older system uses an oxidizing platinum/palladium catalyst that converts the CO and HC (thus named the 'two-way' system) to carbon dioxide and water. The newer system not only performs the task of the two-way system, but is also capable of dealing with the third pollutant, NO_x. With the addition of rhodium to the platinum/palladium catalyst, the system then converts the CO, HC, and NO_x to carbon dioxide, nitrogen and water. This catalyst is therefore called the 'three-way' system. The three-way catalysts currently use either platinum/rhodium or platinum/palladium/rhodium.

(27) Platinum, palladium and rhodium are used in varying ratios depending on specific requirements, such as the engine size, fuel used (petrol or diesel), efficiency levels sought, vehicle mass and the manufacturers' design and technology. Platinum has an advantage over the other PGMs, in that it can absorb a wider spectrum of gases. It is the most active of the three metals in CO and HC conversion, it is the least affected by lead and sulphur in the fuel and works well at low temperatures. However, it does not reduce NO_x efficiently (a task that rhodium performs well). Palladium has some ability to convert CO and HC, and to reduce NO_x, but is easily contaminated and is slow to become operational. Therefore, platinum, palladium and rhodium perform differently in the catalytic conversion required by autocatalysts to remove the noxious constituents.

(28) Moreover, design changes in automotive components typically require lead times of several years. Such changes are costly, requiring substantial R&D and testing to ascertain whether the new model would meet ever-tightening environmental regulations. Automobile manufacturers have indicated that it would not be economically feasible to consider undertaking the R&D required for re-designing, unless there were to be an appreciable and irreversible change in PGM prices or liberalization of environmental protection laws. Clearly, the switching costs for automobile manufacturers go well beyond the costs of the various PGMs involved. Thus, there is rather

limited substitutability among the PGMs in autocatalytic applications. Rather than substitution, the complementarity of PGMs is well demonstrated in the field of catalytic converters for cars. Furthermore, diesel engines use only platinum and not palladium converters. The substitution possibilities between palladium and platinum therefore appear limited for these purposes.

(29) The parties have submitted that there is a much more significant scope for the substitution of palladium for platinum in autocatalysts than suggested by the Commission. In this respect Ford, Nissan and Engelhard are stated as being at the forefront of the development of this technology which it is said will be of greater relevance in Europe because of smaller car engine sizes.

(30) During its investigation the Commission has had contact with two of these companies: one has stated that it has always used platinum and rhodium in the production of autocatalysts and any change would require costly design changes. The other company has confirmed that it does manufacture palladium-only autocatalysts.

(31) The Commission recognizes that palladium has substituted for platinum in certain types of autocatalysts in recent years. As stated by the parties this trend is likely to continue to a certain extent. However, the Commission considers that there is a rather limited possibility for any significant substitution of palladium for platinum in autocatalysts because of the cost of design changes and the specific properties of each metal to react with specific pollutants. As mentioned above these properties include the fact that lead and sulphur render palladium inactive and that diesel engines and large gasoline engines require platinum catalysts. According to Johnson Matthey, in evidence of this fact 'many European vehicles are fitted with two-brick catalyst systems, and it is now common to use a palladium/rhodium catalyst in conjunction with another containing platinum. This enables auto makers to take advantage of palladium's efficiency in converting HC emissions, while retaining platinum for its CO activity, and rhodium for its ability to deal with NO_x.' The parties agree that palladium cannot be totally substituted for platinum (see parties' reply of 19 March 1996 to the questions following the hearing).

(32) Although the use of palladium has increased in proportion to platinum, the market demand for platinum will continue as it will remain an essential element for use in autocatalysts.

Industrial applications

(33) Platinum is widely utilized in industrial applications, for example as a catalyst gauze for manufacturing nitric acid for fertilizers, and in the glass industry, which uses equipment made from platinum-rhodium alloys for the highly corrosive operating environments needed in the production of high quality LCD glass (used in the screens of computers and televisions). There are no substitution possibilities for platinum in such industrial applications.

Jewellery

(34) Platinum, as explained below, is a global commodity product. The demand for platinum in jewellery is dominated by the Japanese market. Approximately 85 % of the world's demand for platinum for jewellery end-use came from Japanese consumers in 1994. The unique characteristics of the Japanese jewellery market therefore have a crucial influence on the demand for platinum and, accordingly, on whether other metals can substitute for platinum to any significant extent.

(35) The reasons for this high consumption are historical. First, the Japanese have a predilection for purity: platinum satisfies this preference due to its 99,95 % standard of purity and the fact that the metal has a 'whitish' appearance. Secondly, for many years (until 1973) the import of gold into Japan was tightly controlled and the tradition for platinum jewellery therefore developed. Finally, the strength of the yen in recent years, relative to the US dollar (in which platinum is always priced), has supported the demand for platinum as well as other precious metals like gold.

(36) Platinum is the only PGM which is used for jewellery. It is also the most precious among all the precious metals, and in particular, platinum jewellery is more expensive than gold jewellery. In addition to its higher unit cost platinum jewellery is more expensive because: first, platinum jewellery is of a higher purity than gold, and secondly, platinum is harder to work than gold. However, as explained below, neither gold nor other precious metals are substitutes for platinum in the Japanese jewellery market.

(37) The Commission has obtained data allowing it to assess the current market position of platinum versus gold in the Japanese market. In 1994, 29.3 million pieces of jewellery made from platinum, gold or platinum/gold combinations were sold in Japan. As can be seen from Table 1 platinum accounted for 23,2 % of units (pieces) of jewellery, but 57 % of the value of jewellery sales, thus highlighting the much higher unit costs of platinum jewellery.

Table 1

Retail sales of platinum, platinum/gold and gold jewellery in Japan, 1994

(%)

	Proportion of pieces sold	Proportion of sales value
Platinum	23,2	57
Combination platinum/gold	7,8	6,8
Gold	69,0	36,2

Source: Platinum Guild International.

Note: Platinum jewellery is often sold with gemstones, which in this comparison, will to exaggerate the price differential between platinum and gold jewellery.

(38) Measured in sales value, in 1994 platinum accounted for 64 % of jewellery with a stone, gold for 31 % and platinum/gold in combination for 5 %. On the other hand, gold accounted for 59 % of jewellery without a stone in 1994. The indication is therefore that platinum is mainly used for more expensive jewellery at the top-end of the Japanese jewellery market.

(39) Platinum is the overwhelming first choice for rings in Japan. In 1994, 98 % of all engagement rings, 63 % of all wedding rings and 66 % of other rings were made of platinum. Thus, only 2 % of engagement rings were made of either gold or a platinum/gold combination; and similarly, only 16 % of wedding rings were gold, and 21 % were platinum/gold. The superior popularity of platinum over gold and platinum/gold combinations for rings has remained fairly steady in the last five years due to the unique characteristics influencing jewellery buying patterns in Japan. In contrast, platinum is used less for other types of jewellery. Measured in sales value, platinum accounted for 45 % of pendants, 36 % of necklaces, and 25 % of earrings sold in Japan in 1994.

(40) Therefore, gold and platinum do not appear to be good substitutes for jewellery purposes, since their usage patterns in terms of jewellery end-use, are quite different.

(41) The substantial difference in the price levels of gold and platinum jewellery on the Japanese market could also be an indicator that gold and platinum in jewellery are not to any large extent substitutable for jewellery purposes. More importantly, a price elasticity estimate of Japanese demand for platinum in jewellery confirmed that platinum is not subject to strong competition from other metals.

(42) This estimate of the price elasticity of Japanese demand for platinum in jewellery requires an econometric estimate. The Commission, as part of the investigation in the current case, commissioned a study to identify factors influencing the price of platinum (see below). As part of the study the price elasticity for Japanese demand for platinum in jewellery was estimated to be – 0,6, i.e. inelastic (numerically smaller than 1) [3].

(43) Low price elasticity implies low substitutability. In view of the above data, it can be concluded that demand for platinum in jewellery is therefore not subject to strong competition from other precious metals on the Japanese market.

Investment demand

(44) Platinum is sold to individuals and companies (principally in Japan) to hold, for example in the form of platinum bars, and such investment demand can be speculative. However, platinum does not have a position similar to gold which historically has been used as a means of payment.

[3] This means that if the price, for example, increases by 10 % then quantity demanded will decrease by less than 10 %. The total sales revenue therefore increases in this situation, despite a decrease in quantity sold.

Therefore, investment demand for platinum reflects the underlying uses of platinum for autocatalysts, industrial purposes and jewellery, since it is these uses which give platinum its value. In addition there is no evidence to indicate that accumulated stocks of such bars and coins re-enter the market for platinum. This is demonstrated in the Johnson Matthey *Platinum 1995 Interim review* that shows a reversal in investment demand in only one year (1986) and then for only one type of bar.

Conclusion

(45) There are in reality no substitutes for platinum for its main applications being autocatalysts, industrial processes and in jewellery. This conclusion is confirmed by an analysis of which factors influence the price of platinum.

(ii) *Factors influencing the platinum price*

(46) Platinum is a freely traded commodity, where the price is established by market supply and demand. According to some of the most important traders/fabricators and banks dealing in the platinum market, platinum prices are determined by the fundamental uses of platinum. The platinum market is a relatively small market in terms of volume compared to, for example, gold. According to traders/fabricators and banks, the platinum market is therefore not very speculative, because if a large position were to be acquired, it would obviously be difficult to get out of the market again (which increases the risk of engaging in speculation).

(47) As set out below the Commission considers that the fundamentals of supply and demand for the use of platinum in jewellery, in autocatalysts and for industrial purposes have a critical impact on the price of platinum.

Observations from *'Metals analysis outlook'*

(48) In order to establish the fundamental supply and demand factors on prices, the Commission tracked the most important factors affecting prices over the last five years, by looking at extracts from the journal *'Metals analysis outlook'*, which forecasts the development of the market quarter by quarter. According to these documents it was found that the most important factors are:

— forecasts in the South African production, expansion or suspension of shafts,

— level of recycled platinum,

— level of Almaz's sales for the Russian State, forecast from the nickel production and levels of stockpiles,

— offtake for autocatalyst and car demand,

— jewellery demand in Japan, economic conditions in that country and the yen/dollar exchange rates, and,

— pipeline stocks (stock in process).

(49) The factors enumerated above show that the price of platinum is driven by fundamental supply and demand factors for platinum.

Commission study on factors affecting platinum price movements

(50) The purpose of the Commission's study was to determine, if possible, the most important factors driving platinum prices. The main conclusions of the study are that:

(a) the platinum price is statistically correlated with the gold price on a short-term basis, if not necessarily long-term basis (the relationship is shown below to be spurious), but platinum prices are also driven by the fundamentals of supply and demand within the platinum industry;

(b) the correlation between the gold and the platinum prices does not prove that there is a causal relationship between these prices;

(c) it is not possible to determine any significant relationship between platinum prices and the major macroeconomic indicators, nor between gold prices and the major macroeconomic indicators (inflation, interest rates, exchange rates and economic growth);

(d) the platinum futures market is primarily a forward market and does not normally have a high level of speculator activity. In the long term, fundamentals will therefore prevail as the decisive price determining factor;

(e) demand for platinum is price inelastic (elasticity numerically less than 1, see Section (iii));

(f) while the platinum market is smaller and more volatile than gold, there is no evidence of excessive speculator activity. Unlike gold there are at most limited stocks of platinum to satisfy periodic spikes in investment demand.

(51) The study, therefore, confirms that the platinum market is not a highly speculative market and that fundamental supply-demand factors are important for the platinum price.

Price correlations between platinum, gold, silver, rhodium and palladium, are spurious

(52) Although the prices of precious metals like gold and platinum are highly correlated, a high correlation does not in itself imply a causal relationship. Indeed economic price-series data are often non-stationary (i.e. trended) and therefore automatically correlated. The Commission therefore decided to undertake a more elaborate analysis of the correlation between the prices of platinum, gold, silver, rhodium and palladium.

(53) The Commission proceeded with a co-integration analysis of the data set of the prices of platinum, rhodium and palladium, as well as gold and silver prices. Co-integration analysis is an econometric method which can test whether there is a systematic equilibrium (or long-run) relationship between two or more time-series of data. The results of the analysis show that the data do not suggest any equilibrium (or long-run) relationship between the respective price levels of platinum, rhodium, palladium, gold and silver, nor of any subset of these metals. This econometric analysis of metal prices indicates that platinum, rhodium, palladium, gold and silver prices tend to vary, over the long run, independently of each other, thus confirming the view that platinum, rhodium, palladium, silver and gold are separate relevant product markets.

The parties' methodology for forecasting platinum prices

(54) The importance of the fundamental supply-demand factors for the development of platinum prices is confirmed by the parties in the way they forecast platinum prices. According to Implats, prices are very hard to predict in the short term (less than one year), and they depend on a number of factors such as gold and silver prices, movements in interest rates, movements in exchange rates, rumours of technological developments, etc. However, in the longer term (more than one year) Implats looks to the fundamentals of supply and demand balances, where supply surpluses are synonymous with weak prices, while the inverse applies to market deficits. LPD forecasts short term prices (6 to 12 months) by looking at a mixture of market sentiment, speculative activity and metal availability. Long-term prices are forecast by simply applying an estimated US inflation factor to the prices of the short-term forecast. However, it is clear that both LPD and Implats view the availability of metal and therefore supply and demand balances as important for the determination of the market price of platinum.

Conclusion

(55) An analysis of factors influencing the price of platinum indicates that the platinum price over time is driven by the fundamental supply and demand factors for platinum, such as the demand for uses in autocatalysts, industrial processes and jewellery. The platinum price may be influenced by short term speculative movements in precious metals like gold, but the platinum price is not driven by the prices of other precious metals seen over a longer period of time.

(iii) *Demand for platinum is price-inelastic*

(56) The portion of platinum demand accounted for by industrial processes and autocatalysts is price-inelastic, probably with a very low price elasticity, since there are basically no substitutes for platinum for these purposes, apart from limited substitution possibilities between platinum and palladium for certain types of autocatalysts. The price elasticity for jewellery demand on the Japanese market was found, in the abovementioned study, to be price-inelastic with an elasticity of – 6. Since autocatalysts and industrial processes account for about 51 % of the market, and the Japanese jewellery market for about 34 %, this means that the price-elasticity of 85 % of the global platinum market is highly inelastic. The remaining 15 % of demand is for jewellery outside Japan (5 %) and investment (10 %). The jewellery market outside Japan is likely to have an inelastic

demand, since platinum jewellery is a special, up-market product. Furthermore, the effect of investment demand, on overall price elasticity is limited. All in all, it can therefore be concluded that the price elasticity for the total market is inelastic (numerically smaller than 1).

(57) A price elasticity numerically smaller than 1 implies that the cross-price substitution elasticities to other metals are even smaller, i.e. the competitive impact of other metals is not very high. Therefore, an inelastic price elasticity of demand indicates that platinum is a separate relevant product market.

(58) The demand for platinum is obviously only price-inelastic in the current price range. This means that, for example, a 10 % shift in the price level would be possible without any significant substitution starting to take place. However, the Commission recognizes that substantial substitution of platinum by other metals could not be excluded, subject to certain lead times, if there were to be, for example, a 100 % or even greater increase in price. Such a phenomenon was witnessed in the case of rhodium, when the price for rhodium increased from US $ 300 to US $ 7 000 per ounce at the beginning of the 1990s. With a price increase of more than 2 000 %, buyers of rhodium started development work with the aim of finding substitutes. The result was that many uses of rhodium disappeared. However, this extreme situation is not the main concern in the present case.

(59) The parties in their reply to the statement of objections (hereinafter 'reply') argue that the analysis underlying the Commission conclusion of an inelastic demand for platinum is not robust (NERA report, p. 27). However the parties have not provided any evidence to support this assertion and they have not disputed that the price elasticity of demand for platinum is inelastic.

(iv) *Conclusion*

(60) Based on the above analysis the Commission agrees with the parties' conclusion in their notification that platinum constitutes a separate relevant product market.

A.3. **Palladium**

(61) Palladium is used mainly for industrial purposes. Only 4 % (200 000 ounces) of yearly palladium demand is for use in jewellery as an alloy with platinum or as a non-allergenic whitening agent for gold. Specifically, palladium is not a substitute for platinum in jewellery.

(62) Palladium is widely used in autocatalysts and industrial catalysts in the petroleum refining and chemical industries, for example being employed to reduce losses of platinum and rhodium during the conversion of ammonia to nitric acid. Palladium is also an important strategic raw material in electronic components, in particular in palladium-containing components known as multilayer ceramic capacitors (MLCC). These components are widely used in electronics and telecommunications equipment. For example, a single mobile phone contains around 100 MLCC.

(63) Palladium is found in the same ore body as platinum and is produced, albeit with a different refining process, by the same companies as platinum.

(64) As discussed above under platinum, the palladium price varies independently of the prices of the other PGMs as well as gold and silver prices (Section VI.A.2 (ii)). There are limited substitution possibilities for palladium with platinum in autocatalysts and with nickel in lower specification electronic capacitors. The Commission agrees with the parties' conclusion in their notification that palladium constitutes a separate relevant product market.

A.4. **Rhodium**

(65) Rhodium is used mainly for automotive purposes. Rhodium is found in the same ore body as platinum and is produced, albeit with a different refining process, by the same companies as platinum. As discussed above under platinum, the rhodium price varies independently of the prices of the other PGMs as well as gold and silver prices (Section A.2 (ii)). There are no substitutes (Section A.2 (i)). Therefore, the price elasticity is close to zero in the current price range. The Commission agrees with the parties' conclusion in their notification that rhodium constitutes a separate relevant product market.

A.5. **Ruthenium, iridium and osmium**

(66) The remaining three PGMs (iridium, osmium, and ruthenium) are of lesser commercial importance and are commonly used in alloys with platinum or palladium.

(67) There are no substitutes for these metals, and based on public data on prices, their prices appear to develop independently of other metals. Therefore, they each appear to be separate relevant product markets. The Commission agrees with the parties' conclusion in their notification that they each constitute a separate relevant product market.

B. *Relevant geographic market*

B.1. Trading of PGMs

(68) PGMs are fungible assets, are easily transported, are refined to the same purity standards throughout the world and readily traded without tariff barriers. PGMs are sold on a worldwide basis either under long-term contracts or on the metal market. Prices of PGMs bought under long-term contracts are linked to a market price index and are generally fixed on a monthly basis on the average of the daily 'fixes' of the exchanges during the month prior to the month of delivery. Prices are expressed in US dollars per troy ounce gross.

B.2. The platinum and palladium metal exchanges

(69) The principal metal exchanges for platinum and palladium are the London Platinum and Palladium Market (LPPM), the New York Mercantile Exchange (Nymex) and the Tokyo Commodity Exchange for Industry (Tocom). There are well-defined specification requirements for both platinum and palladium determining the form, weight, purity and markings to which each metal must conform in order to be traded on the metal exchanges. Producers have to be recognized as 'good delivery' producers or manufacturers before their material is accepted for trading on the market. There are a number of producers who have been recognized under this agreement.

(70) The LPPM market is the only spot market of the three, while Nymex and Tocom are both futures markets of which Nymex is the most important. However, these metal exchanges function as part of the same integrated world market for platinum and palladium. Traders regularly act in all three market places simultaneously, for example by trading on the LPPM spot market for physical delivery and hedging positions on the futures market in New York.

B.3. Dealer prices for rhodium, ruthenium, iridium and osmium

(71) The prices for rhodium, ruthenium, iridium and osmium are not quoted on the metal exchanges, but are determined through the NYD (New York Dealer) prices and the Johnson Matthey base prices. These prices are market prices published on a regular basis in the publication 'Platt's metals week' or, in the case of the Johnson Matthey base price, are available for traders on their computer screens.

B.4. Conclusion

(72) The metal exchanges are in reality interlinked. There is, therefore, a worldwide geographic market with a world market price expressed in US dollars per troy ounce for both platinum and palladium.

(73) The markets for the smaller metals are less well developed. However, these metals are traded on a global basis at publicly quoted prices expressed in US dollars per troy ounce. Therefore, due to the worldwide trading and market price determination of rhodium, ruthenium, osmium and iridium, the relevant geographic market for each of these metals is a world market.

VII. COMPATIBILITY WITH THE COMMON MARKET AND THE EEA AGREEMENT

(74) The proposed transaction would reduce the number of primary producers of PGMs from three to two in South Africa. These three producers effectively control all South African reserves of platinum. Only in South Africa and, to much lesser extent the USA, are there ores rich enough to be mined for their content of PGMs (rather than mining PGMs as a by-product). This will also be the case in Zimbabwe in the future.

(75) Apart from Russian reserves (which account for approximately 10 % of worldwide reserves) from which PGMs are mined as a by-product of nickel, there are no other substantial sources of PGMs in the world. Thus the operation would leave only two firms holding approximately 90 % of world reserves of PGMs.

(76) Industry feasibility studies and working estimates have consistently confirmed that South Africa is and will remain for the foreseeable future the most important source of PGMs, and in particular platinum.

(77) Of the three South African producers, LPD can be distinguished. This is first because of its parentage: being European in origin has meant that the company has been regarded as an outsider in the industry. Furthermore, it has a different management approach from the other South African mining houses, being considered 'lean and mean' by other operators.

(78) While all PGMs are mined together, the focus of the assessment centres on the effect of the proposed operation on the mining and refining of platinum and rhodium, since the operation was found to create dominant positions only in these markets. Moreover, as concerns osmium there is no overlap between the parties, since LPD does not produce osmium. Similarly, the transaction has no appreciable effect on the palladium market.

A. *Sources of PGMs*

A.1. Proven and probable reserves, stocks and existing mines of primary PGMs

(79) PGMs are mined mainly in South Africa and Russia, but minor deposits are found in the USA and Canada. PGM mining, in South Africa, takes one of three forms: opencast mining where the ore is quarried from ground level; incline shaft mining where an inclining shaft is driven into the ground at the same angle as the ore bed; and vertical shaft mining. In this last case a vertical shaft is sunk into the ground and horizontal tunnels are mined therefrom into the ore beds. Opencast mining is the cheapest method of operation, followed by incline shaft mining and lastly vertical shaft mining. The costs associated with vertical shaft mining increase substantially once a depth of 1 000 m is reached. This is because of the additional refrigeration needed, as well as the longer distance for the workforce to travel and for the transport of the ore. Neither LPD nor Implats have an opencast mine, the only one in existence being owned by AAC's platinum operation, Amplats. In general the technology involved in all three types of operation is considered to be mature.

(80) The individual PGM metals are produced in fixed ratios, determined by nature, which depend on the particular ore body mined. Indications from official sources [4] are that the ratio of platinum/palladium/rhodium is about 100:42:21 at the Merensky reef and 100:83:54 at the UG2 reef. In other countries palladium occurs in higher concentrations relative to platinum. In the main Russian mine, in Noril'sk, the ratio is about 100:284:16, at the American mine in Stillwater 100:350:73 and at the Canadian mine in Sudbury 100:110:24. This production structure often results in some stocking or oversupply of the minor metals. It also means that palladium automatically makes up a larger part of Russian production than platinum. However, in the South African mines platinum is by far the most important metal which accounts for more than 80 % of the sales revenue.

(81) As can be seen from Table 2, South African producers supplied 70 % of the world's platinum and 75 % of the rhodium supply in 1994, whereas Russia supplied 22 % of platinum and 21 % of rhodium. Russia was the largest supplier of palladium with 63 % of world supplies, whereas South Africa supplied 28 %. However, these market shares can fluctuate somewhat from year to year, should producers sell from their stocks, and it is, for example, certain that the Russians reduced their stocks in 1994. Indeed, viewed over several years there seems to be no doubt that South Africa is and will remain the main supplier of all PGMs. As seen from Table 3, in 1993, 89 % of world reserves were located in South Africa, about 10 % in Russia and 1 % in North America [5].

[4] *European minerals yearbook*, 1995.

[5] South African reserves of palladium are by some sources estimated to be about double the Russian reserves of palladium (Vermaak, 1995).

Table 2

World supply of PGMs in 1994 by geographic region

(%)

	Platinum	Palladium	Rhodium
South Africa	70	28	75
Russia	22	63	21
North America	5	8	4
Others	3	1	0
Total	100	100	100

Source: Platinum 1995 by Johnson Matthey.

Table 3

Estimated reserves of PGMs 1993

(in tonnes)

South Africa	50 030	88,6 %
CIS	5 900	10,5 %
Canada	250	0,5 %
USA	250	0,5 %
Total	56 430	100,0 %

Source: European minerals yearbook.

(82) An alternative assessment of reserves, completed by C. F. Vermaak in 'The platinum-group metals — a global perspective', shows Zimbabwe with some 9 % of world reserves and Finland with some 12 %. In respect of the former, as discussed below, the actual mining of these reserves has not yet started and the *in-situ* reserves are some 50 % lower than those in the Bushveld complex. For Finland PGM mining is, in principle, sub-economic, taking place as a by-product of nickel mining. Finland produced, on average, only 2 000 ounces per annun of platinum during the period 1981 to 1992. Consequently it may be discounted as a major source for the future. In any case development would take a long time and much capital expenditure to develop Finland into a significant producer. Furthermore, it should be noted that, in the last 30 years extensive exploration for PGM metals has been undertaken, and it is not expected that any new not already known land-based platinum deposits of significance can be found.

(83) Reserves of PGMs in South Africa are basically located in the Bushveld complex about 130 km north west of Johannesburg. The Bushveld complex is the richest known deposit of PGMs in the world. The Bushveld complex is an elliptically shaped intrusion of about 350 x 250 km in size. PGMs are mined from three ore beds: the Merensky reef and the UG2 reef vertically below the Merensky reef and the Platreef. The Merensky and UG2 reefs are located in the eastern and western parts and the Platreef in the northern part of the Bushveld complex.

(84) In Russia PGMs are basically mined at the Noril'sk deposit in northern Siberia. This deposit is a nickel deposit, where PGMs are produced as a by-product of the nickel production. Similarly PGMs are a by-product of nickel in Canada.

Conclusion

(85) The Bushveld complex in South Africa is the only major area, where deposits are mined only for their PGMs content. Furthermore, the Bushveld complex accounts for about 89 % of the world's reserves of PGMs and Russia for about 10 %, as a by-product to mining of nickel.

A.2. Entry into the PGMs markets and new mining projects

(86) There has not been any independent, new entrant to the world market for PGMs for the last five years [6].

(87) There are two mining ventures under way in Zimbabwe. The first and more important project is the Hartley Platinum Project which is a joint venture between two Australian companies, Delta Gold and BHP. According to publicly available information, the first ore is planned to be mined in 1996. Yearly output is planned to reach about 150 000 ounces of platinum, 110 000 ounces of palladium and 11 500 ounces of rhodium in the period 1997 to 1999. This corresponds to 2,5 % of world supply of platinum, 2 % of world supply of palladium, and 2,5 % of world rhodium supply. Any expansion above these amounts as claimed by the parties in their reply is speculative.

(88) The second project in Zimbabwe is the Mimosa trial mine to be operated by the Zimbabwe Mining and Smelting Company, which is a company controlled by its management group. Published sources estimate that the trial project will produce 6 000 ounces per year, but that it could eventually expand. However, the ore is apparently of poorer quality than in the Hartley project, and in any case expansion the production is not foreseen in the near future. A number of other projects remain on the drawing board, for example in Zimbabwe, Canada and the USA. In respect of the Stillwater mine, in the USA, the parties have submitted that production could double to 125 000 ounces per annun by the end of 1997. This mine would still be a minor supplier as such a production level amounts to some 2,5 % of annual world supply. In addition it has been indicated that subject to the result of a feasibility study, Stillwater's production could amount, in total, to 250 000 ounces per annun by the year 2000. This is 5 % of current supply and is considered to be minor, even if realized. Moreover it should be noted that Stillwater does not have facilities to process its platinum but ships it abroad for refining.

(89) All known, economically viable claims in the Bushveld complex in South Africa are controlled by Implats, LPD or Amplats. Therefore no new entrants to this area are to be expected. Furthermore, it is very capital intensive to develop a new PGM mine with the total capital expenditure of entry, in terms of purchasing land or obtaining a claim and investing in equipment likely to be in excess of US $ 100 million. A large part of this expenditure represents sunk costs. However, even if such projects should materialize they normally have a lead time of five or more years. Therefore, any important new projects, even if they were economically feasible, could not have an effect on the market in the foreseeable future.

Conclusion

(90) Only the Hartley mine is likely to be a new source of PGMs outside the control of one of the existing players. However, it will be only an insignificant actor on the world market, having little impact on the total market. It therefore appears that primary PGMs will essentially continue to come from known reserves in South Africa and Russia in the foreseeable future and will be produced and sold by Amplats, Implats, LPD and the Russians.

A.3. Recycling of PGMs

(91) The recycling of PGMs takes two forms:

(a) *Closed circuit*

When PGMs are used in industrial catalysts the metals need to be refurbished after a certain period of operation because of the contamination that takes place. Losses occur to a small extent (some 2 %) in either the recycling or the industrial process. The metal is toll-refined for the benefit of the plant operator and accordingly its ownership does not change because of the recycling. Consequently new demand from industry is either from expanded capacity or when these small losses are replaced.

(b) *Recycling from scrap*

PGMs are recycled in small quantities from scrap, such as printed circuits, but by far the most important source of scrap is from autocatalysts. Johnson Matthey estimates that western world PGM recovery from autocatalysts is as follows.

[6] Except for the Northam mine in which AAC and Rembrandt have shares. However, the future of this mine is uncertain due to its lack of profitability.

Table 4

Total consumption of PGMs for autocatalysts and relatied scrap recovery

PLATINUM

(en 1 000 ounces)

	1990	1991	1992	1993	1994	1995
Total	1 535	1 565	1 550	1 685	1 870	1 790
Recovery	215	215	245	275	315	315
Percentage recovery	14,0 %	13,7 %	15,8 %	16,3 %	16,8 %	17,6 %

PALLADIUM

(en 1 000 ounces)

	1990	1991	1992	1993	1994	1995
Total	315	355	490	705	950	1 515
Recovery	85	85	95	100	105	105
Percentage recovery	27,0 %	23,9 %	19,4 %	14,1 %	11,0 %	6,9 %

RHODIUM

(en 1 000 ouncen)

	1990	1991	1992	1993	1994	1995
Total	334	301	305	356	381	415
Recovery	13	16	22	26	38	39
Percentage recovery	3,9 %	5,3 %	7,2 %	7,3 %	10,0 %	9,4 %

(92) Table 4 shows that the proportion of platinum recovered (as a percentage of total consumption) has been growing slowly, reaching 17,6 % in 1995. The recovery of palladium and rhodium in absolute terms has also risen.

(93) The total amount of recovered autocatalyst PGMs is likely to increase with autocatalysts' increased use. Even with the established collection networks in North America and Japan this proportion is unlikely to reach 100 % as the inherent logistics and costs of collection act as a disincentive to the accumulation of the scrap. In addition many used cars, from Europe and the USA, are exported to Eastern Europe or to third world countries meaning that they escape from any recycling systems. The American experience, where environmental legislation has been in place for approximately 20 years, indicates that recycled PGMs accounted for only 30 % of North American autocatalyst annual consumption in 1994.

(94) The parties have submitted that some 737 000 ounces of platinum will arise from recycled autocatalysts in the year 2000 representing a virtual doubling from the 1995 level (if Johnson Matthey figures are taken, it represents an increase of 134 %). Such a volume of recycled material should be compared with Implats' forecast consumption for autocatalysts. The 1995 ratio of recycled platinum to consumption was 19 %; in 2000 it is forecast to be 39 %. Such an increase appears ambitious especially as the recycling level in 1995 (per Johnson Matthey) was 30 % in North America, 16 % in Japan and 7 % in Europe. Consequently the Commission has concluded that such a forecast is not realizable.

Conclusion

(95) In assessing the impact of recycling, it should first be noted that total demand for PGMs is expected to increase (see Section VII.B.3). Consequently current recycling rates could not fulfil any demand imbalance. Furthermore, as regards closed circuit recycling, such PGMs do not, in fact, become part

of the market and thus can be discounted. On the other hand recycled autocatalyst PGMs are a limited, supplementary source of supply, a fact which is not expected to change in the foreseeable future. Finally, a large proportion of platinum is consumed in the jewellery industry, from which relatively little scrap is generated and there is no available evidence to demonstrate that items of jewellery are returned for reprocessing. On this basis recycled PGMs are expected to continue to have only a limited supply role in the foreseeable future.

B. *Platinum*

B.1. Demand

Current demand patterns

(96) During the last five years the western world's demand for platinum, in thousands of ounces, by application and by region is set out in Tables 5 and 6 below. All these figures are drawn from *'Platinum 1992, 1993, 1994, 1995 and Interim review 1995'* by Johnson Matthey and are based on consumption.

Table 5

Application	1991	1992	1993	1994	1995
Autokatalysts (net)	1 350 (33 %)	1 305 (34 %)	1 410 (35 %)	1 555 (34 %)	1 475 (32 %)
Industrial	825 (20 %)	730 (19 %)	695 (17 %)	815 (18 %)	945 (20 %)
Jewellery	1 470 (36 %)	1 510 (40 %)	1 615 (40 %)	1 735 (38 %)	1 805 (38 %)
Other	395 (11 %)	255 (7 %)	325 (8 %)	445 (10 %)	485 (10 %)
Total	4 040 (100 %)	3 800 (100 %)	4 045 (100 %)	4 550 (100 %)	4 710 (100 %)

Table 6

Region	1991	1992	1993	1994	1995
Western Europe	775 (19 %)	845 (22 %)	875 (22 %)	910 (20 %)	810 (17 %)
Japan	2 050 (51 %)	1 870 (49 %)	1 975 (49 %)	2 140 (47 %)	2 235 (48 %)
North America	815 (20 %)	705 (19 %)	760 (19 %)	940 (21 %)	960 (20 %)
Rest of the world	420 (10 %)	380 (10 %)	415 (10 %)	510 (11 %)	585 (12 %)
China	-20 (0 %)	0 (0 %)	20 (0 %)	50 (1 %)	120 (3 %)
Total	4 040 (100 %)	3 800 (100 %)	4 045 (100 %)	4 550 (100 %)	4 710 (100 %)

(97) Demand for platinum for autocatalysts accounted for 32 %, industrial demand amounts for 20 % and jewellery 38 % of total demand in 1995. These proportions are broadly similar for the whole period 1982 to 1995 in respect of jewellery but the proportions as regards the motor vehicle sector have increased, while for industrial purposes, they have fallen.

(98) Japan, during the last five years consumed between 47 % and 51 % of the world's total demand for platinum and this ratio has not dropped below 42 % during the period 1982 to 1995. North America has, on average, consumed 25 % of the world's total demand during the same period and between 19 % and 20 % in the last five years. Western Europe has consumed between 17 % and 22 % in the last five years and its average rate of consumption, during the last 14 years, has been some 17 %.

(99) These various regional differences in consumption can be explained. On average, during the last 14 years, some 63 % of Japan's total platinum consumption has been by its jewellery industry; the reasons for this level of consumption have been noted earlier.

(100) The regional pattern of consumption of platinum for autocatalysts is based on two factors: the date of the introduction of emission control legislation and car density, in which the USA leads, followed by Japan and Western Europe. As concerns environmental legislation the USA was the first to impose obligatory emission control legislation in 1970; tighter controls became applicable in 1990. In Japan, obligatory legislation first came into force during the late 1970 and early 1980. In Western Europe, US standards were introduced in Austria and Switzerland in 1987 and in Norway and Sweden in 1989. A European Community Directive took effect in 1992 meaning that from 1993 all new petrol cars had to be fitted with three-way catalysts. In addition Johnson Matthey reports that, from 1996, the majority of diesel cars in Europe will be fitted with catalysts to comply with stricter legislation.

Conclusion

(101) Platinum fulfils an important function as both a catalyst and a precious metal. It appears that historically there has been an increase in demand for the metal as new industrial applications have been discovered or environmental legislation has required the installation of autocatalysts.

B.2. **Suppliers**

(102) As seen from Table A1 (Annex I) the main suppliers of platinum in 1994 and 1995 were the South African companies Gencor, LPD and Amplats and the Russians. Other producers include Inco of Canada and Stillwater of the United States. A brief description of the major producers highlights the importance of the South African platinum mining operations.

Amplats

(103) Amplats is the leading company in the industry and the oldest producer of platinum in South Africa. The company had a market share of [...] (*) (7) of the world platinum market in 1995 and has very good reserves. Reserve figures are highly secretive. However, Amplats has estimated reserves based on official unpublished data. According to the most recent estimates of Amplats it controls about 50 % of the economically viable reserves in the Bushveld complex (the other 50 % being controlled by its competitors Implats and LPD).

(104) Amplats mines 75 % of its production in the Merensky reef. The Merensky reef has a higher content of base metals like nickel and copper than the UG2 reef. The base metals are a supplementary source of income to the PGMs. It is therefore normally an advantage to be able to mine Merensky rather than UG2 reef.

(105) As can be seen from Graph 2 A (see Annex II) the mining operations of Amplats range from the low cost operations in the Potgietersrust opencast mine to some relatively high cost conventional shafts, which were not profitable with the price/cost levels prevailing in 1994. Based on Implats data the Commission estimates that shafts accounting for some [...]% (8) of Amplats' production were only breaking even or had a negative operating profit in 1994.

(106) Amplats has a financial interest in downstream trading, fabricating and marketing operations:

(a) AAC holds shares indirectly through Minorco, its overseas operating arm based in Luxembourg, and through Johannesburg Consolidated Investment Limited (JCI) in two fabricators being Johnson Matthey (less than 25 %) and Engelhard (less than 40 %). In addition Engelhard is a major customer of Amplats and Johnson Matthey is its exclusive sales agent, but customers can under certain circumstances also buy directly from Amplats.

(b) Amplats is the main contributor to Platinum Guild International (PGI) whose purpose is to promote platinum for jewellery uses. There are five separate PGIs which operate in Italy, Germany, the United Kingdom, the United States and Japan. The PGI in Japan is by far the most important simply due to the size of the Japanese jewellery market.

(107) Amplats is the leading player in the platinum industry with a strong financial position having low debts and high cash reserves.

(*) Blanks between square brackets indicate business secrets deleted in the published version of this Decision.

(7) Less than 40 %.

(8) Less than 25 %.

Implats

(108) Implats is the second largest supplier of platinum with a market share of [...] [9] of the global platinum market in 1995. According to Amplats, Implats and LPD between them control about 50 % of economically attractive reserves in the Bushveld complex. According to the circular to the shareholders, prepared for the merger, it was estimated that Implats' reserves would last for at least another 40 years. However, it is in this context also important to note that Implats is an older company in the platinum industry, and most of the reserves of Implats are deep and therefore high cost. The composition of Implats' mined ore is currently 50 % Merensky and 50 % UG2 reef.

(109) As can be seen from graph 2 A in Annex II, Implats has some very cost-competitive shafts, but is still the high cost producer in South Africa. About [...] [10] of Implats' production was loss making or only breaking even in 1994. In comparison to Amplats and LPD, expansion is only possible by accessing deeper and therefore higher cost reserves.

(110) Historically Gencor owned the trader Ayrton Metals Limited, but this company was sold to Standard Bank Investment Corporation Limited in 1994. Standard Bank is owned by South African Mutual Life which owns shares in Rembrandt and in De Beers (which is connected to AAC). More importantly, Gencor acquired the Billiton mining assets from Shell in 1994. The Billiton assets include mining, refining and large non-ferrous metals trading operations, which already trade in precious metals such as gold. Billiton is a ring-dealing member of the London Metal Exchange. Furthermore, Implats contributes on a project-by-project basis to some of the activities of the PGI in the United States and Japan.

(111) Implats' operations are in a good financial position with a strong cash position and low indebtedness. Prior to its plans for the merger, Implats was interested in expanding its platinum activities. However, it found the strategic option of merging with LPD more attractive than expansion by accessing deeper reserves, since the latter alternative would require high capital expenditure.

LPD

(112) LPD is the third largest of the South African producers with a market share of [...] [11] of the world platinum market in 1995. As discussed above, based on information from Amplats it can be concluded that LPD and Implats between them control 50 % of the reserves of the Bushveld complex. According to Lonrho's circular to shareholders, of November 1995, LPD's reserves will last for at least another 35 years with indications of further reserves well beyond this period. In this context it should be noted that LPD has ample shallow reserves and very low cost operations.

(113) LPD mines 75 % UG2 and 25 % Merensky ore. LPD has managed to become very cost competitive. As can be seen from graph 2 A in Annex II, LPD has the lowest average costs of the three South African producers, and none of its shafts were unprofitable in 1994. The low cost of LPD's operations are partly due to its shallow reserves and partly to the lean operations of the company. LPD has a flat organizational structure, a highly entrepreneurial culture and emphasizes accountability. LPD is therefore quite different from many of the bigger South African mining houses.

(114) LPD has, to a limited extent, contributed to the activities of the PGI, but otherwise the company does not have any downstream interests. However there have been structural links between Implats and LPD since 1990 when the Lonrho group acquired the Karee mine from Implats in exchange for a 27 % shareholding in LPD. This transaction also gave rise to a shareholders' agreement between the Lonrho and Gencor groups of companies. This agreement states that an equal number of directors be appointed by each shareholder, that these directors have an equality of voting rights and that no single director has a casting vote. The agreement requires the approval of the board of directors for certain decisions being: the diversification of LPD; the level of dividend distribution; the annual strategic plan and budget; the approval of the annual financial statements and changes in the rates of fees paid for management agreements, etc. Decisions regarding major investments and divestments require the approval of the shareholders.

[9] Less than 20 %.
[10] Less than 25 %.
[11] Less than 15 %.

(115) Despite these links LPD has remained an independent competitor. In 1989, when its platinum output amounted to 346 000 ounces, LPD was undertaking an expansion programme. In the same year a new 1 million tonne per annun concentrating plant was commissioned at the Westplats mine. Subsequently during 1990 major extensions to the smelting complex, base metal refinery and precious metal refinery were completed. The programme continued at a modest pace, during 1991 and 1992, resulting in the production of some 550 000 ounces per annun In 1992 the capital expansion plans came to an end, but Lonrho's annual report states that future production stability of 900 000 ounces per annun was foreseen for the LPD operation. Furthermore expansion has been forecast. As identified in Lonrho's 1993 annual report the 'platinum mines are in a springboard position to implement ... additional expansion rapidly, effectively and at minimal cost'. According to the circular to shareholders of November 1995, capital expenditure at LPD amounted to 163 million in 1993, 96 million in 1994 and 79 million in 1995. It is foreseen that limited additional capital expenditure would allow LPD to expand to the level of 900 000 ounces mentioned above.

(116) Following the 1990 agreement LPD is an independent operation, with its own management structure and marketing and commercial strategies. Lonrho Management Services, a Lonrho group company and structurally independent of LPD, retains the right to manage both Eastplats and Westplats, which includes the responsibility for 'the ordinary and day-to-day management and control of the business, undertaking and affairs' of these companies. In addition Lonrho Management Services is bound 'to provide such advice and services ... for the proper carrying on of the business and affairs' of LPD 'without detracting from ... matters relating to management services and personnel'. Lonrho Management Services is controlled by the Lonrho group and all its directors are Lonrho group personnel.

(117) The whole of LPD's production is contractually bound to be marketed and sold by Western Metal Sales, a company operating from Brussels, which has no structural links with LPD, is owned by the Lonrho group and has neither management nor directors appointed or controlled by the Gencor group. In fact both LPD and Implats, by retaining separate marketing departments, compete and currently supply some of the same customers on different terms (e.g. by offering differing discounts).

(118) The Gencor group exercised no influence on the competitive strategies of LPD. This is confirmed by the parties themselves who have stated that 'each of Implats and LPD were, and to date remain, entirely separate entities, managed individually on a day to day basis by their respective management with no reference to each other. Implats' interest was and remains .... that of a 27 % shareholder in LPD'. Moreover the parties have stated that 'the relationship [between the Gencor and the Lonrho groups of companies] was one of two shareholders in the two companies Western Platinum Limited and Eastern Platinum Limited and not one of partnership or quasi partnership'. The fact that Lonrho Management Services provides management to LPD means that it is in the powerful and privileged position of both knowing and running the business and strongly influencing the outcome of all business decisions.

(119) The autonomy of LPD is reinforced by the aggressive stance taken by Lonrho group management to maintain LPD as an independent operation. At the inception of the arrangement, the Lonrho group appointed Mr. T. Wilkinson, a Lonrho executive, to the post of managing director who has remained there since that time. His position has been strengthened by the fact that the Gencor group did not appoint any directors to LPD until over a year after the signing of the agreement in January 1990.

(120) As explored further in Section VII B.5, as result of the current operation, the activities of Western Metal Sales and Lonrho Management Services will be absorbed. In addition LPD will lose its opportunity to expand production independently and, therefore, it is concluded that the independent activities of LPD through its management structure, and production, marketing and commercial strategies will disappear. Consequently a marked change in the competitive nature of the industry will occur.

(121) LPD has relatively high debt and a low cash position due to its investments over the last years, but operations are profitable at current price levels. It could be desirable to reduce the debt burden but the management group of LPD and Lonrho South Africa do not believe that a merger with Gencor is necessary in order to achieve a reduction of the debt burden. Instead it is believed that it would be possible to raise new capital from other sources. These sources may, for example, be internal cash flows (which are forecast to be sufficient to meet limited capital expenditure); bank loans (based on shareholder guarantees) or further loans from a shareholder.

Russia

(122) Russia accounted for 23 % of global platinum supplies in 1995. However, in 1995 Johnson Matthey indicates that only about 13 of the 23 percentage points were supplied from production, whereas about 10 percentage points or about 500 000 ounces were supplied from stocks. The Russian Government controls Russian exports of precious metals through its Committee for Precious Metals and Stones and its sales agency, Almaz.

(123) According to Johnson Matthey in *Platinum 1995* Russian production of platinum peaked in the late 1980s. In addition they report that the political changes in Russia have led to falling output for, among other reasons, a lack of essential investments and because PGM grades have fallen as the ore rich in sulphide has increasingly been mined out. Therefore the Russian mines cannot provide competition through expansion in the foreseeable future.

(124) In principle it would be possible for Western companies to invest in Russian PGM production. However, as explained below, this is unlikely (see Section VII B.3). It would therefore appear that the Russian ability to compete in the platinum market will decline in the coming years.

(125) The parties have submitted that the Russian mine at Noril'sk will increase annual production to 1 million ounces within the next five years: this is a level of production never before achieved according to *The platinum group metals — a global perspective* by C. F. Vermaak. According to the parties, in order to achieve this production substantial investment of US $ 1 to US § 2 billion is necessary which may be forthcoming in the next four to five years. The parties further claim that commitments to attract these funds (within the next two years) have been made by Unexim bank and EBRD. However, contrary to what has been indicated, the EBRD is not offering finance. Given the length of the investment horizon and the likelihood of raising these monies it is highly unlikely that the Russians will be able to reach past production levels (or surpass those levels, as suggested by the parties), for the next five years.

Other players

(126) Other players in the industry are in particular Stillwater in the United States and Inco in Canada. Stillwater neither has the productive capacity nor the reserves of the South African operations to contest their market position. Inco is primarily a nickel mine. In any case, each of these operations only has the potential to account for a few percent of the global platinum market.

B.3. **Demand and supply forecasts**

Demand forecasts submitted by the parties

(127) Both Implats and Lonrho have submitted forecasts of the future demand for platinum. While that of Implats has been compiled internally, the forecast submitted by Lonrho (Table 7) is a public document prepared by Anderson, Wilson & Partners Inc., Johannesburg brokers, and contained in a circular dated 28 August 1995. This indicates that demand (in thousands of ounces) will amount to the following:

Table 7

	1995	1996	1997	1998	1999	2000
Autocatalysts	2 000	2 050	2 100	2 100	2 200	2 300
Recovery	-375	-375	-400	-425	-450	-500
Jewellery	1 750	1 900	2 000	2 100	2 200	2 300
Industrial	700	745	770	775	790	800
Fuel cell	30	30	40	50	60	70
Investment	400	350	300	350	400	400
Other	200	200	200	200	200	200
Total	4 705	4 900	5 010	5 150	5 400	5 570

The average proportion of the above total demand figures given over to automobile catalysts is some 34 %, jewellery some 40 %, industrial consumption 19 % and investment 7 %. Other forecasts have been made available to the Commission by the parties: for 1996 and 1997, BOE Nat West Securities and SBC Warburg; and for the period to the year 2000 prepared by Engelhard. The Implats and BOE Nat West Securities forecasts are more optimistic than those set out above and the Engelhard and SBC Warburg more pessimistic. For the period 1997 to 2000, the above table is more optimistic than the Implats' forecast and Engelhard more pessimistic.

Factors affecting the forecast

Automobile catalysts

(128) The future demand for platinum for automobile catalysts is dependent on the growth in demand for motor vehicles and the introduction of new or revised legislation concerning exhaust emissions. As regards environmental legislation, stricter emission control is foreseen in both the USA and Europe between now and the end of the century. In addition there is evidence of increased use of platinum in catalysts for diesel cars in Europe. This is believed to be a growth area worldwide.

(129) There will be a continuing and increasing demand for platinum for use in autocatalysts: this demand will be enhanced by new legislation taking place, for example, in Brazil in 1996 and Argentina in 1997.

Jewellery

(130) The PGI forecasts that the Japanese platinum jewellery market will grow until the end of the century. Furthermore, both the Chinese and American markets are subject to a heavy marketing campaign from International Platinum Association and the PGI. As regards the USA, demand may return to the levels of the 1920s (150 000 ounces per annun). On the other hand the increase in demand for platinum jewellery in China is more speculative, but it is true that there are cultural similarities between Japan and China with purity and the 'whiteness' of the metal being important factors for any such growth.

Industrial

(131) In general there is unlikely to be any significant new demand from the petroleum and chemical industries as their applications for platinum are generally mature. Despite this, some replacement will occur because plants that were shut down during the recession are now being brought back on stream. The increasing use of personal computers will lead to increased demand as more platinum will be employed in the disk coatings and other components in the computers. In addition fuel cells could, in the long term lead to increased demand.

Supply forecasts submitted by the parties

(132) Lonrho has made reference to a forecast prepared (Table 8) by Anderson, Wilson & Partners Inc, Johannesburg brokers, and contained in a circular dated 28 August 1995. This indicates that supply will amount (in thousands of ounces) to the following.

Table 8

	1995	1996	1997	1998	1999	2000
North America	230	220	210	210	210	210
Hartley	0	25	50	75	100	125
Mimosa	0	25	50	75	100	125
Others	140	140	140	140	140	140
South Africa	3 294	3 495	3 510	3 510	3 528	3 569
Sub total	3 664	3 905	3 960	4 010	4 078	4 169
Russian sales	900	750	650	550	450	450
Total	4 564	4 655	4 610	4 560	4 528	4 619

(133) Other forecasts have been made available to the Commission by the parties: for 1996 and 1997 BOE Nat West Securities and SBC Warburg; and for the period to the year 2000 prepared by Engelhard. All three forecasts show greater supply than set out above for 1996 and 1997. Similarly for the period 1998 to 2000, Engelhard believes supply will exceed the above figures. Implats has also submitted a supply forecast, contained in Board papers, for the above period: this shows supply in excess of the above levels. This forecast has been disputed by LPD as being too pessimistic about excess supply.

(134) Whichever of these forecasts is the most accurate is not of relevance; what is important and what is clear from Table 8 is that South African and Russian supplies will continue to dominate the world supply of platinum and that moderate demand growth will occur. Given that supplies from other geographic areas, and recycling, are minimal, any deficit of supply over demand can be sourced only from either South Africa or Russia. It is improbable that sales by the Russians will be sufficient to mitigate any future supply and demand imbalance due to the fact that the Noril'sk mine is not fully operational (because of a lack of spare parts and supplies and other problems such as the breakdown of a local power plant). Furthermore it is unlikely that the mine would become fully operational without significant, probably Western, investment. Such investment is unlikely to be forthcoming because any Western investor would have to make good the environmental damage before investing in the plant.

(135) Johnson Matthey estimates that the Russians have sold from stocks 'in at least four of the five years since 1991'; it is therefore a question as to how many years' stocks remain that may be used to fill any gap between demand by the Western world and production. No exact answer can be given to this question but [... . it is widely believed in the industry that at the current level of sales the Russian stockpile will be depleted in about two years time.] This view is reflected in Table 8 showing declining Russian sales.

(136) In a growing market, it is therefore likely that a supply deficit may arise which can only be realistically filled by the South African producers.

B.4. The underlying economic premises for the Commission's analysis of dominance in the platinum industry

(137) The Commission finds that competition in the platinum industry is basically a matter of competition among the four main suppliers: Amplats, Implats, LPD and Russia who account for 90 % of the market. Furthermore, each of these players are aware of the impact they have on the market which, accordingly, influences their market behaviour. The reasons for this view are the following:

(138) (a) The platinum industry is a natural resource industry producing a homogeneous product with a quoted market price. Each of the four main producers are aware of their weight in the market. This is for example evidenced in the report prepared by [...], showing that, [...] a restriction of output by the new entity would lead to a price increase. Similarly, the Russians apparently have realized the advantages of selling platinum into market strength (see below). Therefore, the suppliers are aware of the danger of depressing platinum prices. In economic terms the suppliers do not view themselves simply as price takers. This is even less so after the merger of Implats and LPD, when there would initially be three and shortly thereafter (assuming the decline of Russian sales, see below) two major players.

(b) The platinum industry is a high fixed cost industry with an inflexible cost structure. [...] for example indicates that fixed costs account for 70 % of total costs. [... in platinum mining output cannot be varied significantly due to the high fixed-cost structure, even if a number of producing shafts make little or no contribution to profitability. A strategy to close the low margin shafts and concentrate on the most profitable would simply mean that non-removable costs would have to be spread across the remaining shafts making each marginal shaft unprofitable, repeatedly necessitating more shaft closures...]. Therefore, a platinum producer will need to look at the overall cost position of its operations in deciding the appropriate production level and not simply the operating costs of individual shafts.

Furthermore, the costs of temporarily closing and reopening mining shafts increase the 'stickiness' of production. Individual mining shafts are not simply taken on and off stream according to short-term movements in the platinum price.

The Commission has presented a cost comparison of the main South African producers in Annex II based on data from Implats. This is a comparison of the level of the operating costs of shafts and not the marginal cost curves of production of platinum. Indeed a large part of the operating costs of a mining shaft do not vary with the output of the shaft, but are fixed. In addition as mentioned above, output decisions of a platinum mine are based on a number of factors other than simply the short-term operating costs and margin of individual shafts. Therefore, the cost curves in Annex II neither represent the short-term nor the long-term supply curves of the individual producers, but are only a comparison of operating costs.

(c) In the platinum industry one characteristic of an abuse of a dominant position would be a controlled restriction of output which would lead to a price increase. For this type of abuse to be successful it is essential that the supply response from the marginal sources of recycling, suppliers outside the oligopoly and above-ground stocks is not strong enough to fill the gap left in the market by the suppression of output.

In this respect it is instructive that past data do not provide much evidence of a supply response at the margin. In volume terms the platinum market increased from 2,8 to 5,2 million ounces between 1985 and 1995 (see Annex VI). Of the 2,4 million additional ounces demanded, 2 million ounces were supplied by Amplats, LPD and Russia, whereas the other suppliers and recycling accounted only for the balance of the increase. Suppliers outside Russia and South Africa only expanded their share from 6 % of the market in 1985 to 7 % in 1995, and recycling increased from 2 % to 6 % of the total market in the same period. Therefore, it is unrealistic to believe that recycling and the marginal suppliers outside South Africa and Russia could have prevented the platinum price from increasing substantially had Amplats, LPD and Russia not met the additional demand for platinum.

There has been a relatively small release from above-ground stocks (except for the Russians) during the period 1985 to 1995. This is despite that fact that real platinum prices increased from USD 400 per ounce in 1985 and remained above US $ 600 in the years 1986 to 1989, together with the fact that yearly demand increased by 2,4 million ounces over the period 1985 to 1995. Destocking in this period peaked in 1987 and 1988 with 220 000 and 370 000 ounces, respectively, or at most 10 % of demand; but this did not prevent the platinum price from increasing between 1986 and 1987. Therefore destocking could not have provided a sufficient disciplinary check on a dominant player in the platinum market during this period.

The parties have argued that since 1985 there has been build-up of stock amounting to 4 million ounces held in the form of platinum bars for investment. Most of these bars have been sold to private investors in Japan and are widely dispersed. The parties argue that these bars could come back into the market and work as a disciplinary force on pricing. However, due to the fact that the holding of these bars is widely dispersed, that they form part of private investment plans and are bought to be retained, they are unlikely to have the same disciplinary effect on the market as if they were held in one major block as is the case of Russian stocks. Furthermore only in one year (1986) did some of this metal find its way back into the market and then only for one type of bar. In any case the buying and selling of a stock as limited in size as 4 million ounces would be likely to be strongly influenced by the fundamental supply and demand factors for platinum, and therefore by the actions of the producers. This is also consistent with the finding in the RSI study on factors affecting the platinum price that 'Unlike gold there are at most limited stocks to satisfy periodic spikes in investment demand' (see Section VI.A.2 (ii)).

Therefore, as argued above and earlier the Commission does not find that supply responses at the margin from stocks, new mines and recycling represent disciplinary forces of a significance, which could prevent an abuse of a dominant position held jointly by Amplats,

Implats/LPD and Russia ([12]). Indeed a result of the proposed merger is exactly that the merged Implats/LPD will have no incentive to undertake any expansion in conflict with the overall interest of the oligopoly (see below). It should also be noted that any marginal player, in its decision making, will have to consider the overwhelming weight of the oligopoly members in the market.

(139) In conclusion, an economic analysis of competition and dominance in the platinum industry has to start with the premises that the four main suppliers are aware that prices are influenced by their output decisions and that supply at the margin is insufficient to prevent monopolistic practices. It is in this perspective that the subsequent analysis of oligopolistic dominance as a highly likely consequence of the merger should be seen.

B.5. Oligopolistic dominance

(140) Similar negative effects which arise from a dominant position held by one firm arise from a dominant position held by an oligopoly. Such a situation can occur where a mere adaptation by members of the oligopoly to market conditions causes anti-competitive parallel behaviour whereby the oligopoly becomes dominant. Active collusion would therefore not be required for the members of the oligopoly to become dominant and to behave to an appreciable extent independently of their remaining competitors, their customers and, ultimately, the consumers.

(141) In the platinum market Amplats, Implats, LPD and the Russians control supply and form an oligopoly, and even before the merger, the platinum market appears to have many of the characteristics of an anti-competitive oligopolistic market:

(a) on the demand side, there is moderate growth, inelastic demand and insignificant countervailing buyer power. Buyers are therefore highly vulnerable to a potential abuse;

(b) the supply side is highly concentrated with high market transparency for a homogeneous product, mature production technology, high entry barriers (including high sunk costs) and suppliers with financial links and multi-market contacts. These supply side characteristics make it easy for suppliers to engage in parallel behaviour and provide them with incentives to do so, without any countervailing checks from the demand side.

(142) As a result of these market characteristics the degree of competition has been low in the platinum market with only a few elements of competition present in the past and a tendency towards oligopolistic dominance. The present merger will lead to the elimination of these elements and to the creation of oligopolistic dominance to the detriment, ultimately, of the consumers.

The platinum market characteristics are conducive to oligopolistic dominance

(i) Market transparency and homogeneity

(143) In a transparent market it is easy for a company to follow the moves of its competitors and adapt its own decisions accordingly. In a commodity market like platinum the product is homogeneous and the most important market parameters are price and quantities supplied.

(144) The nature of platinum as a commodity and the trading of platinum on the metal exchanges make the market highly transparent in terms of prices.

(145) The quantities supplied to the market are readily known to the industry. First, quantities sold on the metal exchanges are publicly known and it would be immediately evident to all players in the market if, for example, significant new quantities were released on the metal exchanges. Secondly, statistics on production and sales are published regularly by companies such as Johnson Matthey and Degussa. Even figures on Russian sales are available from public sources, for example, through these publications, and there seems to be a basic fundamental agreement in the industry on the general state of the Russian mine, the output level of the mine as well as Russian stock and reserve estimates. Third, the number of direct customers is relatively small and it is easy for the producers to be in contact with all potential and actual clients. Fourth, the fact that most platinum is sold under

([12]) Indeed, the implication would be the conclusion that even a hypothetical company controlling all South African and Russian production, thus having a market share of 90 %, would not be in a dominant position.

long-term contracts (see below) means that customers can react to new offers only with a certain time lag and it will be known immediately to competitors, if a customer considers changing suppliers. Finally, clauses in long-term contracts preventing resale of the platinum bought under the contract (see below) limit the number of sellers in the market and thereby increase transparency.

(146) In the platinum industry new capacity is normally added through discrete investment projects. Details of new investment projects leading to capacity increases are normally also known in the industry. Stillwater's expansion plans and the exact expected production levels of the new Hartley mine in Zimbabwe are, for example, public.

(147) Obviously transparency does not extend to all aspects of platinum mining and refining operations of the individual companies. Certain data are kept as business secrets. This is thus the case for details of customer contracts, detailed production data concerning ore grade, and the exact quality and extent of reserves. Furthermore, even though the industry has a certain knowledge of the Russian operations, it is not complete.

(148) However, all in all it must be concluded that there is a high degree of transparency in the platinum industry as far as prices, quantities produced and sold, capacity increases through new investment projects and overall reserves of the producers are concerned. The transparency of the market is increased by the fact that the platinum industry is a relatively small and close group of companies. Information apparently spreads very rapidly via more informal channels within the industry. Basically all the key players know each other personally and they meet frequently. It is also normal that key personnel move from company to company. For example Mr Gilbertson, Executive Chairman of Gencor, is the former chairman of Rustenburg Platinum Mines (now Amplats). The high transparency of the market and the product homogeneity enable the major players to know each others' moves which accordingly facilitate anti-competitive parallel behaviour.

(ii) Demand is price-inelastic in the current price range

(149) As discussed in the section on product-market definition it seems that due to its indispensable nature for many uses, the demand for platinum is price inelastic (numerically smaller than 1) in the current price range. The low price elasticity of platinum demand creates a larger incentive for anti-competitive parallel behaviour, since all suppliers would lose by engaging in price competition. Furthermore, price competition appears to be relatively weak in the platinum market (see below).

(iii) Buyers do not have countervailing buyer power

(150) According to the parties, buyers are highly concentrated with about 10 main buyers on a worldwide basis, which have considerable purchasing power. However, two of the biggest fabricators, Johnson Matthey and Engelhard, are linked to Amplats. Furthermore, the relatively low level of discounts accorded to customers, and the clauses in the long-term contracts preventing customers from reselling any quantity without authorization from the producer (see below) are indications of low buyer power. More importantly, with the exception of a major car company (which receives discounts), the fabricators are not the ultimate customers and price increases are simply passed on to their customers. It is unlikely that these customers have any countervailing purchasing power of significance due to the indispensable nature of the product and the large number of downstream customers.

(iv) Demand is forecast to grow moderately

(151) Demand is forecast to grow on average at a moderate rate of around 3 % per year over the next five years. This will lead to a total market in year 2000 of about 5,7 million ounces (i.e. about 1 million ounces larger than in 1995). A fairly stable market will not encourage new entry or aggressive moves to capture the growth of the market and is therefore unlikely to provide a high incentive for competition.

(v) Mining and refining technologies are mature

(152) Companies, as a normal course of their business, constantly strive to improve their cost position by introducing new work methods and new production technologies. Therefore, over time most industries experience an upgrading of the work methods and technologies utilized. The platinum-mining industry is no exception in this respect. Furthermore, it is also quite normal that

some differences in work methods exist between companies in the same industry. There are thus recognized differences between the work methods of the four main platinum producers. LPD is thus acknowledged as being the most advanced and efficient of the South African platinum mines. It is also recognized in the industry that competition from LPD has forced Amplats and Implats to reduce their cost positions.

(153) However, technological developments in the platinum mining industry take place relatively slowly. There are no major technological breakthroughs expected which would fundamentally change the production structure of the platinum industry. Progress in mining or refining technologies are therefore not likely to be a source of intense competition.

(vi) High entry barriers and no significant new entrants

(154) The global high quality ore reserves of platinum are in the hands of Amplats, Implats, LPD, and Russia. In particular, Amplats, Implats and LPD control all economically viable reserves in South Africa. This is a definitive barrier to entry. Furthermore, mining and refining of platinum is a capital intensive industry. The capital requirements also imply high barriers to entry. In addition, a large part of the costs of developing a mine are sunk, thus increasing the risk of entering platinum mining. It appears that there will be no significant new entrants capable of challenging the oligopoly members in the foreseeable future.

(vii) Multimarket contacts and structural links

(155) The members of the oligopoly meet each other in all the PGM markets as well as in a number of other markets, for example Gencor, the parents of Gencor, AAC and the Russians are all large gold producers.

(156) Structural links exist among several of the players of the industry. Notably AAC controls De Beers, the company responsible for operating the Central Selling Organization which controls between 70 % and 80 % of world diamond sales. De Beers and the Russians have a cartel agreement in the diamond market. In addition, Gencor (through Samancor) and AAC (through Vanadium) are shareholders in the Columbus stainless steel joint venture in South Africa. Since 1992, Columbus has been involved in major expansion operations to make the joint venture the sixth largest stainless steel producer in the world. To meet its demand for input materials, Columbus has access to the ferro-chrome smelter of one of its owners (Samancor) and for its nickel requirements, it has access to the domestic nickel producers Amplats and Implats. While these operations are outside the PGM business they none the less demonstrate the close links that exist between the parties and their competitors.

(157) On the 13 March 1996 (the day of the Oral Hearing in the case), AAC bought about 6 % of the shares of Lonrho PLC, with a right of first refusal over a further 18 %. Sanlam, one of the parents of Gencor, has about 3 % of Lonrho plc. A stake as large as almost 25 % is likely to give considerable influence over Lonrho plc due to the fact that the remaining shares of the company are widely dispersed. This confirms the interest of Amplats in the activities of LPD and increases the structural links between the suppliers in the platinum industry.

(158) Multimarket contacts and structural links may have a disciplinary effect on the members of an oligopoly by increasing the risks of retaliation, due to the existence of a high number of possibilities for retaliation if a member of the oligopoly were to behave unacceptably for the other members. In papers submitted to the Gencor and Implats boards, dated 6 May 1994, a study was presented by a consultant noting a range of possible competitor responses to Implats' interactions with LPD. One possible scenario included the following: 'disciplining attacks and signals — focused price wars, for example Rh [rhodium].'

(viii) Conclusion

(159) The transparency of the market and the product homogeneity in combination with the other demand and supply characteristics have created a situation conducive to oligopolistic dominance. As discussed below, the tendency towards oligopolistic dominance is borne out by the low level of competition in the market over the past two decades.

There has in the past been a tendency towards oligopolistic dominance

(160) Market growth and market share developments over the past decade indicate that a certain level of competition has been present in the market. However, low competition and other past behaviour of members of the oligopoly demonstrate the low degree of competition and the

tendency towards oligopolistic dominance in the last two decades.

(i) Past market growth and market share developments

(161) As can be seen from the table in Annex VI the total platinum market increased by 2,4 million ounces from 2,8 to 5,2 million ounces in the period 1985 to 1995. Recycling increased by 245 000 ounces and increased its market share from 2 to 6 %. However, the main beneficiaries of the increase in demand were Russia, Amplats and LPD, who together increased their supplies by almost 2 million ounces. Russia increased its market share from 8 to 23 %, mostly through increased sales from stocks, and LPD from [...] ([13]) to [...] ([14]) through increased production, whereas the expansion by Amplats could not prevent a decrease in its market share from [...] ([15]) to [...] ([16]). Implats was not able to increase its production and its market share decreased from [...] % ([17]) to [...] % ([18]). These changes in market shares are indications of a certain level of competition in the market. Particularly, the competition for the market growth has been provided by Russia and LPD, whereas Amplats cannot be characterized as an aggressive competitor, since it has had a declining market share and only expanded at a pace which has allowed it to defend its position as the leading producer, while it had opportunities for still further expansion.

(ii) Low degree of direct price competition for long-term customer contracts

(162) The evidence is that direct price competition for long-term customer contracts in the market is low. Day-to-day prices are determined on the metal exchanges, but according to information from customers as well as the parties, about 90 % of platinum is sold under long-term contracts and 10 % on the metal exchanges. Most long-term contracts have a duration of one year, but are normally automatically renewed annually. Supplier-buyer relationships, therefore, tend to be relatively stable. Long-term contracts often have a clause stipulating that the metal has to be used for its intended purposes, and in particular that it cannot be resold without the permission of the seller, who also has the right to buy back the metal in case the buyer does not need it. In return for these restrictions the buyer often receives a small discount of [...] ([19]) of the market price. However, these restrictions also prevent metal from being offered to other customers or from entering the metal exchanges and thereby from influencing the market price for platinum. In particular, the long-term contracts of the car companies contain such clauses, but it is the case for some fabricators as well. The Commission estimates that up to 40 % of annual platinum sales could be sold subject to these restrictions. The stability of supplier-buyer relationships, the small discounts and the restrictions on the resale of metal are evidence of limited direct price competition for customer contracts in the platinum market.

(163) The parties in their reply argue that:

'The Commission's concern as regards price competition appears to be with the small variation in discounts to customers, but in a homogeneous industry one would not expect to observe any such dispersion (whether the market was perfectly competitive or monopolized)' (NERA report, p. 27).

(164) The Commission disagrees with this conclusion about competition in the platinum industry. Producers sometimes compete for long-term customer contracts. Indeed an important factor behind the growth of LPD in recent years was the company's significant supply contract with Engelhard. The contract was obtained in competition with Amplats, but LPD offered better conditions and won the contract, even though Engelhard is linked to AAC. In a market with a limited number of suppliers and customers, where prices of metal sold under long-term contracts are indexed to market prices, price competition for long-term customer contracts could take place only in the form of discounts offered when suppliers are competing for the main contracts. Indeed, it would be illogical, if discounts were not a parameter in the purchaser's choice of supplier. However, the evidence is that there is only a low level of such competition in the market.

(iii) Low degree of competition is evidenced by sustained high price levels

(165) The parties in their reply argue that real platinum prices in rand have fallen throughout the 1990s

([13]) Less than 10 %.
([14]) Less than 15 %.
([15]) Less than 50 %.
([16]) Less than 40 %.
([17]) Less than 40 %.
([18]) Less than 25 %.
([19]) Less than 5 %.

putting a competitive squeeze on South African suppliers:

'When account is taken of the relatively high inflation in the South African economy over the period, the sharp fall in real platinum price levels throughout the 1990s is evident. The 1995 average price was half that which had held 10 years previously. This gives some feel for the competitive squeeze to which the South African suppliers have been exerted in recent years' (NERA report, p. 18).

(166) The development in yearly real platinum prices in 1975 to 1995 measured in US dollars, yen and rand are shown in Annex V. It is seen that real platinum prices in rand moved from R 1 500 per ounce to above R 3 000 per ounce in 1980 and 1986. With the exception of 1982 the real platinum price stayed above R 2 00 per ounce in the whole period 1978 to 1990. In view of the increase of demand since 1985, and the fact that LPD and Russia have increased their market share, it must be concluded that LPD and Russia played a crucial role in driving real prices down over the last five years, almost to the level of the mid-1970s. This is further confirmation that a certain level of competition has been provided by LPD and the Russians over the past five years, but it is certainly not the case if the whole period of the past two decades is considered.

(167) Furthermore, it should be noted that the relatively small amount of platinum traded on the metal exchanges and existence of long-term contracts potentially give the producers considerable scope to influence market price developments. First, long-term contracts give the producers more control over the destiny of the quantities delivered and thereby over the market price. This is particularly the case of contracts with restrictions on resale of metal. Long-term contracts, therefore, tend to prevent metal from influencing directly the market price development on the metal exchanges. Secondly, the main suppliers have a large scope for influencing prices on the metal exchanges through their supplies to the metal exchanges. The Russians have, for example, in recent years sold a considerable amount of platinum on the metal exchanges, which has contributed to the lower platinum prices discussed above. In 1991 the platinum price even dropped below US $ 350 when Russian exports increased for the first time to above 1 million ounces.

(iv) Past behaviour of the main market player

(168) The Commission has not conducted an investigation as to whether the main suppliers have behaved as a cartel in the past. However, in evaluating the possibility of future anti-competitive parallel behaviour, it is important to note the competitive environment of which the South African suppliers have been part in the past, as well as the actual competitive behaviour of the Russians.

(169) Competition has not been a prevalent characteristic of the South African economy before the recent political change. President Mandela, in an interview with Tim Modise on the South African television programme 'Focus', when asked about his views on the need for antitrust policies, expressly said:

'The fact that you have five conglomerates that own more than three quarters of the stocks quoted on the stock exchange is absolutely undesirable. We cannot have our industry or economy flourishing and growing if the economy is choked by five conglomerates which monopolize industry in the country. There must be competition. This is why the Minister for Trade and Industry is determined to amend the Competition Act to ensure that there is competition. Antitrust laws are crucial in this respect.'

(170) In line with the statement of President Mandela, an official South African Government discussion document on a minerals and mining policy for South Africa stated that:

'Market structures arising from conglomerate domination contain some critical problems as they result in oligopolistic markets.... What has happened in South Africa is that conglomerates have turned to market sharing agreements through a range of collusive practices that carve up markets between themselves and result in collusion to refrain from competition in some markets in return for undisturbed operations on other, unrelated markets.'

This document is a discussion document, which can contain contradicting views. However, this particular statement is not disputed in the document. It should be noted that mining is one of the most important industries in South Africa and that AAC, Gencor and the parents of Gencor are some of the most important players in South African mining.

(171) In the platinum market the Russians have during recent years supplied 10 % of market demand through sales from their stocks. Sales from Russian stocks are likely to have been primarily motivated by hard currency needs. The Russians through their sales have provided some competition and helped force the real price of platinum down at the beginning of the 1990s and to a certain extent prevented large price increases until today. However, judging from publicly available information from Johnson Matthey it seems that the Russians have realized the advantages of selling into market strength and not letting the platinum price drop too far. There are therefore limits to the extent that Russia will provide competition in the platinum market. On the basis of past behaviour it must be concluded that the Russians can be expected to provide only a certain level of effective competition to the main South African producers, and only until their stocks are depleted (see below).

(172) According to Mr R. W. Rowland, former managing director and chief executive of Lonrho, anti-competitive behaviour has been on the industry agenda for several years extending to the possibility of forming a De Beers style cartel. Furthermore, Gencor has for several years been interested in acquiring Lonrho's platinum operations with the aim of gaining practical control of LPD's mines. The monopolistic aims were, according to Mr Rowland, evident to all parties. The parties have in the reply argued that Mr Rowland's allegations are either unsubstantiated or irrelevant (the reply, p. 11). However, the parties have neither denied nor refuted Mr Rowland's statements.

(v) Only a few elements of competition in the future market situation

(173) As mentioned the Russians have had an incentive to sell from stocks in recent years due to a need for foreign currency. These additional quantities have provided some competition in the market as evidenced for example in the development of real prices. However, the Russian mines are in a deplorable state and it is widely believed, among others by the parties, that Russian stocks will be depleted in about two years at the current rate of sales. The competition provided by supplies from Russian stocks can therefore be expected to come to an end in about two years. As a consequence the market power of Implats, LPD and Amplats will increase relative to the Russians in the foreseeable future and reduce the Russians to a minor player in the industry.

(174) The other main new element of competition in the market in the past decade (apart from Russian stocks) has been Lonrho's expansion, increasing its market share from [...] ([20]) to [...] ([21]) between 1985 and 1995. According to a major buyer of platinum: 'Over the years Lonrho's platinum division by way of expansion has developed itself into a significant 'third-force' in the market.'

(175) Lonrho has potential for further expansion over the next years at only limited extra capital expenditure. Further expansion by Lonrho would provide competition in the platinum industry and must be expected to trigger competitive action from, particularly, Amplats as a response to the challenge.

(176) The operating cost curves of the mines of the South African based producers are shown in the graphs in Annex II. It should be noted that, in the case of [...], for example, about 80 % of total costs relate to mining and concentration, of which 70 % are fixed costs. As can be seen from the graph and as discussed in Section VII.B.2 the variations in the cost structures of Implats and Amplats are much bigger than is the case of LPD. It is also generally recognized that Implats is the high cost producer and LPD the low cost producer among the three South African producers. The differences in their cost structures give the companies different incentives in terms of competition. Particularly, LPD with its low cost operations has an incentive to expand its production which would provide competition to the other members of the oligopoly.

(177) Of the three South African suppliers, Implats has the most to lose from further competition due to its high cost mines. However, competition would also put pressure on the higher cost operations of Amplats, and force the company to develop its low cost reserves further and at an earlier stage. It is clear from internal papers from Implats and Lonrho that Lonrho wants to expand output and that Implats is against an expansion of LPD.

(vi) Conclusion

(178) It is clear from the market characteristics, the development of price competition and the past behaviour of the main market players that a tendency towards anti-competitive parallel behaviour has been a feature of the platinum market. However, over the past five years

([20]) Less than 10 %.
([21]) Less than 15 %.

competition has been provided by Russian sales from stock (which will end in two years) and the expansion of LPD which has developed LPD into a significant 'third force' in the market. In the future LPD has potential for further expansion at only low additional capital cost expenditures and would be able to provide competition to the other members of the oligopoly.

The current operation will create oligopolistic dominance and effectively a duopoly

(i) The role of Amplats in the platinum industry

(179) According to the parties' reply the strategy of Amplats is clear:

'Amplats' has consistently made its strategy manifestly clear to its competitors. In a recent example of this behaviour pattern, Amplats is quoted in the *Business Day* of 29 October 1995 as saying that it would use its financial muscle and superior ore reserves to deny competitors any growth in the platinum market. It added that its current planned expansions would leave production costs as the element separating winners and losers in the market (see Annex IV). It is their control over the lowest cost expansion possibilities in the industry (at PP Rust) which make statements like this credible.

... This leaves Amplats in a position where it can, if unchecked, exercise unique market power. For Amplats, this is the best of all worlds, while for Implats and LPD this necessitates a realignment that is the best option for re-establishing meaningful competition at the producer level (see Annexes V, VI and VII).' (Appendix 10 of the reply).

(180) Amplats has the capability to bring new capacity to the market at low costs at the pace the company finds appropriate. The main competitive checks on the competitive behaviour of Amplats in the past decade have been the expansion of LPD and Russian sales from stocks.

(ii) The merger will effectively create a duopoly

(181) The operation will combine all the platinum operations of Gencor and Lonrho in one company. Implats/LPD and Amplats would each have had a market share of about 30 to 35 % in 1995. This market share is likely to increase to about 40 % for each of the companies when the Russians are expected to stop selling from their stocks in about two years. This will also leave the Russians in the role of a minor player versus Implats/LPD and Amplats. In the medium to long term the competitive situation is likely to effectively develop into a duopoly. A duopoly situation would make it much easier for the main suppliers to adapt to each other's behaviour and, for example, restrict output.

(iii) Similar cost structures of Amplats and Implats/LPD will reduce the incentive to compete

(182) As can be seen from Graph 2 B in Annex II, the merger between LPD and Implats will result in a new company with an operating cost structure of mines which is similar to Amplats. Graph 2 B in Annex II does not imply that operational costs in all respects will be the same, since important differences can still exist due to differences in ore quality, different mix of ore mined, different costs in processing and refining operations and differences of costs in administration. However, the graphs in Annex II do reflect a greater similarity of the costs of Amplats and Implats/LPD after the merger.

(183) Implats has argued that the operation will enable the combined Implats/LPD to achieve considerable synergies. As can be seen in Section VIII these synergies are disputed by LPD management. The Commission believes that the synergies outlined could even be negative, since the differences in organizational cultures which exist between Implats and LPD will make integration difficult and could therefore be very costly. Therefore, the only effect of the merger on the cost structure is to create a company with similar cost structure to Amplats, but synergies will not give Implats/LPD a cost advantage compared to Amplats.

(184) The greater similarity of the cost structure of Amplats and Implats/LPD means that the combined Implats/LPD and Amplats, to a greater extent, are likely to be affected and act in the same way on market developments, for example, in their production decisions. A price increase would, for example, have a similar effect on the profitability of the two companies. The two South African

players would therefore have a higher degree of common interest in the way the market should develop, and this would increase the likelihood of anti-competitive parallel behaviour following the merger, for example restrictions of output.

(185) The parties have submitted in their reply that Implats has radically overhauled itself in the past few years and that the cost differences between the South African producers are much less than suggested. However, there is no disagreement that LPD is the low cost producer of the South African platinum industry and that one of Implats' main objectives of the merger is to secure access to low cost reserves.

(iv) The merger will eliminate LPD from the market and reduce competition

(186) The merger will eliminate LPD as an independent market player. All aspects of the mining, processing, refining, and marketing of platinum will be concentrated with a unitary management in Implats/LPD. Therefore, LPD as a significant 'third force' in the market will be eliminated as a consequence of the merger, thereby leaving customers with less market choice. As a consequence contract conditions are likely to become even less favourable to customers. The existing limited competition on rebates can for example be expected to be reduced even further after the merger.

(187) The merger is highly likely to lead to a restriction of output of the combined Implats and LPD. In this context it should be noted that a restriction of output is not only a matter of reducing the absolute level of production. Controlling the rate of expansion of capacity can be just as important. Even in a moderately growing market like the platinum market, simply slowing the rate of expansion of capacity will be enough to lead to a tightening of supply-demand balance and thereby to price increases. Indeed controlling the rate of expansion of capacity seems to be a main objective of the merger. As noted in the circular to the Lonrho shareholders prepared for the merger:

'Implats and Lonrho have in the past been unable to reach agreement on a number of issues including plans proposed by Lonrho to expand LPD's operations. The Directors believe that following the merger, the interests of both Lonhro and Gencor in enhancing the value of the enlarged Implats will be aligned to both shareholders' benefit.'

(188) Furthermore, according to projections presented to [...], the alignment of interests following the merger will involve the scaling back of expansion plans, thus leading to higher prices compared to a situation where the merger did not go ahead and both companies continued with their existing future planning. In particular [...] has been presented with two different production scenarios outlining the impact on production of Implats and LPD, if the merger were to be implemented or, respectively, not implemented:

'(a) [...]

(b) [...] ([22])'

(189) Particularly, [...] believes, according to the report entitled [...], that there will be two main benefits on the market side from the merger (in addition to possible cost savings):

'[... maintaining current production levels should positively influence key metal prices...] ([23])'

and furthermore,

'[... the merged group will have a higher market capitalization than the underlying value of the merged entities due to its size and ability to exert greater influence in the market...]'

(190) In the absence of a merger, an expansion by LPD would increase the competitive pressure on the low-margin mining shafts of Implats and Amplats. The Commission, estimates, based on the graph in Annex II, that shafts with negative operating profits accounted for [...] ([24]) of Implats' production and [...] ([25]) of Amplats in 1994. The merger will reduce competition and create oligopolistic dominance for two reasons:

(i) the merger will definitively remove the competitive threat of LPD to the high cost operations of Implats by consolidating the marketing functions of LPD and Implats and by ensuring that any future expansion of the current reserves of LPD is undertaken with a

([22]) [...].
([23]) [...].
([24]) Less than 25 %.
([25]) Less than 25 %.

view to the interest of the whole of Implats/LPD. From the point of view of Implats the merger would provide a check on the competitive behaviour of the current LPD;

(ii) the merger will create a company of the same size as Amplats, with ample low cost reserves, a similar cost structure and with an ability to exert greater influence in the market. In this situation, given the market characteristics and the past behaviour of competition in the industry, there will be no incentive for Amplats and Implats/LPD to compete with each other. Anti-competitive parallel behaviour is therefore a highly likely outcome of the merger. Indeed the current structure is much more likely to result in some degree of competition, because LPD is a third force in the market and has a higher incentive to expand its production than a merged Implats/LPD.

(191) Despite the previous links between the Gencor and the Lonrho groups, in the absence of the merger, Implats would not, over time, be able to prevent LPD from expanding its platinum production. LPD can expand with only limited additional capital expenditure. From the data provided by the parties as well as an analysis provided by Mr R. W. Rowland, former chairman of Lonrho, it appears that the planned expansion can be financed simply through internally generated funds. Further low cost expansion is also possible and despite Implats' minority protection rights, these cannot over time prevent actions leading to benefits accruing to all the shareholders.

(192) In their reply, the parties express concern that the Commission has failed to give proper weight to the evidence in the case by giving a misleading impression of third party views of the merger. They attempt to quantify the importance of evidence by citing a percentage of responses to two particular questions included in Commission questionnaires which they believe would support their position regarding the impact of the transaction. The Commission does not agree that it is possible to evaluate the weight of this evidence by assigning percentages to the responses. In fact, it is precisely because the Commission has considered all evidence that it has concluded that the merger would reduce competition in the platinum market.

B.6. **Economic analysis presented by the parties**

(193) The parties as part of their reply submitted an economic analysis of the proposed merger prepared by the economic consultant NERA of Great Britain, retained jointly by the parties.

(194) The economic analysis by NERA sets out a framework for the analysis of competition in the platinum industry. The conclusion about past competition in the platinum industry is that, 'The relationship between the current market price and the operating costs of the South African producers is consistent with competitive market outcomes' (NERA report , p. 12).

(195) The Commission finds that the extent to which the current price level reflects the competitive price of a perfectly competitive industry would be a matter of empirical research and has not been established by either NERA or the Commission. However, as discussed in Section VII.B.5, the Commission agrees that there has been a certain level of competition in the platinum market in recent years. Competition has mainly been provided by Russian sales from stocks and the expansion of LPD. The Commission also agrees with NERA that this competition has led to a reduction in operating costs and an incentive to introduce new low cost supply sources (NERA report, p. 6). LPD has played an important role in the South African platinum industry in this respect.

(196) Concerning the possibility of a monopoly abuse NERA argues that 'First, one of the key characteristics of monopoly abuse is the suppression of output whose operating costs are lower than the (prevailing) monopoly price level; and second, the exercise of monopoly power is largely dependent on the monopolist's ability to control marginal sources of supply'.

(197) The Commission agrees that the possibility of a supply response at the margin is crucial for the exercise of monopoly power in a classic economic sense. However, as argued previously (see, for example, Section VII.B.4.) a restriction of platinum production by the oligopoly is highly unlikely to be filled by supply from marginal sources, i.e. from suppliers outside the oligopoly, recycling and stocks outside Russia.

(198) Concerning the possibility of oligopolistic dominance NERA argues that 'Perhaps the most essential precondition if a tight oligopoly group is to succeed in achieving an anti-competitive market outcome is that there should be a stable market

environment, free from external shocks that might upset the status quo' (NERA report, p. 25).

(199) According to NERA the possible sources of external shocks include:

(a) exposure to shifts in demand;

(b) uncertainty regarding the (short and long-run) elasticity of demand;

(c) uncertainty regarding the selling policies of holders of platinum stocks and marginal sources of platinum such as nickel mines;

(d) uncertainty regarding the availability of recycled platinum (NERA report, p. 25).

(200) *Concerning point (a):* It is worth noting that some shifts of demand over time are a normal feature of many markets and not particular to the platinum industry. However, such shifts can be important to the assessment of oligopolistic dominance only to the extent they would upset the equilibrium of the oligopoly. As mentioned above, only a moderate growth of the platinum market is forecast in the coming years. Furthermore, in the past decades shifts in demand have been positive leading to higher levels of demand, and at present there is virtually no downside risk to expected market growth. Rather the supply gaps which are expected to arise can realistically be filled only by Amplats, Implats, LPD or from Russian stocks (in the short term).

(201) NERA argues 'that platinum is to some extent subject to speculative shifts in demand' and that 'the volume of paper trading on Nymex and Tocom amounted to some 135 million ounces in 1995, some 27 times more than the volume of physical deliveries' (NERA report, p. 8). The absolute volume of paper trading is a poor indicator of the level of speculative activity in a market. The Commission has not found in its investigation that the platinum market is a speculative market but rather that it is driven by fundamental supply and demand factors as discussed in the product market section. In particular, the RSI study commissioned by the Commission found that the Nymex is primarily a forward market serving the physical trade rather than a purely futures market.

(202) *Concerning point (b):* The Commission has concluded that the demand for platinum is price inelastic in the current price range. As discussed under the product market (Section VI.A.2 (iii)), the Commission recognizes that long-run demand elasticities of platinum could be higher in the event that prices were to increase, for example, two or three-fold. However, a significant but more limited price increase (for example 10 %) is highly unlikely to lead to substantial substitution. Indeed, this is clear from the experience of the period 1985 to 1989 where the real price of platinum was above US $ 600 (about 40 % above the 1995 level), but where substitution did not occur and demand continued to increase. In the reply, the parties do not dispute that the price elasticity of demand is inelastic in the current price range. This is consistent with a competitive market outcome. Indeed, according to economic theory a price elasticity of demand above 1 could have implied that the platinum price already before the current operation had been set at the monopoly level (NERA report, p. 27, point 3). However, as argued above, the Commission does not believe that the current price level is a monopoly price due to the competition provided, particularly by LPD and sales from Russian stocks. This is entirely consistent with the finding of an inelastic price elasticity of demand for platinum.

(203) *Concerning points (c) and (d):* As discussed previously the Commission finds it highly unlikely that suppliers outside the oligopoly, stocks outside Russia and the availability of recycled platinum will have a sufficient impact on the market to prevent an abuse of a joint dominant position.

B.7. Conclusion

(204) In the past the platinum market has been characterized by tendencies towards anti-competitive parallel behaviour. There is thus evidence of low price competition in the past two decades. The Russians have in recent years been selling from stocks — probably due to a need for foreign currency. However, they have pursued a policy of 'selling into market strength'. Furthermore, it is recognized that the South African mining industry has been characterized by strong anti-competitive behaviour in the past. LPD has been a part of this environment, but has still been able to expand its production and has thereby provided competition for Amplats and Implats. The Russian sales from stocks and the expansion of LPD are the main elements of competition in the market.

(205) If the merger were to go ahead the future situation would see two South African suppliers with similar

mining cost structures and incentives. The merger of LPD and Implats would have an anti-competitive impact on the market, since at present there is an incentive for LPD to expand and LPD, as a more active player on the market, would disappear. The new entity would have less incentive to expand as it would not wish to put Implats' high cost operations under pressure. In view of the market characteristics, resulting similar cost structures and the record of past competition in the platinum industry, there will be no incentive for Implats/LPD and Amplats to compete against each other. The removal of LPD would mean a qualitatively important difference in the market place. It is highly likely that a consequence of the merger would be a further tightening of platinum supply in the medium term, and therefore a higher level of platinum prices. This would be in the interest of both Amplats and a merged Implats/LPD which would hold a dominant duopoly position due to the weak competitiveness of the Russians in the medium term.

(206) In conclusion, the operation would create a dominant duopoly position in the medium term, consisting of Amplats and Implats/LPD, in the platinum market (already characterized by weak competition), as a result of which effective competition would be significantly impeded in the common market. The parties have, seen relatively, lower market shares in the common market than in other parts of the world and have argued that the operation, therefore, would only have a minor impact on the common market. However, as argued earlier the platinum market is a world market and prices for platinum in the European Community are set at the world market level. Therefore, anti-competitive effects of the operation in the platinum market would be felt in the European Community, for example, through higher prices for all the platinum sold in the European Community and not only the platinum sold by Implats and LPD.

C. **Rhodium**

(207) Rhodium is the third most important of the PGMs after platinum and palladium measured on sales value. Rhodium accounted for 12 % of total sales in volume of PGMs in 1994.

(208) In terms of market shares and concentration of supply, the situation is comparable to that for platinum. Implats/LPD and Amplats account for about 70 % of the market and Russia for about 20 to 25 % (see Table A2 in Annex I). The rhodium market characteristics appear to be the same as for platinum. The market is transparent, the metal is a homogeneous product which is freely traded, and the prices of the traders are publicly available. In addition, the mining and refining technology is mature, the mining production process is the same as for other PGMs, the industry has high barriers to entry, there are financial links and multimarket contacts and it is unlikely that buyers have any purchasing power as for platinum.

(209) As in the case of platinum, demand for rhodium is price-inelastic because its use is tied almost exclusively to autocatalysts. Specifically 98 % of rhodium is used in autocatalysts and the remaining 2 % in other industrial applications.

Conclusion

(210) For the same reasons as set forth in the discussion on the platinum market, the characteristics of the rhodium market imply that post-merger competition between the remaining players will not be enough to secure effective competition in this market. Therefore, the operation would create a dominant duopoly position in the medium term in the rhodium market as a result of which effective competition would be significantly impeded in the common market.

D. **Palladium, ruthenium, iridium**

(211) Apart from the markets for platinum and rhodium the Commission has also investigated the markets for palladium, ruthenium, and iridium. No competition problems were identified in the ruthenium and iridium markets. The Russians appear to be dominant in the palladium market. However, LPD will only add [...] ([26]) points to the Implats market share of [...] ([27]) (1994) and consequently the merger will not remove the dominant position of the Russian producer in the palladium market.

VIII. ECONOMIC AND TECHNOLOGICAL PROGRESS

(212) Implats has argued that it is possible to achieve considerable synergies and thereby reduce costs by

([26]) Less than 5 %.
([27]) Less than 15 %.

merging Implats and LPD. Implats believes synergies can be achieved particularly through:

(i) the productivity benefits of the parties learning from each other; and,

(ii) savings derived from closing some of LPD's processing and refining facilities.

(213) The extent of these synergies are disputed by LPD management. Morgan Grenfell and James Capel in a report prepared for the Board of Directors of Lonrho plc estimated the synergies of the merger to be only about one tenth of the synergies identified by Implats (excluding certain negative and positive non-quantifiable effects). The Commission believes that the only substantial synergies are to be found in the processing and refining facilities, but these synergies can first be realized in several years time. In particular, the large synergies derived from the concentration of the precious metal refining operations into one refinery are vague. In addition, the overall synergies of the merger could even turn out to be negative due to the very different organizational cultures of the two companies, which will make integration difficult and probably costly.

(214) It appears that the main effect of the merger is the increase in the market power of the merged entity. However, even if there were synergies, the Commission finds that they would not be to the advantage of the consumers since the operation will create a jointly dominant position in the platinum and rhodium markets and form an obstacle to competition in those markets.

IX. DRAFT COMMITMENT PROPOSED BY THE PARTIES

(215) The parties have proposed a draft commitment to the Commission which seeks to allay the competition concerns raised by the operation; the commitment was submitted to the Member States and was discussed at the meeting of the Advisory Committee on 9 April, 1996. It comprises three elements:

(i) the development of an extra [...] ounces of capacity at [...];

(ii) the maintenance of output at existing levels [...] ounces per annum;

(iii) the creation of a 'new supplier' in the market.

(216) The commitment offered is behavioural in nature and cannot therefore be accepted under the Merger Regulation. In any event this commitment does not meet the Commission's competition concerns. This is because, while the development of additional capacity would be of benefit, this offer of additional capacity, together with the proposal to maintain production at current levels, does not reflect the market growth which all commentators agree will take place. Furthermore output could be reduced prematurely at other mine shafts, owned by the merged entity, simply to maintain output, at the [...] ounce level, thereby restricting overall supply. More importantly these points do not address the question of the oligopolistic market structure. Therefore if one supplier maintains output at a constant level, this fact would be signalled to other members of the oligopoly for example Amplats. Consequently, if market demand grows, an upward pressure on prices would be generated.

(217) As regards the creation of a 'new supplier' the parties are simply to [...]. Consequently, this action would have a negligible impact on the future supply of platinum to ultimate consumers.

(218) Consequently, given these factors, the proposed, draft commitment offered by the parties is insufficient to meet the competition concerns raised in this case.

X. CONCLUSION

(219) The result of the operation would be the creation of a dominant duopoly position in the platinum and rhodium markets between Amplats and Implats/LPD, as a result of which effective competition would be significantly impeded in the common market within the meaning of Article 2 (3) of the Merger Regulation,

HAS ADOPTED THIS DECISION:

Article 1

The concentration by way of Gencor Limited and Lonrho plc acquiring joint control of the whole of Implats and LPD as notified by Gencor Limited and Lonrho plc is hereby declared incompatible with the common market and the functioning of the EEA Agreement.

Article 2

This Decision is addressed to:

1. Gencor Limited
   6 Hollard Street
   Johannesburg 2001
   PO Box 61820
   Marshalltown 2107
   Republic of South Africa

2. Lonrho plc
   4 Grosvenor Place
   UK-London SW1X 7DL.

Done at Brussels, 24 April 1996.

For the Commission

Karel VAN MIERT

Member of the Commission

ANNEX I

Table A1

Estimated market shares for platinum in 1994 and 1995, volume basis (*)

(%)

	1994	1995
Implats	< 25	< 25 (**)
LPD	< 15	< 15
Parties	< 35	< 35
Amplats	< 35	< 40
Russia	< 25	< 25
Others	< 10	< 10
Recycling	< 10	< 10
Total	100	100

Source: Data from the parties.

(*) Volume and value market shares are identical in the platinum market.

(**) The decline in the market share of Implats from 1994 to 1995 was due to temporary production problems.

Table A2

Estimated market shares for palladium and rhodium in 1994, volume basis (*)

(%)

	Palladium	Rhodium
Implats	< 15	< 25
LPD	< 5	< 10
Parties	< 20	< 35
Amplats	< 20	< 35
Russia	< 60	< 25
Others	< 10 (**)	< 15 (**)
Total	100	100

Source: Data from the parties.

(*) Volume and value market shares are identical in these markets.

(**) The figures exclude recycling, which was less than 10 % of total demand for palladium and rhodium in 1994 according to Johnson Matthey.

ANNEX II

EXPLANATORY NOTE TO GRAPHS

The graphs set out in Annex II represent the before and after merger operating cost curves of the three South African platinum producers as prepared by the parties to the operation. Operating costs include mining and processing costs and are largely fixed in nature.

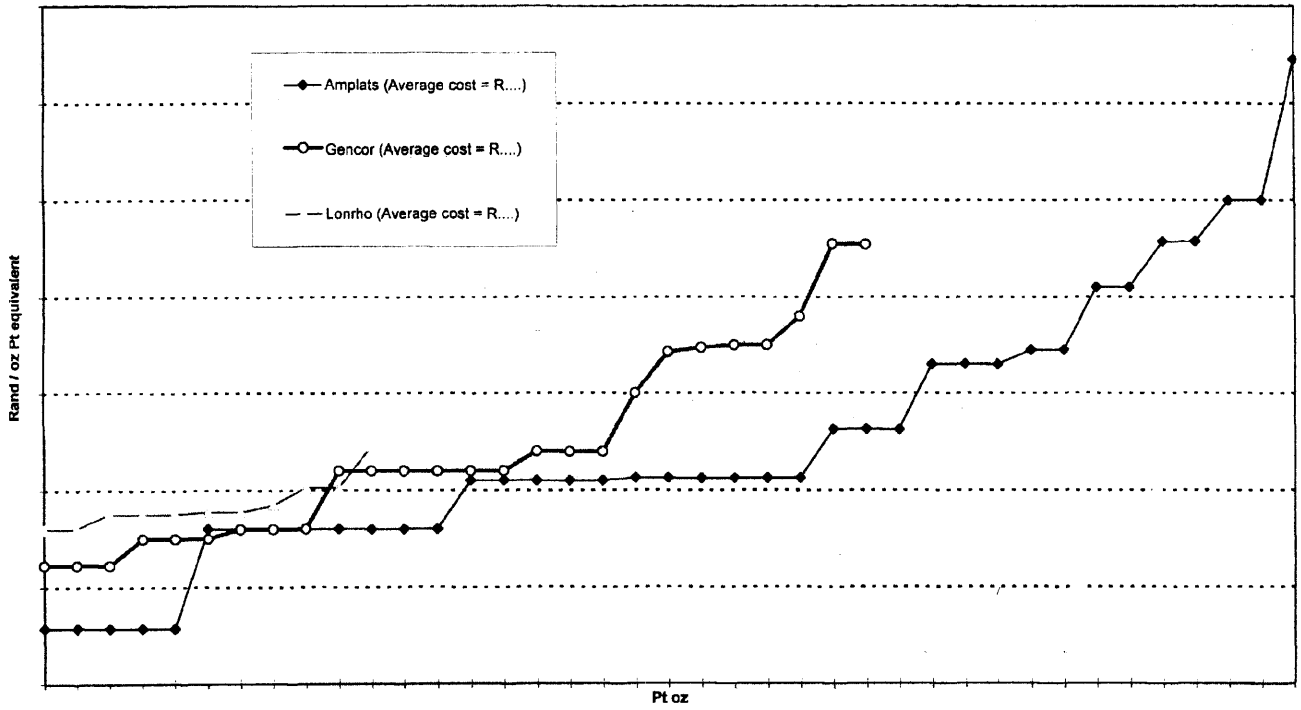
These graphs have been prepared based on the total operating costs of each of the producers' mines (expressed as rand per ounce platinum equivalent) for 1994 and the quantity produced (in thousands of ounces) by each mine.

Therefore, each step in the cost curve indicates the incremental production and associated operating costs of each additional mine.

The graphs show the current asymmetry in the operating cost structures between LPD, Implats and Amplats and the symmetrical post-merger cost structure between Implats/LPD and Amplats.

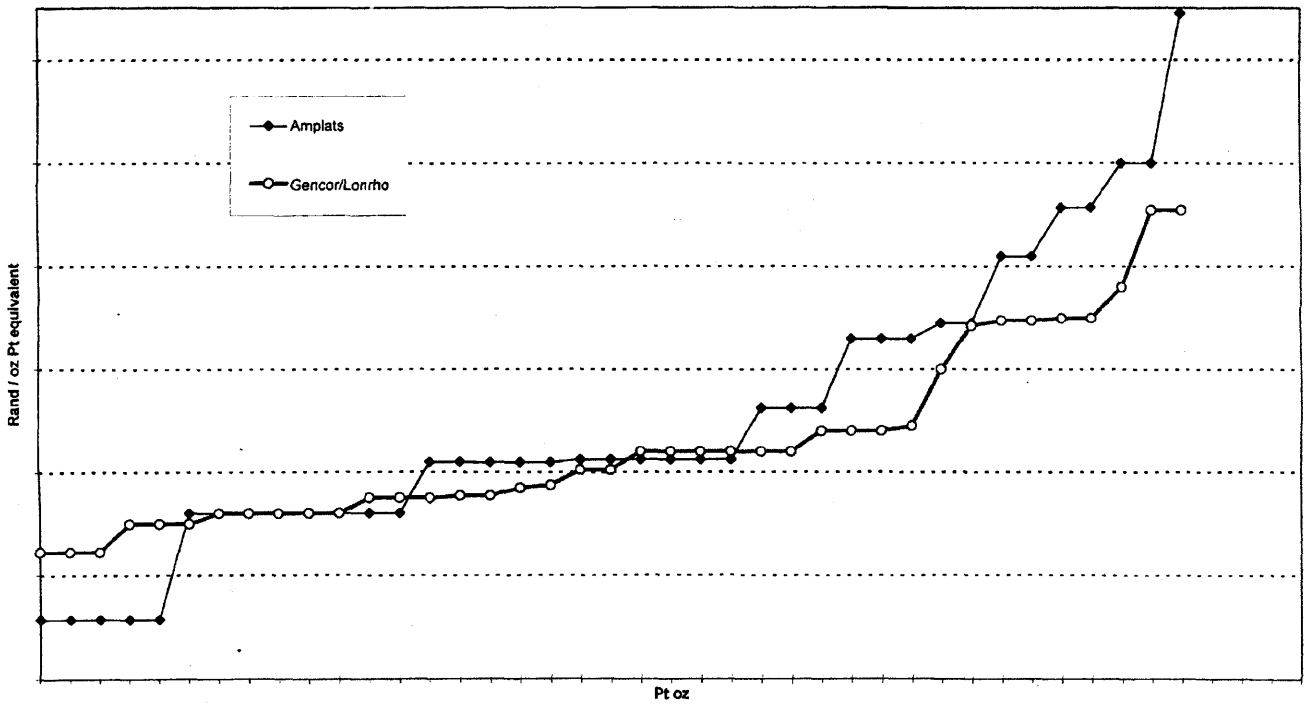
GRAPH II A

BEFORE MERGER (OPERATING COSTS OF SHAFTS)



GRAPH II B

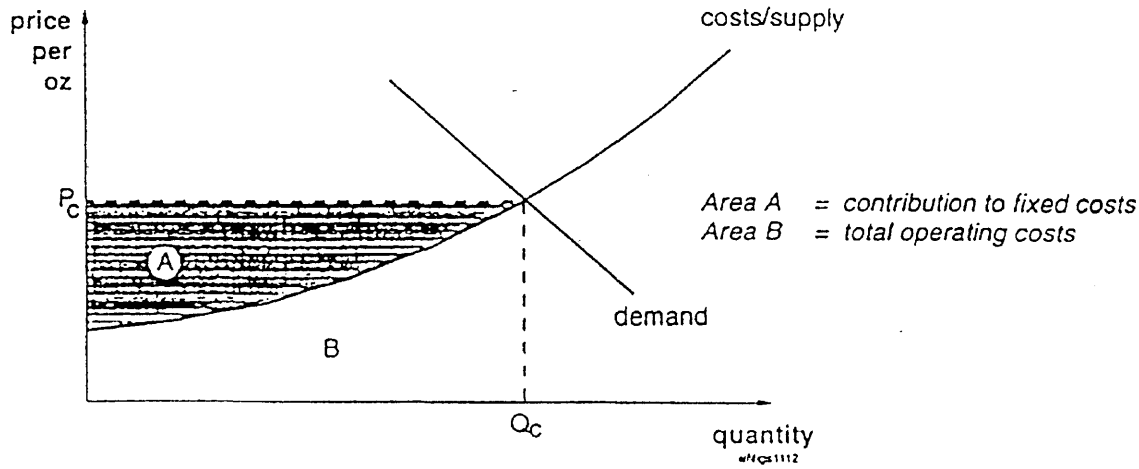
POST MERGER (OPERATING COSTS OF SHAFTS)



ANNEX III

Figure 2.1

Costs, supply and demand in a natural resources industry



ANNEX IV

Figure 3.1

Platinum industry cost curve for South African producers
(first six months financial year 1995)

[business secret]

ANNEX V

PLATINUM PRICE — VARIOUS CURRENCIES

Year	Exchange rates (local currency unit/dollar)		Platinum price: nominal			Platinum price: real		
	Japan	South Africa	US dollar/ounce	100 yen/ounce	Rand/ounce	US dollar/ounce	100 yen/ounce	Rand/ounce
1975	296,79	0,74	147,9	438,9	109,4	385,6	700,04	1 414
1976	296,55	0,87	153,5	454,6	133,3	376,2	672,57	1 567
1977	268,51	0,87	157,6	423,2	137,0	362,0	588,49	1 450
1978	210,44	0,87	259,9	546,9	226,0	553,6	723,93	2 150
1979	219,14	0,84	447,7	981,1	377,0	876,6	1 264,87	3 113
1980	226,74	0,78	662,0	1 501,0	515,6	1 184,6	1 850,55	3 437
1981	220,54	0,88	446,4	984,5	391,8	726,4	1 169,48	2 335
1982	249,08	1,09	328,2	817,5	356,4	503,0	955,85	1 868
1983	237,51	1,11	424,7	1 008,7	473,2	625,6	1 162,53	2 142
1984	237,52	1,48	357,4	848,9	527,3	503,8	956,16	2 141
1985	238,54	2,23	293,2	699,4	653,4	398,8	776,02	2 286
1986	168,52	2,29	466,9	786,9	1 066,9	618,3	857,58	3 203
1987	144,64	2,04	556,6	805,1	1 113,3	714,8	877,48	2 979
1988	128,12	2,27	530,3	679,5	1 205,7	655,6	738,22	2 755
1989	137,96	2,62	509,8	703,3	1 337,1	602,8	750,08	2 605
1990	144,74	2,58	472,1	683,4	1 218,1	535,1	712,77	2 062
1991	143,47	2,76	376,1	505,8	1 038,1	410,5	517,19	1 549
1992	126,70	2,85	359,9	456,0	1 025,8	382,1	459,57	1 361
1993	111,20	3,27	374,1	416,0	1 223,4	388,7	417,21	1 461
1994	102,20	3,55	405,3	414,2	1 438,7	412,6	415,36	1 556
1995	94,00	3,60	424,2	398,8	1 527,2	424,2	398,78	1 527

ANNEX VI

PLATINUM MARKET VOLUMES AND SHARES, 1985 to 1995

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
a) Volume											*(in 1 000 ounces)*
Amplats	1 260	1 350	1 350	1 370	1 360	1 330	1 385	1 265	1 670	1 530	1 805
Implats	940	850	1 010	1 050	1 040	1 120	1 005	1 065	1 080	1 010	870
Lonrho	140	150	160	160	220	310	380	420	505	510	560
Northam									105	110	115
Total South Africa	2 340	2 350	2 520	2 580	2 620	2 760	2 770	2 750	3 360	3 160	3 350
Russia (sales)	230	290	400	440	550	720	1 100	750	680	1 010	1 200
North America	150	150	140	210	195	185	220	200	220	220	240
Other	40	40	40	50	60	65	70	120	130	140	100
Recycling	70	90	115	160	175	215	215	245	275	315	315
Total world	2 830	2 920	3 215	3 440	3 600	3 945	4 375	4 065	4 665	4 845	5 205
b) Shares											*(%)*
Amplats	45	46	42	40	38	34	32	31	36	32	35
Implats	33	29	31	31	29	28	23	26	23	21	17
Lonrho	5	5	5	5	6	8	9	10	11	11	11
Northam	0	0	0	0	0	0	0	0	2	2	2
Total South-Africa	83	80	78	75	73	70	63	68	72	65	64
Russia (sales)	8	10	12	13	15	18	25	18	15	21	23
North America	5	5	4	6	5	5	5	5	5	5	5
Other	1	1	1	1	2	2	2	3	3	3	2
Recycling	2	3	4	5	5	5	5	6	6	7	6
Total world	100	100	100	100	100	100	100	100	100	100	100

Source: Johnson Matthey *Platinum 1995* en *Platinum 1995 Interim review*. Supply figures are Implats estimates of sales by the mines of primary platinum. With the exception of the Russians this equates closely to mine production.

ANNEX VII

PLATINUM PRICES — VARIOUS CURRENCIES

