

Anticipated acquisition by BOC Limited of the packaged chlorine business and assets carried on by Ineos Chlor Limited

ME/3624-08

The OFT's decision on reference under section 33(1) given on 29 May 2008. Full text of decision published 13 June 2008.

Please note that square brackets indicate figures or text which have been deleted or replaced at the request of the parties for reasons of commercial confidentiality.

PARTIES

1. **BOC Limited (BOC)** is an indirect wholly-owned subsidiary of Linde AG, a multinational industrial gases and engineering company. BOC is a UK-based industrial gases supplier. Its business includes the manufacture, distribution and sale of industrial, medical and speciality gases, the bulk supply of liquefied gases and the distribution of packaged chlorine.
2. **Ineos Chlor Limited (Ineos)** is part of the Ineos Group. Ineos is a producer of chlorine, chlorine derivatives and PVC in Europe and it is the sole chlorine manufacturer in the UK. The transaction concerns the acquisition by BOC of the packaged chlorine business and assets (the Target Business) carried on by Ineos, which includes the packaging and distribution of packaged chlorine. The Target Business's UK turnover in the last financial year was £[].

TRANSACTION

3. The Target Business operates from Ineos's chlorine manufacturing plant at Runcorn in Cheshire. The acquisition includes a 10-year lease of the site at

the plant in which the Target Business's equipment is located, plant and equipment, employees, Ineos's existing customer contracts, and a 10-year supply agreement between Ineos and the Target Business for the supply of 'bulk' chlorine.

4. The transaction was initially notified to the OFT as a statutory merger notice under section 96 of the Enterprise Act 2002 (the Act). However, given the substantive issues raised by the transaction, the parties subsequently withdrew the statutory merger notice. The OFT's administrative deadline for deciding whether to refer the merger to the Competition Commission is 29 May 2008.

JURISDICTION

5. The OFT believes that the combination of assets and rights being acquired constitute an 'enterprise' and that, as a result of this transaction, BOC and the Target Business will cease to be distinct. The parties' combined share of distribution of packaged chlorine in the UK is above 25 per cent and as a consequence the share of supply test in section 23 of the Act is met. The OFT therefore believes that it is or may be the case that arrangements are in progress or in contemplation which, if carried into effect, will result in the creation of a relevant merger situation.

MARKET DEFINITION

Product scope

6. The packaged chlorine supply chain comprises three levels: production and supply of bulk chlorine, chlorine packaging (into drums and/or cylinders) and the distribution and supply of packaged chlorine.
7. Ineos is the sole manufacturer and supplier of bulk chlorine in the UK, and it will maintain this position after the merger. Ineos is also active (through the Target Business) in the packaging of chlorine along with only one other company, Albion, that currently supplies BOC with packaged (drums and cylinders) chlorine. BOC and the Target Business therefore overlap in the distribution of packaged chlorine. Packaged chlorine refers to chlorine supplied in cylinders or in drums. Although it is also used for other industrial purposes, packaged chlorine is mostly used to disinfect and purify

water. In fact, [] per cent of the Target Business's sales are ultimately directed to water companies, and BOC's sales to customers other than water companies are minimal.

8. BOC submits that the market comprises at least the distribution of chlorine and its direct substitute sodium hypochlorite, but that it could potentially include the distribution of commodity chemicals and/or industrial gases in general on the basis of supply-side substitution.

Commodity chemicals and/or industrial gases

9. BOC submits that the relevant market could be widened to include the distribution of all commodity chemicals and/or industrial gases on the basis that distributors of other commodity chemicals and/or industrial gases with a UK distribution network could easily start supplying packaged chlorine.
10. Supply-side substitution refers to the extent to which suppliers of alternative products could and would switch their existing production (in this case, distribution) facilities to make alternative products in response to a change in their relative prices.¹
11. Although it might be the case that supply-side substitution by chemical and/or industrial gases distributors could be timely and feasible (subject to guaranteed access to chlorine, which is discussed in the barriers to entry section below), the evidence before the OFT does not support the argument that it would be likely.² The parties submit that expansion into the supply of packaged chlorine by distributors of other industrial gases or commodity chemicals in the UK would be profitable even at prevailing market prices. However, if that is the case (which is a proposition that is not supported by the parties' cost of entry estimates), it is not clear why they have not done so already. None of the chemical and/or industrial gases distributors contacted by the OFT displayed a willingness to enter the packaged chlorine business even in event of a five to ten per cent price increase.

¹ OFT *Mergers – Substantive assessment guidance*, para 3.13.

² The estimates on time and cost of entry provided by the parties are assessed in the barriers to entry section below.

12. BOC submits that in Albion/Brenntag³ the OFT 'adopted the frame of reference of the distribution of (a) speciality and (b) commodity chemicals with no further segmentation required' and that the same approach should be adopted in this case. However, this is not a wholly accurate quotation of that decision, which in fact reads: '[i]t was not necessary to conclude on the product scope given that on any frame of reference, no competition concerns occur. Nevertheless taking a cautious approach, the OFT has considered a) the distribution of commodity chemicals; the distribution of specialty chemicals and c) distribution in relation to individual chemicals' (Albion/Brenntag decision, paragraph 15, emphasis added).
13. When defining the relevant market in a merger case, the OFT carefully considers previous OFT, CC and EC decisions concerning the same industry sectors and takes due account of them. However, the OFT does not consider itself bound by such decisions, in particular because markets may change over time, and because the OFT will in general attach more weight to contemporaneous marketplace evidence gathered in an inquiry⁴ than on older findings related to other mergers – even if in the same industry sector – that may have had different emphases in the issues raised. In any event, the OFT does not consider that its analysis in this case is inconsistent with its decision on Albion/Brenntag quoted above.

Substitution to sodium hypochlorite

14. BOC argues that, on the demand side, there are a number of substitutes for packaged chlorine in its main application (the disinfecting of water), and that the principal substitute for packaged chlorine is sodium hypochlorite. BOC's main arguments to support the proposition that packaged chlorine and sodium hypochlorite are in the same product market are their water-cleaning characteristics and the fact that some water companies use sodium hypochlorite as well as (but not instead of) packaged chlorine. Sodium hypochlorite is also said to be cheaper⁵ and safer to handle than packaged chlorine. No estimates or further evidence were given in relation to the costs for customers to switch from packaged chlorine to other products such as sodium hypochlorite, although the parties said that they

³ OFT *Completed acquisition by Brenntag UK Holding Limited of Albion Group Limited* 28 November 2006.

⁴ OFT *Mergers – Substantive assessment guidance*, para 3.16.

⁵ Although the OFT understands sodium hypochlorite has to be used in greater volumes to achieve the same effect.

are not significant. However, the parties later clarified that no water company in the UK currently uses sodium hypochlorite to completely substitute chlorine.

15. When investigating whether two products are perceived by customers as substitutes for the purposes of market definition, the relevant question is not whether these two products could ever be functional substitutes, but whether a five to ten per cent price increase would cause enough customers to switch from one product to the other as to make that price increase unprofitable for a hypothetical monopolist supplier. When asked whether they would switch away to other products in case of a five to ten per cent increase in the price of packaged chlorine, none of the customers responded to the OFT that they would. Some of them said that the price increase required to trigger such a switch would have to be significantly higher than that. In addition, none of the competitors of the parties said that they believed that a five to ten per cent price increase would cause customers to switch. The parties said that there are a number of reasons why customers decide to use sodium hypochlorite, but did not present any evidence that they would switch as a result of a five to ten per cent increase in price.

Chlorine packaged in drums and in cylinders

16. In relation to the distinction between packaged chlorine sold in drums and cylinders, BOC contends that they are directly substitutable from a supply side perspective due to ease of switching (provided the relevant filling equipment is available). From the demand side, BOC argues that customers tend to seek tenders for both types of packaging within the same tender, and some source their requirements for drums and cylinders from different suppliers.
17. This argument is generally supported by third parties. In any event, the assessment of this case does not change significantly if the market is split between chlorine packaged in drums and cylinders or not and the question of whether they are part of the same market can therefore be left open.

Geographic scope

18. BOC submits that the relevant geographic market is at least national in scope, but likely to be as wide as Western Europe. Its main arguments are,

first, that regulation requires all water treatment utilities in the UK to have an alternative source of chlorine in place for business continuity in case of an incident.⁶ Second, BOC suggests that the price it pays for its own supplies of packaged chlorine from suppliers in Western Europe is evidence that imports can be profitably made to UK customers. Third, there are no regulatory requirements to hinder the transport of packaged chlorine across the English Channel (although it is forbidden to carry chlorine through the Channel tunnel).

19. BOC asserts that some UK customers already source either the entirety or a substantial proportion of their packaged chlorine from non-UK distributors, but no supporting evidence has been provided, and no third parties told us that this is the case. The only direct sales of imported technical grade chlorine (that is, the type used by water companies) to final customers that the OFT was made aware of (that is, sales not made through one of the UK distributors) referred to purchases by specialist chemical users who need this high grade of chlorine without particular impurities that are present in chlorine produced at the Ineos plant, and therefore have no choice but to import.
20. None of the customers or competitors who responded to the OFT considered that direct supplies from Europe are cost-effective, and none of the water companies about whom the parties provided bidding data are supplied by European distributors directly. Imports, through UK distributors, currently represent only six per cent of the total UK market.
21. The actual transportation of packaged chlorine into the UK is perceived by third parties to be very costly: the OFT was told that, to import a hazardous chemical by sea into the UK, hauliers will demand a substantial 'risk premium', regardless of any regulatory costs involved. Furthermore, it has been suggested to the OFT that there is only one haulage company which will transport packaged chlorine into the UK, which raises issues of price and quantities that can be transported. The parties submit that this is not correct and mentioned other possible hauliers but, even after prompting, did not provide any evidence about the availability and cost-effectiveness of other transport companies.

⁶ Since the Ineos' plant at Runcorn is the only chlorine manufacturing facility in the UK, this would imply sourcing from abroad, most likely from continental Europe.

22. Customers also stated that a physical presence and distribution network in the UK is required.
23. The existence of regulation requiring customers to have access to dual sources of supply does not in itself warrant the conclusion that the relevant market should be wider than the UK. The fact that some imported chlorine might enter the UK market is therefore not necessarily a result of competition, but of compliance with the regulations applicable to water companies. In addition, even if distributors source chlorine from abroad to meet their customers' regulatory requirements, that does not mean that customers will procure from suppliers of packaged chlorine who do not have a distribution system set up in the UK. In other words, even if a wider upstream market for the sourcing of packaged chlorine from packagers was justified, this does not necessarily imply a wider downstream market for the distribution of packaged chlorine.⁷
24. The pricing data provided by the parties suggest that it is currently uneconomic to import drums of chlorine although importing cylinders seems feasible based on that data. This is supported by a third party who said that whereas importing chlorine cylinders from Northern Europe is 'just about commercially possible...importing chlorine in drums is not economically viable'. Since most water companies award their drums and cylinders contracts to the same supplier (only 4 of the 17 water companies for which the OFT has details buy drums and cylinders from different suppliers), this might be a further barrier to the entry of companies supplying directly from Europe.

Conclusion

25. Based on the evidence available to it and in view of the arguments discussed above, the OFT considers that the appropriate frame of reference for this transaction is the distribution of packaged chlorine in the UK, considering drums and cylinders both separately and together.

⁷ Although if evidence showed that distributors could profitably compete in the UK market by selling packaged chlorine imported from Europe, this would alleviate one of the main barriers to entry (access to package chlorine). However, this is not the case on the basis of the evidence available to the OFT.

UNILATERAL EFFECTS

26. Save for some differences in packaging format, grade and quality,⁸ packaged chlorine is essentially a homogenous product. However, the distribution of packaged chlorine may, to a certain degree, be considered a differentiated product (service) given the differences in customer service and distribution logistics offered by the four UK distributors – Ineos, BOC, Albion and Air Products.⁹ In particular, according to the parties, when BOC entered the UK packaged chlorine market on a significant scale in 2000¹⁰ it focused on value added services and innovation, which included innovative packaging and shorter delivery lead times made possible through using its regional distribution depots. In contrast, Ineos operates a 'milk run' model, that is it runs delivery rounds from a single site, and is seen by customers contacted by the OFT as [].
27. The evidence available to the OFT does not allow it to estimate what proportion of the end price paid by customers of the merging parties can be attributed to the 'differentiated' distribution services and what proportion simply refers to the homogeneous product, that is, packaged chlorine. However, there is no need for the OFT to reach a conclusion on the extent to which the distribution of packaged chlorine can be regarded as a differentiated product in this case given that, as discussed below, an overall assessment of combined market shares, the change in the index of market concentration, the competitive constraint posed by BOC on the other market participants and the closeness of competition between BOC and the Target Business result in the conclusion that the merger raises competition concerns.
28. The parties' market share estimates of packaged chlorine distribution in the UK in 2007 (based on volume supplied) are as follows¹¹:

⁸ Grade and quality differences are not relevant for this case given that most of the merging parties' sales are made to water companies which essentially have the same quality requirements.

⁹ BOC estimates that Gerling Holz has a market share of [0-5] per cent. However, the OFT understands that all sales made by Gerling Holz []. It therefore cannot be considered as a competitive constraint on the merging parties. Air Liquide also has some very minor sales of packaged chlorine in the UK (less than []), most of which is []. [].

¹⁰ BOC has been in the packaged chlorine business for over 25 years, but before 2000 it was an extremely small player.

¹¹ The total adds up to 102 per cent due to rounding.

	Drums	Cylinders	Total
Target Business	[60-70]%	[55-65]%	[60-70]%
BOC	[0-10]%	[20-30]%	[5-15]%
Combined	[65-75]%	[75-85]%	[70-80]%
Albion	[20-30]%	0	[15-25]%
Air Products	0	[15-25]%	[0-5]%
Gerling Holz	[0-5]%	0	[0-5]%

29. The Herfindahl-Hirschman Index (HHI) indicates that the market was already highly concentrated pre-merger (HHI of [4,000-5,000] for all packaged chlorine) and that the increase in HHI is also very high: [1,200-1,600], leading to a HHI post-merger of [5,500-6,500].¹² On a *prima facie* basis, the HHI analysis raises concerns that the merger would significantly increase the market power of the pre-merger Target Business, and reduce competition in a market where it may already be limited.
30. If market shares are calculated based on number of contracts awarded, BOC's share of the market is more significant: based on the bidding data provided by the parties, of 17 water companies, the Target Business and BOC are suppliers to [] and [] respectively (market shares of [45-55] and [25-35] per cent respectively) with the two other competing distributors, Albion and Air Products, supplying only [] water companies each (market share of [5-15] per cent).¹³ This is consistent with the views of a number of third parties on the closeness of competition between the Target Business and BOC.
31. Most significantly, based on the bidding data provided by the parties, the share of supply figures in the past three years, and third party comments, the OFT believes that BOC has been a particularly aggressive competitor to the Target Business. Since 2003, only five water companies switched packaged chlorine suppliers. Of these, BOC has gained [] contracts from [] water companies where the Target Business was the incumbent and a fourth contract where the Target Business had been the sole incumbent has been awarded jointly to the Target Business and BOC.¹⁴ This data indicates that the merging parties are each other's closest competitor, with BOC being the most popular alternative to the Target Business in the four

¹² See OFT *Mergers – Substantive assessment guidance*, para 4.3.

¹³ The total is greater than 17 because four water companies source packaged chlorine from two different suppliers.

out of the five cases over the last five years where a customer switched away (wholly or partially) from its incumbent supplier. The closeness of competition between the parties in this case is not based on the fact that they offer very similar price/quality propositions in contrast to other more distantly-positioned competitors. Rather, it is that, judging by their past actions, customers have chosen to consider the merging parties close alternatives, and to have considered:

- on the one hand, staying with the large incumbent, with the cost and reputational advantages of back integration into chlorine manufacturing, but with an apparent minimal focus on optimising its distribution and therefore service-level proposition, and
- on the other hand, switching to the relatively new entrant, albeit with a strong position in industrial gases distribution generally, who has focused on service and quality of its distribution model at an attractive price.

32. BOC contends that, post-merger, it will continue to face competition, in particular from Albion and Air Products, which will represent alternatives for customers. However, this does not alleviate the fact that the merger combines close competitors, significantly increases concentration in an already concentrated market, and removes what appears to be the most important competitive dynamic in bidding for water company contracts over the last five years. The record of Albion and Air Products in failing to win business from either Ineos or BOC in the last five years¹⁵ does not suggest that, alone or in combination, they can easily replace the competition lost by the absorption of BOC and the Target Business.

33. The parties suggest, however, that their historic market shares are not reliable indicators of future success given that this is a 'bidding market'. The corollary of their argument would be that, post-merger, even a small number of competitors is enough to constrain prices because competition is 'for' the market (that is, for each individual contract) rather than 'in' the market. However, as discussed in past OFT cases,¹⁶ the conditions under

¹⁴ The [] contract, a very small contract for the supply of drums, was won by Air Products from Ineos.

¹⁵ Apart from a very small contract won by Air Products from Ineos.

¹⁶ See for example OFT *Anticipated acquisition by Tetra Laval Group of part of Carlisle Process Systems* 20 July 2006.

which standard competition assessments do not apply are only satisfied by a small class of 'pure' bidding markets. The evidence before the OFT suggests that this is not the case in the packaged chlorine distribution market, in particular because of the relatively high barriers to entry discussed below. In addition, the presence of some switching costs suggests that incumbent suppliers have some advantage in relation to other competitors, and contracts are not necessarily 'winner-take-all' nor very large relative to a bidder's total sales of packaged chlorine.¹⁷

34. In sum, given the bidding histories, the concentration data, and the credible concerns expressed by the vast majority of customers contacted in the course of this investigation, the OFT believes that the merger may be expected to result in a substantial lessening of competition in the distribution of packaged chlorine. Accordingly, the OFT expects that water companies will face chlorine price increases and/or service level reductions, relative to absent the merger.

COORDINATED EFFECTS

35. When assessing whether a merger will enhance the likelihood of coordination, the OFT must consider, first, whether the affected market is conducive to coordinated behaviour, and, second, whether the merger changes the competitive environment to make successful coordination more likely. In this case, the analysis of the changes brought about by the merger will focus particularly on the impact caused by the loss of BOC as a maverick competitor,¹⁸ the resulting duopoly of large (double-digit market share) competitors, and the contrast in the post-merger incentives of these main competitors compared to that of the Ineos business pre-merger, which was part of a vertically integrated chain from chlorine manufacturing through packaging to distribution.

¹⁷ For more details on the criteria for fitting a 'pure' bidding market model, see the paper *Bidding Markets* by Paul Klemperer available at www.nuff.ox.ac.uk/users/klemperer/BiddingMarkets.pdf

¹⁸ Although BOC is the 'surviving' merging party, the fact that, post-merger, it will be by far the market leader coupled with the fact that it will become a vertically integrated business in the packaging and distribution levels means that it will no longer have the same incentives to operate as a 'maverick' as it did prior to the merger.

STRUCTURAL CONDITIONS

36. The OFT guidance refers to the three conditions that must be met or created by a merger for tacit collusion to be successful or for it to become more likely: (i) ability to align behaviour; (ii) incentives to maintain the coordinated behaviour; and (iii) behaviour must be sustainable despite constraints external to the coordinating participants.¹⁹ The European Commission guidelines on horizontal mergers recognise the same factors in the assessment of coordination and provide useful guidance on their application, as do the U.S. 1992 Horizontal Merger Guidelines.²⁰
37. Based on the evidence available to it, the OFT believes that insufficient structural conditions were present in the pre-merger market to allow successful tacit coordination, but that there is a realistic prospect that the post-merger structure makes such conduct likely.

Ability to align behaviour

38. Coordination is more likely to materialise if competitors can arrive at a common perception about how it should work: market participants must be able to identify a focal point around which to coordinate their competition behaviour, which requires a certain degree of transparency as to the focal point in question, that is, the terms of coordination. Potential focal points include price, capacity, geographic areas, customers and/or contracts. A small number of firms present in the market, homogeneity of products, market stability, symmetry and structural links between the market participants are all factors contributing to the ability to align behaviour around a focal point, as is the frequency of interaction (for example, bidding for contracts) between participants.²¹
- Small number of firms – The transaction will reduce the number of significant players in the market from three to two,²² and, as described

¹⁹ OFT *Mergers – Substantive assessment guidance*, para 4.12.

²⁰ Commission Notice *Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings* OJ [2004] C 31/03 (the EC Horizontal Mergers Guidelines); 1992 Department of Justice and Federal Trade Commission Horizontal Merger Guidelines (amended 1997).

²¹ See the EC Horizontal Mergers Guidelines, paras 44 to 48.

²² For these purposes, the OFT treats Air Products as a fringe player, rather than a candidate member of a coordinating oligopoly: its market share is very limited at [] per cent.

in more detail below, arguably eliminates BOC as a potential 'maverick' competitor that imposed a binding constraint on coordination previously.

- Product homogeneity – Subject to the qualifications discussed in the unilateral effects section above, packaged chlorine is a largely homogeneous product (with limited differences in end product through differentiation in distribution).
- Demand stability and elasticity – Demand for chlorine for water end-uses is relatively stable as water companies' demand for chlorine is derived from water consumption, which is relatively constant from year to year.²³ In addition, as considered above in the market definition section, elasticity of demand is low given the lack of credible alternatives to which customers, in particular water companies, can switch in the event of a price increase, and by the fact that demand for chlorine is determined by demand for water, which the price of chlorine has no role in setting.
- Transparency of costs, prices and volumes – The merger leads to a market structure in which the dis-integrated upstream Ineos will supply the raw material, chlorine, to both the post-merger BOC and Albion. As chlorine accounts for a substantial part of the final contract price that distributors offer to customers, each of the two remaining suppliers is likely to estimate with some accuracy the cost structure of the other, and the margin that the other has to 'play with' to win the contract. In relation to the final price, because of the way most customers²⁴ tend to award their contracts (that is, through open tenders that are normally followed by a round of discussions), distributors will typically know the identity of each others' main customers and have estimates about the price being offered by competitors. As discussed below, the parties seem to have detailed information about the quantities and value of

²³ Although the parties submit that demand for water varies from year to year due to the weather and 'fluctuations in population', the OFT considers demand would be stable enough to enable market participants to coordinate their behaviour. In any event, weather variations and population trends are factors visible to all suppliers in the market.

²⁴ The following discussion about customers' behaviour and contracts refer to water customers, given that the vast majority of packaged chlorine sales (85 per cent of the Target Business's sales and almost [90-100] per cent of BOC's) made by the merging parties are to water companies, or to other chlorine distributors (e.g. Air Products) who in turn supply water companies.

sales made by other competitors. This is also illustrated by an internal document from Ineos [].

- Number of customer contracts and frequency of interactions between participants – The universe of water and sewerage customers is relatively small²⁵ and identifiable – arguably manageable for the purposes of customer allocation. On average, four or five water company contracts are put out to tender each year. Although these contacts run for two or three (or more) years²⁶ and vary in size, they go out to tender sufficiently frequently to allow, in combination with the other factors discussed in this section, market participants to find a focal point around which to coordinate competitive behaviour.

39. The above suggests two plausible candidate focal points for coordination post-merger. The first is allocation of customers: for example, a tacit bargain that each player will not bid aggressively against the incumbent. The second is price: each is assisted by the fact that the demand for a given customer is likely to be stable, and the focal point may be the degree of mark-up over each of the two participants' wholesale chlorine price from Ineos.

Incentives to maintain coordination

40. In addition to an ability to align, suppliers must have an incentive actually to adopt a coordinated strategy and maintain it over time, on the basis that the profits accruing to each participant over time must be considered greater than the profits to be gained from a short-run strategy of competing hard to win business from each other, say, on a single contract. This calculus will be governed by whether deviations in the coordinated behaviour can be easily monitored; moreover, unless the incentives to adhere are so strong that deviation can be dismissed as a possibility, the ability to punish deviation will be the necessary deterrent from doing so and reinforce the incentives of each supplier to adhere to the tacit bargain reached.²⁷

²⁵ The OFWAT website currently lists 28 such companies: see www.ofwat.gov.uk.

²⁶ This issue is further discussed below under the 'deterrent mechanisms' heading.

²⁷ Note that the OFT *Mergers – Substantive assessment guidance* does not consider the identification of a particular punishment mechanism a necessary condition for establishing a tacit coordination theory of harm (paragraph 4.15).

Commonalities of interest to coordinate

41. The merger will significantly increase the symmetry between the business models of the two remaining main competitors, BOC and Albion. Post-merger they will both be vertically integrated packagers and distributors sourcing chlorine in bulk from Ineos, and neither will have Ineos's differentiated incentives pre-merger relative to other competitors caused by its back-integration into chlorine manufacturing (where it enjoys a UK monopoly). The merger is likely to increase the transparency and symmetry between the principal firms (now only two) in relation to costs, which facilitates the identification of focal points for coordination (see above).²⁸
42. BOC argues that the difference in size between the merged entity, Albion and Air Products means that they will not have sufficiently common interests to tacitly collude. Although the OFT accepts that the merger will increase the asymmetry in market shares between BOC and Albion, it believes that symmetric sizes in terms of market shares are not a necessary condition for an OFT reference on a coordinated effects theory in a quasi-duopoly setting. In terms of incentives, it may be appropriate to consider that two unequal members of a duopoly nevertheless have a common interest in preserving their respective share of the status quo of market demand, even if not split equally, rather than engage in price competition to gain a larger share – or more customers than those for which they are the incumbent post-merger. This is more likely to be the case for coordinated strategies based on customer sharing in a market characterised by extremely inelastic customer demand: in a scenario like this, coordinators acting as quasi-monopolists within their territories would be able to enjoy significant mark-ups compared to the competitive price. (An alternative characterisation, albeit one which would not alleviate the OFT's competition concerns, is that BOC will be indifferent to competition from Albion and that as a consequence it will not have the incentive to coordinate (given that it might be more profitable to compete for Albion's business than to coordinate), but that in this scenario the market would fall in a leader-follower type of equilibrium, in which BOC as leader sets the competitive parameters, and is followed by Albion. In this case, prices are set above the competitive level (albeit below the tacitly-collusive near-monopoly level), even if the market equilibrium cannot be described as one of tacit coordination.)

²⁸ EC Horizontal Mergers Guidelines, para 48.

43. The OFT therefore believes that the increased asymmetry in market shares caused by the merger is not a decisive factor to dismiss coordinated effects concerns. This is true in particular in view of the other effects of the merger, that is, increased degree of market concentration, the elimination of the maverick player (BOC), and most crucially the alignment of the two main players, BOC and Albion, in terms of their business models and cost structures associated with them.

Monitoring deviations

44. The key issue in relation to the detection of cheating is transparency. In their initial submission the merging parties provided detailed estimates about prices and quantities of contracts awarded to other competitors. The parties later claimed that the market is not transparent, that those were only estimates based on speculation, that bidders do not know who else is bidding for contracts and the prices set by the winning bidder, and that contracts awarded by water companies do not contain commitments to purchase any given volume of packaged chlorine. However, the OFT notes that the estimates provided by the parties corresponded closely with information provided by third parties, in terms of the identities of water company contract incumbents, and of the volume and value of those contracts. This suggests that, to the extent that the information could not be fully guaranteed in terms of detail, it would be sufficiently reliable to monitor deviation from any tacit coordination. Most importantly, given that the number of significant competitors in the market will decrease with the merger from three to two, the merger removes a large part of the uncertainty about who is bidding and who has won, and at what price: each participants knows its own price and knows that if it did not win the contract, the other participant must have undercut that player.
45. The parties submit that, following the receipt of tenders, water companies normally meet the short-listed suppliers and suggest whether a downward revision of their price is required for the bid to have a chance to be successful. Even if the actual identity of the supplier who has put a lower offer is not disclosed, given the highly concentrated structure of the market, it seems that such meetings could be an opportunity to detect deviation.

46. In addition, due to the structure of the market, if coordination takes place, the OFT at this stage ranks customer allocation as the most likely candidate focal point: under this hypothesis, it is clearly straightforward to monitor deviations from the coordinated conduct if, for example, the non-incumbent wins a customer from the incumbent in defiance of the tacit agreement.

Deterrent mechanisms

47. Tacit coordination is not sustainable unless the threat of future retaliation is a real one and sufficient to convince coordinating firms that it is best to stick to the coordination.²⁹
48. In terms of ability to retaliate, the fact that the main suppliers are not capacity-constrained in the packaging or distribution levels of the market (and are able to buy bulk chlorine from Ineos at quantities that greatly exceed their current demand) means that undercutting a 'cheater' either by lowering prices or by targeting the cheater's customers is possible.
49. BOC argues that the rarity and value of contracts means that the potential benefit of colluding on a bid is likely to be outweighed by the risk of suffering considerable loss if another colluding bidder cheated. The validity of this argument depends on the effectiveness of the retaliation mechanism in case a supplier cheats.
50. Although water company contracts are not put to tender on a very frequent basis, there are on average four to five tenders per year. Therefore, if cheating occurs, another contract is likely to come up in a couple of months. It is true that some tenders refer to large contracts, whilst others are significantly smaller. It could be that, if cheating occurs in relation to a large contract, the other market participants will have to wait for another large contract to come up (or to bundle more than one smaller contracts) to be able to retaliate effectively. However, according to the parties, contracts with water companies constitute only a 'framework agreement' (without a guaranteed purchasing commitment) and therefore retaliation could occur by a rival supplier subsequently offering better terms on a contract that has already been awarded.

²⁹ See OFT *Mergers – Substantive assessment guidance*, para 4.15 and EC Horizontal Mergers Guidelines, para 52.

51. However, if the terms of coordination were customer sharing, whereby each participant, say, retains incumbency, the cheating is easily detectable – where the other player steals the customer from the incumbent, and the punishment mechanism is relatively obvious: a retaliatory bid that wins the other party's customers at the next opportunity. The OFT accepts that there are questions about how effective the deterrent mechanism might be if the disparities in contract size meant that cheating on a large contract would not be sufficiently punished by retaliation on a smaller contract.
52. Nevertheless, notwithstanding certain open questions, given the strength of the other conditions for coordination discussed above, which are significantly increased by the merger (as further discussed below), it believes that there is at least a realistic prospect that the deterrent mechanism could be sufficient for coordination to be successfully achieved in this market and prices could increase as a result (and/or service levels decrease).

Sustainability of coordination

53. Coordination will not be successful if potential competitors or customers of the coordinating firms are able to disrupt it.
54. The OFT's coordinated effects case does not rest on the proposition that the pre-merger market was subject to coordination between suppliers. Assuming no such coordination, and assuming also that there may be multiple reasons why coordination was not sustainable, it is plausible that the most important constraint on coordination was BOC itself, as the firm in the market with maverick incentives tending to disrupt, rather than participate in, coordination. As the aggressive new entrant since 2000, BOC incentives were not wedded to the status quo of the incumbents, but rather to expand its business by lowering price, and offering superior service to win customers and steadily gain market share. As such, BOC's presence in the market is a prime explanation – though not the only one, or necessarily the only contributing factor – as to why the OFT has no evidence that the pre-merger environment was subject to coordination between suppliers.
55. By absorbing the large incumbency position attached to the Target Business, BOC will be lost as a disruptive force given the change in its

incentives after the merger. The U.S. horizontal guidelines³⁰ and academic literature on competition indicates that, if certain structural conditions are present, the removal of a maverick by a merger might be a factor tipping a market into tacit coordination (or strengthening it if it already occurs).³¹ This merger eliminates this disruptive force and potentially the binding constraint on coordination; as a consequence the likelihood of coordination is materially enhanced by the transaction, even if the OFT does not go so far as to conclude overall that post-merger coordination is more likely than not.

56. As discussed below, barriers to entry to this market are relatively high and therefore disruption of the coordination by a new entrant is not likely. The market is mature and stable from a demand perspective, as evidenced by the relatively steady total size of the market and market shares in the past few years. While Air Products is a fringe player, it is the only such player, it has relied on Albion for supply of chlorine and its record to date does not suggest sufficient ability and/or incentive to expand its presence.
57. Although the evidence suggests that customers do not possess significant countervailing buyer power (see below for separate discussion on buyer power), it is possible that customers could try to disrupt coordination by, for example, changing the frequency of contracts or by forming buyers' groups. However, such behaviour by customers would imply that they are aware that their packaged chlorine suppliers are tacitly coordinating. Given the small value of chlorine as an input to water companies in relation to its other inputs, the fact that contracts are fairly long, that prices have been going up in recent years and that some industry participants told the OFT that they expect that prices will go up as a (unilateral) effect of the merger (and therefore it would be difficult for the customer to isolate a price increase due to coordination), it is far from certain that any tacit coordination would be noticeable by customers and that they would try to disrupt it. Moreover, buyer-side coordination between multiple water companies appears substantially more complicated as a defensive strategy in response to coordination between the two main suppliers post-merger, and it is not clear that even a coordinated increase to the monopoly price (for such a small input cost) would necessarily trigger such action.

³⁰ See U.S. horizontal guidelines, para. 2.12.

THE MERGER'S IMPACT ON THE RISK OF COORDINATION

58. Although the changes brought by the merger that facilitate coordination have been touched on in the discussion above, it is worth summarising them as follows.
59. Of the four current competitors in the UK packaged chlorine distribution market, Ineos is best described as a chlorine manufacturer, for whom chlorine packaging and distribution to final customers is not its main focus (evidenced by comments by the parties and third parties about its weaker customer service and this merger proposal). Albion is a chlorine packager and a distributor (along with other commodity chemicals), and Air Products and BOC are distributors of a range of speciality gases and chemicals, of which chlorine is one.
60. BOC is a relatively recent entrant (on a significant scale) to the chlorine distribution market, and one that has been successfully and strongly competing in terms of contract wins (or at least clearly more strongly than the other players) against the fully-vertically integrated market leader Ineos. Evidence suggests that BOC has a differentiated business model from Ineos, focusing strongly on customer service and on offering a good distribution network through regional depots. In sum, BOC can be described as a maverick and a 'disruptive' force injecting competition in the market.
61. The pre-merger Ineos is also a differentiated supplier in terms of its market position: due to its upstream activities and its position as the monopolist producer of raw chlorine in the UK, it is likely to have different incentives from its distribution competitors when deciding how it will behave in the downstream distribution market for packaged chlorine. In particular, it is reasonable to consider that it would have the incentive to sell as much chlorine as possible downstream as it will be capturing the profits in the production and/or packaging levels of the market. This incentive provides an explanation as to why Albion is willing pre-merger to supply packaged chlorine to rival distributors (BOC and Air Products): to the extent it did not do so, Ineos would be likely to supply them instead. Aside from the threat

³¹ See for example Jonathan B Baker 'Mavericks, mergers, and exclusion: proving coordinated effects under the antitrust laws' 77 N.Y.U.L. Rev. 135.

posed by BOC, the vertically-integrated Ineos, and the non-integrated Albion, were also unlikely to have similar cost structures pre-merger.

62. Post-merger, BOC will become an integrated packager and distributor, similar in structure to Albion. Outside of these two, the only other competitor at the distribution level would be Air Products, a pure distributor with a small market share who does not possess packaging facilities in the UK and is therefore dependant on Albion (or potentially BOC post-merger) to source packaged chlorine.
63. As discussed above, the merger will increase market share asymmetries by increasing the market leader's share of supply, but the importance of this is diminished by the fact that the merger leads to what is, in effect, a duopoly between two similarly-situated players in terms of cost structure: each is non-integrated into chlorine manufacturing, likely to face quite similar raw material input costs from Ineos for chlorine itself (they must source from Ineos, since it is the UK monopolist) and each seeking a margin deriving from the mark-up accounted for by packaging and distribution.

ILLEGALITY OF THE CONDUCT

64. BOC argues that this theory of harm would only be implemented in practice if BOC and Albion were to behave illegally, and that the OFT is not entitled to assume that such behaviour would take place in the absence of evidence that that is likely to happen. The same comment was made in relation to the vertical coordinated theory of harm discussed below.
65. First, the OFT notes that tacit coordination as described above (rather than coordination by agreement) is not illegal under Chapter I of the Competition Act 1998 (the CA98).³²³³
66. However, in any event, the OFT does not believe that it is required to discount a competitive theory of harm on the basis that the postulated future conduct of the merged firm would be illegal. Many vertical theories of harm would be automatically discounted if the OFT were prevented from

³² In relation to the vertical coordinated theory of harm, it is more likely that the foreclosure of a competitor by a dominant firm (or collectively dominant firms) would amount to an infringement of Chapter II of the CA98.

³³ OFT *Mergers – Substantive assessment guidance*, para 4.11.

examining theories of harm that would imply that the merged entity would be acting illegally in the future. An important part of the rationale behind the merger control system is that the mere existence of Chapters I and II of the CA98 are not sufficient to prevent infringements arising, as the OFT's cartel enforcement programme suggests. The OFT's approach to mergers that increase the possibility of explicit coordination was further detailed in *OFT Anticipated acquisition by Wienerberger Finance Service BV of Baggeridge Brick plc*³⁴ but as in that case, the OFT's overall decision to refer – on the basis of likely unilateral effects and a realistic prospect of tacit coordination – renders it unnecessary to consider the issue of explicit coordination post-merger.

CONCLUSION

67. The OFT has received no evidence that tacit (or explicit) coordination occurred in this market pre-merger, but it considers that the post-merger market is conducive to tacit coordination. Based on the factors considered above, in particular the presence of structural conditions and the fact that the merger leads to the elimination of a maverick player and the creation of quasi-duopoly, the OFT believes that the merger may increase the likelihood of tacit coordination between BOC and Albion occurring in the market by increasing their common incentives to maintain coordinated behaviour. Although the precise operation of the deterrent mechanisms in case of deviation from the coordination may be questioned, the OFT believes that the merger increases the incentives and ability to coordinate sufficiently to give rise to a realistic prospect of coordinated effects concerns.
68. The OFT has previously expressed the view that the anti-competitive effects of a merger are normally either unilateral or coordinated effects and are not likely to occur within the same relevant market at the same time.³⁵ However, it is possible that both effects occur at different times – for example, short-run unilateral effects and medium-term coordinated effects.³⁶ Beyond the likely unilateral effects, the OFT considers that if coordinated effects were indeed likely following the merger, they would arise sequentially following (and not, as noted, in parallel with) the unilateral effects.

³⁴ Decision of 11 December 2006.

³⁵ See *Polypipe/Verplas*, decision of 11 July 2007, para. 42.

³⁶ See e.g., *Federal Trade Commission and U.S. Department of Justice, Commentary on the Horizontal Merger Guidelines 2006*, p. 17.

69. Moreover, given its duty to refer threshold, the OFT considers it appropriate to refer on the basis of an expectation of unilateral effects (that is, on the balance of probabilities) but also to consider that it may be the case that the merger will lead to coordination.

VERTICAL ISSUES

Coordination on foreclosure

70. The OFT also considered whether, following the merger, BOC and Albion might tacitly coordinate to exclude Air Products (as well as any other potential entrant at the distribution level) by either refusing to supply packaged chlorine or by increasing prices to a level that renders Air Products unable to compete. Based on the evidence before it, the OFT does not consider that Air Products would be able to compete effectively by importing chlorine from its plant in Spain.
71. Under this theory of harm, BOC's and Albion's incentives to tacitly collude change in relation to the pre-merger situation between Ineos and Albion in view of Ineos' position as the monopolist producer of raw chlorine. As such, Ineos currently has the incentive to sell as much chlorine as possible in the two downstream levels of the supply chain (packaging and distribution). Pre-merger, Albion would be aware that, if it refused to supply Air Products (or BOC), the distributor could purchase from Ineos' packaging business. Once the merger breaks that vertical link, BOC and Albion's incentives become much more symmetric, and they might tacitly recognise that it is in their interest to foreclose Air Products or any other distributor that attempts to enter the distribution market.
72. BOC submits that, because it has important swap agreements with Air Products for air gasses, it would not jeopardise this relationship over the supply of a niche chemical such as packaged chlorine. However, when contacted by the OFT, Air Products []. In fact, it said that []. In addition, the argument presented by BOC cuts both ways: it might be argued that Air Products would not seek to jeopardise their wider relationships with BOC for the sake of their small market share in packaged chlorine, which is in itself a relatively small market.

73. However, although it might be in BOC's interests to foreclose Air Products and try to gain customers from it, Albion is unlikely to have an interest in foreclosing Air Products for exactly the same reason, that is, because the customers lost by Air Products would likely be won by BOC. By supplying packaged chlorine (in cylinders) to Air Products, Albion benefits from the increased scale of its packaging operation and captures some of the profits related to the sales to final customers made by Air Products (since it will be profiting from selling packaged chlorine to Air Products). If Air Products were to be foreclosed, BOC (given its much higher market share) is likely to gain a greater share of Air Products' customers than Albion, which could render it worse-off by foreclosing Air Products than if it did not.
74. Given that the OFT believes that the merger raises competition concerns based on unilateral and (horizontal) coordinated effects, it is not necessary to conclude on this theory of harm.

Possibility of Albion's exit from the market

75. Notwithstanding the parties' initial submission, []. Moreover, the expectation of closure seems consistent with the wider perception in the industry about the future of Albion's operations at Sandbach. If Albion closed down its packaged chlorine business in Sandbach, the unilateral effects theory of harm discussed above would be further strengthened (and the coordinated effects theory of harm would of course be discredited).
76. However, based on the evidence available to it, the OFT cannot be sufficiently certain that the closure of Albion's packaging facilities is sufficiently likely in the short to medium term, and even less so that this would be a consequence of the merger. On this basis, the OFT has examined the competitive effect of the merger assuming the pre-merger position (that is that Albion operates as a chlorine packager).

BARRIERS TO ENTRY

77. The parties have focused their arguments in relation to barriers to entry on considering whether there are potential difficulties in entering the packaged chlorine distribution business, given that this is the only area of horizontal overlap between BOC and the Target Business. However, any new entrant will face two vertically integrated firms as their main competitors. The OFT

considers that, for entry to be sufficient to prevent price rises (or quality decreases) as a result of the merger, it might have to occur in the form of a vertically integrated business for two main reasons. First, even if access to packaged chlorine is guaranteed, it is questionable whether the cost structure of a new entrant in the distribution level only would be competitive against vertically-integrated distributors who are also chlorine packagers. Second, BOC and Albion might not have the incentive to supply packaged chlorine to new entrants in the markets given that any new entrant is very likely to be in competition with either BOC or Albion.³⁷

78. The OFT therefore has considered barriers to entry to the distribution business, followed by a consideration of the barriers to entry to the integrated packaging and distribution business and by an overall assessment.

Distribution of chlorine

79. BOC submits that there are no significant barriers to entry into the market for the distribution of packaged chlorine in the UK. It uses its own experience as an example, since it only began distributing packaged chlorine in the UK on a large scale in 2000, and is now the third biggest player in the market by volume (second by value).
80. BOC argues that its own packaged chlorine business is very simple and low-tech, consisting of an administrative function for participating in tenders, procuring packaged chlorine from Albion or Ineos and loading it into trucks, and delivering the drums or cylinders to customers from its regional depot network. It asserts that its distribution business could be easily replicated by industrial gas suppliers, chemical distributors or European gaseous chemical suppliers, in particular when they already have

³⁷ This argument is similar to the arguments articulated in the 'coordination on foreclosure' section above. However, it is plausible that the incentives for BOC and Albion to supply a new entrant are further reduced in comparison with those to supply Air Products, in particular because Air Products is a 'known' competitor, who has been active in the market for a number of years without having significantly increased its sales nor taking significant business away from the incumbent suppliers. By contrast, allowing a new entrant into the market carries the risk that such an entrant would try to actively and aggressively compete against the established suppliers, Albion and BOC. As discussed elsewhere in the text, BOC and Albion's incentives to supply new entrants (or, indeed, Air Products) post-merger are different from the pre-merger scenario given the presence of Ineos as the monopolist supplier of bulk chlorine in the UK.

relations with water companies for the supply of other gases. BOC submits that the physical assets required to enter the distribution business are an open air concrete storage area,³⁸ one or more flat bed vehicles with a tail lift and a fleet of cylinders and/or drums, which could be purchased, hired, or supplied by the customer.³⁹ BOC also submits that distribution can be outsourced if necessary to specialist haulers, and that distribution centres and stocking stations are not a pre-requisite for entry.

81. BOC estimates that the cost of entry on a similar scale in which it is operating (it currently has about £[] of sales per year) is of a maximum of £[], of which only £[] would be sunk. It also says that these sunk costs would be recoverable within one year. However, these figures are based on the assumptions that (a) an entrant could achieve a sales volume of £[] within one year, and (b) it could achieve a margin of [] per cent on these sales. However, since only one water company contract (Scottish-Northumbrian) is worth more than £[] per year, it is likely that an entrant would have to win more than one contract to recoup sunk costs within one year. Given that it has taken BOC six years to build up a portfolio of water company contracts worth over £[] per year,⁴⁰ it is very unlikely that a new entrant could do this within one year, especially since only four or five water company contracts go out to tender each year. It is therefore probable that recouping sunk costs would take significantly longer than one year for a new entrant, thus making entry more difficult than the parties suggest. In addition, the cost of entry estimates provided by the parties do not account for the cost of buying packaged chlorine, and therefore they are very likely to be underestimating the real cost of entry.
82. None of the four chemicals distributors active in the UK that were contacted in the course of this investigation demonstrated interest in entering the packaged chlorine distribution business.

Packaging business

83. BOC also submits that the cost of entry into the chlorine packaging business is of around £500,000, and that a packaging facility could be set

³⁸ Although BOC themselves have multiple depots around the UK. Only Ineos operate one depot model.

³⁹ BOC clarified that only one of its customers possesses its own fleet of drums or cylinders.

up in a site with the necessary facilities. BOC says that there are many such sites, but has not provided any details about those sites, the cost of entry estimates, nor the profitability of entering the packaging business. No third parties contacted by the OFT in the course of this investigation said that they were looking into entering the packaging business.

Overall assessment on entry

84. To remove competition concerns caused by a merger, the prospect of entry must be sufficient in time, scope and likelihood to deter or defeat any attempt by incumbent suppliers to exploit the reduction in rivalry flowing from the merger.⁴¹
85. Internal documents from BOC seem to suggest that entering the UK []. One of the rationales for the acquisition is presented in one such internal document as being [].⁴²
86. This analysis is corroborated by pre-merger internal documents from third parties – they indicate that third parties believe that barriers to enter the packaged chlorine business are high due in particular to import logistics, difficulties accessing bulk chlorine and the fact that customers are risk-averse and therefore reluctant to switch to new, untested providers.
87. Another important consideration for potential entrants is the fact that, post-merger, the two main players in the market will be vertically integrated to the same degree (that is, in packaging and distribution, but not in production) and a new competitor active only downstream would face competitive disadvantage due to difficulties in accessing packaged chlorine.
88. Indeed, access to chlorine was mentioned by a number of third parties as being a barrier to entry, which indicates that importing packaged chlorine may not be a viable option for an entrant who wishes to compete for water company contracts, and that a UK chlorine source is required. This issue

⁴⁰ In fact, BOC submits that 'its business plan was to achieve a supply tonnage of [] tonnes of packaged chlorine to water company customers by 2006', that is, in six years following its entry as a more sizeable competitor in 2000.

⁴¹ OFT *Mergers – Substantive assessment guidance, para 4.17*.

⁴² BOC later explained that this internal document 'whilst entirely truthful ...is, by its nature, intended to be persuasive and accentuate the arguments in favour of Board approval, rather than presenting a neutral summary of them.'

has been discussed in further detail in the vertical effects section (coordination) above. The OFT considers that difficulty in securing a source of supply for an input product can render entry unlikely. The parties have not provided any specific arguments or evidence to demonstrate that this is not the case.

89. The OFT therefore considers that entry and/or the threat of entry into the packaged chlorine business (distribution and/or packaging) is not likely to be sufficient to prevent BOC's ability to exploit the reduction in rivalry flowing from the merger (or indeed to prevent any co-ordinated effects concerns between BOC and Albion from arising).

BUYER POWER

90. BOC argues that buyer power will make it impossible for it to increase prices (or reduce service quality) to anticompetitive levels post-merger. It argues that its customer base is concentrated, that the tendering process and contract negotiation mechanisms used by most water companies (including setting up buying consortia) enhance their buyer power, and that all water companies have a large supplier base to choose from.
91. BOC supplied examples in which other suppliers were mentioned in their price negotiations. However, the OFT considers that the mere mentioning of other suppliers during negotiations falls short, absent other factors, of being evidence of exercise of buyer power.
92. In addition, bidding data submitted by the parties indicates that water companies only switched suppliers in five out of 32 contracts, and, in one of these, the contract was not fully switched, but shared between the incumbent and a third party. This is consistent with information provided by customers that there are costs involved in switching suppliers due to the different type of connections and fittings required to receive packaged chlorine, as well as the lack of alternative suppliers. One customer told us that the decision to switch had more to do with technical issues surrounding valves and settings than with competition. These costs might limit customers' ability to switch and consequently their buyer power.
93. BOC also argues that the regulatory framework applicable to water companies means that they are not able to pass on input cost increases to customers and therefore they have the incentive to resist price increases

from suppliers. The OFT considers that while water companies might wish to resist price increases (which is also the case in a number of unregulated sectors), this does not necessarily mean that they are able to do so.

94. The key question is whether BOC's ability to raise prices may be constrained by the countervailing power of buyers post-merger.
95. Even if it is the case that the water companies currently enjoy a degree of buyer power, this would be reduced by the fact that the merger will decrease the number of packaged chlorine suppliers in the UK from three to two (Air Products being a small supplier with no packaging facilities).
96. None of the customers who responded to the OFT said that they believed they possessed buyer power, and some mentioned that their negotiation strength will be reduced by the merger. Analysis of pricing data shows that there is a very weak negative relationship between price per tonne paid and quantity bought, which indicates that, counter-intuitively, buyers of larger quantities are not able to negotiate bigger discounts.
97. Customers' buyer power is dependant on what is known in the economic literature as the 'threat points' of buyers and suppliers.⁴³ These threats represent the next best option for both buyer and seller should an agreement fail to be reached, and they must be credible in the sense that they will be imposed should agreement fail to be reached. In this case it is not clear that customers' threat points are sufficiently strong to prevent the merging parties from exploiting the lessening of competition caused by the merger (either through coordinated or unilateral strategies).

THIRD PARTY VIEWS

98. Third party views on the merger were dealt with throughout the text. In particular, it is worth noting that all but one customers contacted by the OFT had competition concerns about the merger.

ASSESSMENT

99. The transaction concerns the anticipated acquisition by BOC of the packaging and distribution parts of the packaged chlorine business carried

⁴³ OFT, CC and DTI *Ex post evaluation of mergers* March 2005.

on by Ineos (the Target Business). Pre-merger BOC is a distributor of packaged chlorine but is not active in packaging (it has a packaging contract with Albion). In contrast, Ineos is a vertically integrated manufacturer of chlorine; supplier of bulk chlorine; and packager and distributor of packaged chlorine. Chlorine is an essential input for water companies, who use it for water purification. Indeed, virtually all of BOC's sales and [] per cent of the Target Business's sales are made to water companies.

100. The OFT considers that the relevant product market is the distribution of packaged chlorine in the UK. In terms of demand-side substitution, customers have not identified other products to which they would switch in the event of a five to ten per cent increase in the price of packaged chlorine. In relation to packaged chlorine, imports into the UK of the type of chlorine that is available from the Ineos plant are minimal, and third parties have told the OFT that having an established UK distribution network is essential to compete effectively. Although supply-side substitution by UK distributors of other industrial gases or commodity chemicals could be timely and feasible (subject to being able to secure a source of packaged chlorine, which is not necessarily certain, in the case of a UK source, or cost-effective, in the case of a continental European source), the evidence before the OFT does not show that such supply-side substitution would be likely.
101. BOC will be by far the largest distributor of packaged chlorine in the UK, with a post-merger market share of [70-80] per cent (increment [5-15] per cent). The other market participants supplying the same type of product as the merged business are Albion (market share of [15-25] per cent) and Air Products (market share of [0-5] per cent). Post-merger, BOC and Albion will be the only packagers of bulk chlorine in the UK.
102. In addition to the market concentration information, bidding data provided by the parties shows that BOC is a strong competitor in the market, and had been successfully taking business away from Ineos, the largest supplier. Indeed, evidence indicates that customers perceive the merging parties as being close competitors, with BOC being the preferred alternative to the Target Business. Credible concerns about unilateral effects were expressed by the vast majority of customers and competitors. The OFT therefore believes that the merger may be expected to lead to a substantial

lessening of competition resulting in unilaterally imposed higher prices and/or service level reductions.

103. The OFT has also found that the packaged chlorine market, post-merger, exhibits the structural conditions conducive to tacit coordination, including sufficient degrees of, variously, industry concentration, product homogeneity, stable and inelastic demand, a finite set of customers, and transparency of won bids, volumes and likely prices. The merger itself increases the likelihood of coordination being successful for a number of reasons. First, it eliminates BOC, which pre-merger had no incentive to coordinate – possibly as acted as a maverick, or disruptive force helping (among other factors) to prevent coordination between Ineos and Albion. Second, it essentially creates a duopoly between BOC and Albion at the packaging and distribution levels, which increases the likelihood and sustainability of coordinated behaviour, not least because they have similar cost structures: their major input cost is chlorine itself, which they both source from the same UK monopolist supplier, Ineos. Third, it aligns the incentives of the main market participants to coordinate in comparison with Ineos's incentives in the pre-merger scenario, where it was a vertically integrated business from chlorine manufacturing through packaging and distribution. As a result, the OFT considers that it may be the case that the merger will lead to tacit coordination.
104. The OFT does not consider that entry or expansion at the distribution level would be timely, likely or sufficient to prevent the likely unilateral and potential coordinated effects discussed above from arising: potential entrants would find it difficult to compete with BOC and Albion by entering only at the distribution level of the market, and that a credible constraint could only be imposed by entry in both the packaging and distribution levels of the market. In addition, the evidence before the OFT does not indicate that buyer power is sufficient to constrain BOC's ability to increase prices post-merger unilaterally or to engage in tacit coordination. Customers were generally concerned that the merger will lead to price increases, rather than suggesting they could protect themselves.
105. Consequently, the OFT believes that it is the case that the merger may be expected to result in a substantial lessening of competition in the market for distribution of packaged chlorine in the United Kingdom.

EXCEPTIONS TO THE DUTY TO REFER

MARKETS OF INSUFFICIENT IMPORTANCE

Introduction

106. The total annual market value associated with the distribution of packaged chlorine in the UK is estimated to be approximately £5.5 million.

107. The parties have argued that the OFT should apply the markets of insufficient importance or *de minimis* exception to the duty to refer, as recently revised.⁴⁴ The purpose of this exception is to avoid a reference where the costs are disproportionate to the potential benefits. The revised guidance has raised the previous general threshold ceiling for considering this exception from £400,000 to £10 million.

108. The basis for the OFT's approach is set out in the revised guidance as follows:

Before using this discretion the OFT will exercise its judgement in considering each case on its individual facts. A key issue for the OFT in this regard is the expected impact of the transaction on consumer welfare, considering in particular market size, the magnitude of competition lost by the merger, and the likely duration of that loss, as well as other relevant market features. The OFT is most likely to exercise its discretion not to refer where the relevant market features (which will overlap with those relevant in the assessment of the substantial lessening of competition) indicate that the merger's total impact is likely to be limited. The OFT is generally likely to consider the affected market(s) to be of sufficient importance to justify a reference where their annual value in the UK, in aggregate, is more than £10 million.⁴⁵

⁴⁴ OFT 516 b, November 2007.

⁴⁵ *Ibid.*, at paragraph 7.6 of the revised guidance.

Undertakings in lieu of reference and *de minimis*

109. As stated in the Dunfermline/BRN case,⁴⁶ the OFT believes that it would be proportionate to refer a problematic merger where it is clearly open to the party or parties to offer a clear-cut undertaking in lieu of reference, because the recurring benefits of avoiding consumer harm by means of undertakings in lieu in a given, and all future like cases, outweighs the one-off costs of a reference.
110. As set out in more detail in the Dunfermline/BRN case, the OFT makes this judgment on an objective or 'in principle' basis at the stage of considering whether to invoke the *de minimis* exception, without regard to whether parties have actually made any such offer, or the content of any such offer, neither of which will in any event be known to the decision maker at the time that application of the *de minimis* exception is considered.
111. In this case, it was not clear to the OFT, based on its objective evaluation of the transaction, that this case was a clear candidate for undertakings in lieu. Unlike in the Dunfermline/BRN case itself, for example, this case does not fit the classical profile of the OFT's undertakings in lieu cases: in other words, a small proportion of a larger benign or even beneficial transaction raises concerns, and those concerns can be addressed structurally by means of a divestiture package. Rather, the OFT's competition concerns relate to the heart of the transaction and the market affected by it: the distribution of packaged chlorine in the UK. The most obvious structural remedy, and the one that restores the status quo ante in the affected market, is not to proceed with the merger in its entirety. The OFT does not however include what would amount to prohibition when considering whether clear-cut undertakings in lieu are available: it is not the role of the undertakings in lieu process effectively to invite parties to abandon their own transactions. On the contrary, the logic of first-phase remedies is to resolve competition concerns clearly whilst allowing the transaction, albeit in modified form, to proceed. Accordingly, it would be wholly inappropriate for the OFT, at this stage of the analysis, to rule out an evaluation of the *de minimis* exception in this case on the grounds that it would be clearly open to the parties to offer a clear-cut – that is, effective and proportionate – undertaking in lieu.

⁴⁶ OFT *Completed acquisition by Dunfermline Press Limited of the Berkshire Regional Newspapers business from Trinity Mirror plc* 4 February 2008.

112. It is therefore appropriate to consider further the proportionality test encompassed in the *de minimis* exception – that is, whether the potential benefits flowing from a CC inquiry are likely to outweigh the relevant costs incurred.

Applicable principles in the guidance and developed in decisional practice

The predicted consumer welfare impact of a merger in the affected markets

113. The OFT's commentary on its revised guidance indicates that 'the pivotal issue is whether the impact of the merger is likely to be particularly significant.' It explains that the OFT will not use the *de minimis* provision to exempt a transaction from CC scrutiny

'if the consumer welfare impact is likely to be particularly significant. In placing the predicted impact of a particular merger on the scale between limited [when the OFT is likely to apply the *de minimis* exception] and particularly significant [when the OFT will not use the exception], the OFT will pay close attention to the interaction of three key variables: (1) the size of the market ... (2) the magnitude of competition lost by the merger ... (3) the durability of the merger's impact'.⁴⁷

114. The guidance gives an example of a merger whose consumer welfare impact is likely to be particularly significant as one in which the merger takes place in a highly-concentrated market (for example, '2 to 1' or '3 to 2' mergers) with substantial and durable barriers to entry and expansion. This simple example was designed to aid self-assessment and avoid creating false expectations that any merger in a market worth under £10 million – even a textbook merger to monopoly with no entry possibility – would be exempted from CC scrutiny, and therefore effectively cleared, by the OFT.

115. On the issue of limited durability of any merger effect, and therefore limited overall impact of a merger, the OFT gave the examples in the commentary of where (i) it was confident that effective new entry will ultimately occur,

⁴⁷ Revision to *Mergers – substantive assessment guidance*, OFT 516b, November 2007, part 2.

but not in the short term, or (ii) because technological or market transformation would render merger effects relatively short-lived.

116. In refining the OFT's approach to the overall question of merger impact, the OFT also drew attention in the first three decisions⁴⁸ applying the *de minimis* exception to the strength of its belief that the merger will have an anticompetitive effect. The predictive exercise of merger control, and the OFT's assessment under the Act, is in essence a probabilistic assessment of the competitive impact of the merger, relative to the state of competition absent the merger. In considering this probabilistic assessment, pursuant to its statutory duties under sections 22 and 33 of the Act, the OFT must refer a merger where it believes, on the balance of probabilities (over 50 per cent probability) or with even greater confidence, that a merger will result in a substantial lessening of competition (SLC, which, by definition in the OFT's guidance, is an outcome that leads to customer harm, otherwise the loss of competition is not characterised as 'substantial').
117. However, as the Court of Appeal ruled in IBA⁴⁹ in explaining the meaning of 'may be the case that ... it may be expected', the duty to refer can extend to situations where the OFT's belief is that a SLC is less than likely (below 50 percent probability) provided always that the likelihood of SLC is 'more than fanciful'. Accordingly, in overall terms, the OFT's duty to refer can in principle be triggered by a belief that may be no higher than 'more than fanciful' at one end of the spectrum and, at the other extreme, a very high degree of confidence, approaching or at the level of certainty enshrined in standards of proof applicable in *ex post* competition law.
118. As the OFT's cost/benefit analysis of a CC reference under its *de minimis* discretion properly takes into account the likelihood of consumer benefit – in the form of CC enforcement action that remedies, mitigates or prevents a substantial lessening of competition and thus protects consumers – the OFT considers it appropriate to attach weight to the strength of its belief that a SLC and resultant detriment will or may occur and the magnitude of competition lost: consumers in the relevant market will receive no direct benefit if a benign merger is subject to in-depth scrutiny and is then cleared, which scenario becomes increasingly likely the lower the strength

⁴⁸ *NEG/ICEC* and *Arriva/Cross-Country*, decisions of 20 December 2007, and *Stagecoach/East Midland*, decision of 4 February 2008.

of the OFT's belief in SLC.⁵⁰ In the *de minimis* cases mentioned the OFT therefore attached weight to the fact that its level of belief was merely on the 'may be the case' standard, rather than a 'more likely than not' belief. It said in those cases:

Moreover, the OFT's belief that the merger will result in such effect is not one on the balance of probabilities; rather, its belief is of a 'realistic prospect' of SLC under the 'may be the case' standard below a 50 per cent likelihood. It is by no means a foregone conclusion, therefore, that the CC would reach a balance of probabilities belief on further inquiry that adverse merger effects can be expected at all.

119. In applying the guidance to actual cases, these decisions clarified that the relevant questions for assessing the impact of a merger in the context of the OFT's *de minimis* discretion are: (i) what is the size of the market? (ii) what is the strength of the OFT's concerns? (iii) what is the magnitude of competition lost by the merger? and (iv) what is the likely duration of the merger's impact?

The potential deterrence benefits of merger control decisions beyond the individual affected market

120. In announcing the guidance, the OFT also cautioned that the guidance 'would not ... undermine deterrence'⁵¹ and highlighted the importance of deterrence in merger control and in measuring the consumer welfare impact of individual enforcement decisions, including in merger control.
121. The OFT's understanding of the value of deterrence has increased in recent times: see the OFT's consultation on the deterrence prepared by KPMG, launched in November 2007 and the summary of responses to the consultation, published in March 2008.⁵²

⁴⁹ *IBA Health Ltd v OFT* [2004] EWCA Civ 142.

⁵⁰ This should not be read as suggesting that no *direct or indirect public* benefit arises from the merger clearance decisions of a competition authority such as the OFT or CC. A sound merger regime is predicated on a proportion of cases being cleared after in-depth inquiry, as well as after first-phase inquiry.

⁵¹ See PN 156/07, 15 November 2007.

⁵² Both available at www.of.gov.uk/advice_and_resources/resource_base/evaluation/publications

122. Since the guidance was issued, the OFT has, as noted, applied the *de minimis* exception in three cases, and an important factor common to those cases was the presumed lack of a deterrence effect were the CC to resolve its concerns, if any, of those transactions, due to the peculiar nature of rail franchise awards and the general lack of an anticompetitive rationale for rail franchise bids, notwithstanding that they may raise competition issues.

123. The OFT made the following general observations in the context of those first cases, focusing on the economic rationale for transactions:

Small mergers, or mergers in small markets, can be motivated by the acquisition of market power: for example, a small firm decides to acquire its only competitor active in one or more local markets for the principal purpose of eliminating competition and reaping monopoly profits post-merger. Part of the purpose of any credible merger regime is not only to prohibit a certain class of, say, mergers to monopoly but to deter like transactions from being contemplated or pursued. Recent research commissioned by the OFT confirms that the benefits of competition enforcement in general and the prohibition of anti-competitive mergers in particular go well beyond the direct benefits to customers and consumers achieved in the relevant markets subject to remedial action; in fact, the research suggests as a lower bound a multiple of five times the impact of any remedial intervention by the OFT (undertakings in lieu) or CC (second-phase SLC finding). In other words, in considering the costs and benefits of a reference outcome it is often reasonable to assume a 'deterrence multiplier' of any consumer harm prevented if remedial intervention were to result.

124. The OFT will therefore have regard to the economic rationale behind the transaction in assessing whether it should exercise its discretion to apply the *de minimis* exception.

Assessment of the relevant facts in this case

125. In applying the above principles to this case, the OFT concludes that a CC inquiry would be proportionate, because the costs associated with it are outweighed by the potential benefits of further investigation and remedial action. The OFT's material considerations are –

- Market size – although the value of the directly-affected market is below £10 million, it is of significant size – estimated to be worth £5.5 million annually,
- Strength of the OFT's concerns – the OFT considers it significantly more likely than not that the merger will result in anti-competitive price increases through unilateral effects beginning in the short-term post-merger; the aggravating issue of coordination the OFT also considers plausible and worthy of further CC scrutiny,
- Magnitude of competition lost by the merger – the OFT's unilateral effects concerns relate to the removal of the most important competitive dynamic in the market – competition from BOC against the leading incumbent, Ineos – in recent years, and arguably the maverick force in the market whose presence may have prevented pre-merger coordination. As noted, the OFT cannot dismiss that in addition to internalising the competition between Ineos and BOC in the short-run (unilateral effects), the merger may create the conditions for tacit coordination between BOC and Albion post-merger, which may over time drive prices higher still, and closer to the monopoly price,
- Durability of the merger's impact – the OFT's conclusion on the lack of timely, likely or sufficient entry or expansion is not a marginal one. It is true that future entry can by no means be ruled out entirely and the CC may ultimately conclude differently on entry as a countervailing constraint, with better evidence from potential entrants and on the cost of entry than the OFT has been able to secure. At this stage, nevertheless, it appears that adverse merger effects could endure for as long as is foreseeable: while the OFT considers that some aspects of chlorine distribution – specifically the warehouse, trucking and manpower elements – appear to be characterised by low entry barriers, its overall assessment is that entry or expansion would not be likely and sufficient to replicate the constraint that BOC posed as an independent competitor, or to disrupt potential coordination post-merger. Moreover, given the apparent issues relating to access to chlorine and a lack of substantial entry or expansion in the seven years since BOC's own entry, the OFT cannot safely conclude that effective entry or expansion

will be forthcoming, even if were to take some time.⁵³ Finally, the OFT has no other reason to consider that merger effects may lack durability,

- Transaction rationale and the value of deterrence – Given the strength of the OFT's concerns, and those of customers, and the fact that the merger relates solely to the affected market, there is a good argument in this case that acquisition of market power is an important driver of the transaction, if not the principal one. While the parties have made some not implausible claims that the merger will lead to more efficient distribution via BOC's network of product previously supplied by Ineos, the claims are far from the standard required to credit quantifiable, verifiable and merger-specific efficiencies, and the level of customer concern would seem to contradict the claims that customers will be better off, or at least not worse off. Note that in situations where the evidence allows for a more balanced argument to be had about whether efficiencies or market power are driving a horizontal merger between competitors, the analysis of motivation for a deal and the weight given to deterrence may be different. As that is not the case here, the issue of deterrence is significant, because there is benefit in the merger regime deterring transactions whose rationale, and expected effect, is indeed (enhanced) market power.

Conclusion

126. Overall, in this case the combination of variables the OFT has stated as relevant suggests that the impact of this merger is best characterised as particularly significant, rather than limited. A different conclusion would, however, be foreseeable if one or more of the variables had pointed far more strongly in the direction of limited impact: for example, that the market had been exceptionally small, the OFT's concerns been very marginal, the issue of deterrence likely to lack relevance (as was true in the rail franchise *de minimis* cases mentioned above), and so forth.

⁵³ Compare, for example, a merger where the OFT was satisfied that entry would not occur within two years but that the lead-time meant that entry would occur, say, after 36 months, and thus outside the general window for timely entry set out in OFT *Mergers – Substantive assessment guidance*, para 4.23.

UNDERTAKINGS IN LIEU OF REFERENCE

127. Where the duty to make a reference under section 33(1) of the Act is met, pursuant to section 73(2) of the Act the OFT may, instead of making such a reference, accept from the parties concerned such undertakings as it considers appropriate for the purpose of remedying, mitigating or preventing the substantial lessening of competition concerned or any adverse effect which has resulted, or may result, from it.
128. The parties offered the following undertakings in lieu of a reference to the CC:⁵⁴
- a) [] and/or
 - b) Merged entity to allocate sufficient capacity in its distribution business to supply packaged chlorine to such customers on terms which are fair, reasonable and non-discriminatory.
129. The combination of these two remedies could operate as an enabling measure, guaranteeing to Albion, Air Products, or any potential entrant access to the three key inputs/facilities necessary to operate in the packaged chlorine business: bulk chlorine, packaged chlorine, and a distribution network. This would offer a platform for entry or expansion into the packaging and/or distribution levels of the market.
130. While the OFT welcomes the willingness of the parties to put forward remedies, it does not consider that the remedies proposed in this case are capable of sufficiently removing the competition concerns arising from the merger. As a general point, the OFT notes that it is generally unlikely to consider that behavioural undertakings have sufficiently clear effects to address the competition concerns identified in a merger.⁵⁵ In addition,

⁵⁴ The fact that the parties did actually offer remedies in this case, which the OFT has examined carefully, does not negate the OFT's prior view, discussed above, that it should not exclude application of the *de minimis* discretion on the ground that clear-cut undertakings in lieu were in principle available. The OFT will exclude application of the *de minimis* exemption only where it is objectively clear that the case is a candidate for resolution by undertakings in lieu. An objective view that the case does not fit the classical profile of the OFT's undertakings in lieu cases does not exclude the possibility that the merging parties may in fact offer remedies that merit consideration to determine whether they can in fact be described as clear-cut.

⁵⁵ OFT *Mergers – Substantive assessment guidance*, para 8.10.

undertakings in lieu of a reference are only appropriate where the remedies proposed to address them are clear cut.⁵⁶

131. The OFT has several concerns that the remedies fall short of this standard.

Complexity of the behavioural obligations

132. First, the assessment of what constitutes 'fair, reasonable, and non-discriminatory terms' in the second limb ('b' above) of the remedies offer is likely to be a complex exercise and therefore the remedies would be difficult and costly for the OFT to implement and monitor.

133. At the distribution level, because neither BOC nor Ineos currently distributes chlorine to other companies (as far as the OFT is aware), there is no external customer contract to use as a benchmark of the proposed 'fair, reasonable, and non-discriminatory terms'.⁵⁷ At the packaging level, the terms of supply of drums by the Target Business to Albion could operate as a point of reference,⁵⁸ but there would not be a similar reference for cylinders. Therefore, the OFT believes that the complexity in defining the supply terms under 'b' above is in itself indicative that the proposed remedies are not clear cut.

134. In addition to these practical implications of defining the terms of supply, there is a risk that, in the absence of a reliable benchmark to determine what a 'fair' price would be, BOC would be able to margin-squeeze by charging a higher price for sharing the downstream distribution business with a competitor and offsetting this internal loss by gaining higher profits in packaging. The OFT assumes that the parties' offer 'to allocate sufficient capacity in its distribution business' refers to some form of sharing of the merged party's distribution business with the new entrant.

Dependency of the new firm on BOC and the risk of coordination

135. Second, even considering that the packaged chlorine business is already (pre-merger) characterised by cross-supply agreements, the actual sharing

⁵⁶ OFT *Mergers – Substantive assessment guidance*, para 8.3.

⁵⁷ Even if BOC might distribute other industrial gases on behalf of third parties, it does not necessarily follow that the costs involved in distributing chlorine are the same, in particular given that it is a very hazardous chemical.

of a distribution network between the merged entity and the hypothetical new entrant exploiting the proposed remedy would result in a new entrant (or expanding firm) dependent on the largest incumbent, BOC, in circumstances where BOC would know precisely that new firm's distribution costs, and would also know that the new firm would receive the []. These arrangements would, if enacted, reinforce the OFT's concerns relating to tacit coordination post-merger, and in any event does little to ameliorate them. Nor does the OFT consider that firewalls or other information barriers would overcome this degree of transparency.

136. Overall, it is not clear how effectively a business that depends so completely on the merged entity to participate in the market would be able to compete independently and, as a consequence, whether it would be a competitive constraint on BOC (and Albion) post-merger, let alone restoring the pre-merger competitive dynamic that BOC, with its own independent distribution network, injected into the market.
137. Finally, a remedies offer that did not include the sharing of the merged entity's distribution network (but only []) would not be sufficient to prevent the unilateral and coordinated effects identified. Although such a remedy could lower barriers to entry by securing access to the key input (bulk or packaged chlorine), as discussed in the barriers to entry section above, the evidence before the OFT does not support the contention that entry into the distribution level is necessarily profitable. Indeed, as discussed in the entry section above, access to bulk or packaged chlorine is not the only reason why the OFT does not consider entry timely, likely and sufficient to offset concerns.
138. For all reasons discussed above, the OFT does not believe that the remedies proposed by Ineos and BOC meet the clear-cut standard and therefore the duty to refer remains.

⁵⁸ Although the remedies proposal does not suggest using this as the basis for setting the 'fair, reasonable, and non-discriminatory terms'.

DECISION

139. This merger will therefore be referred to the Competition Commission under section 33(1) of the Act.