3 The market

Introduction

3.1. The four products which are sold in the United Kingdom by both the Monsanto and Rhône-Poulenc companies and are the subject of this inquiry are salicylic acid, methyl salicylate, acetyl salicylic acid (commonly known as bulk aspirin) and acetyl para-amino phenol (commonly known as paracetamol). The first three of these products are collectively known as salicylates.

3.2. This chapter examines the United Kingdom market for these products, treating the following topics:

Nature of the products and methods of manufacture	Paragraphs 3.5 to 3.16
United Kingdom, EC and world supply of the products	Paragraphs 3.17 to 3.25
Exports of Monsanto and Rhône-Poulenc	Paragraphs 3.26 to 3.30
United Kingdom market shares	Paragraphs 3.31 to 3.57
The structure of United Kingdom demand for the products	Paragraphs 3.58 to 3.62
End-product markets and availability of substitutes	Paragraphs 3.63 to 3.80
Prospects of new entry in supply	Paragraphs 3.81 to 3.87
Pricing policy and price trends	Paragraphs 3.88 to 3.91

3.3. As part of their inquiry the MMC received evidence in writing and orally from the two main parties and several of their major customers. We also conducted a survey of all Rhône-Poulenc and Monsanto customers for the above products. The evidence from this survey is summarised in Appendix 3.1.

3.4. Survey questionnaires were sent to 82 customers and we received 42 replies, of which six were nil returns. The 36 firms that answered the questionnaire had purchases in 1988 which accounted for 74 per cent of the United Kingdom salicylic acid market by volume, 34 per cent of the United Kingdom methyl salicylate market, 73 per cent of the United Kingdom bulk aspirin market and 49 per cent of the United Kingdom paracetamol market.

NATURE OF THE PRODUCTS AND METHODS OF MANUFACTURE

Salicylic acid

3.5. Salicylic acid is made from the reaction of phenol, caustic soda and carbon dioxide followed by processes to neutralise, filter, precipitate, cool and dry the product into a white powder. The dry Bayer process which was developed at the beginning of the century is now in the public domain and is the most commonly used process by Monsanto amongst others. Rhône-Poulenc has been using its own process since 1970.

3.6. The main use of salicylic acid is as a feedstock for the production of bulk aspirin. It is also used as a raw material for other pharmaceutical compounds, aromachemicals (for perfumes and fragrances), dyes and as a PH regulator in the manufacture of phenolic resins and in potassium extraction.

Methyl salicylate

3.7. Methyl salicylate is manufactured by esterifying salicylic acid with methanol. The technology is chemically straightforward and unprotected by patents. It is used as a raw material for or as an ingredient in pharmaceuticals and fragrances and flavourings.

Aspirin

3.8. The analgesic activity of aspirin as a chemical compound was discovered in 1899 by an employee of the German Bayer Company. Monsanto started manufacturing it in the USA in 1917 and Rhône-Poulenc in France in 1920. Today it is manufactured by companies throughout the world using publicly available technology.

3.9. Aspirin is the product of the acetylation of salicylic acid with acetic anhydride. The substance obtained from this reaction is purified and isolated by crystallisation and then dried to produce fine powder-like crystals. Although all bulk aspirin has the same basic chemical composition, the product is synthesised differently by Monsanto and Rhône-Poulenc, which gives rise to differences of crystalline form and particle size.

3.10. The principal categories sold in the United Kingdom and elsewhere are crystal, granule and powder forms. Various mechanical processes are applied to the crystals (compacting, crushing, sifting) which make it possible to obtain the form (ie grade) corresponding to the customer's needs. For example, powder aspirin is better suited for soluble tablets than is granule; crystals are adequate for non-soluble and combination formulations; and granules have an excellent range of tabletting characteristics. Aspirin sold in the United Kingdom must meet British Pharmacopoeia standards.

3.11. All bulk aspirin is sold for conversion and retail sale in dosage form as an analgesic. As well as its analgesic properties it has an anti-inflammatory effect and reduces temperature. It is acquired by tabletters for use as an active ingredient in aspirin formulations, either in generic aspirin tablets or in aspirin brands. It can also be used in combination with other active substances, for example in generic co-codaprin (codeine/aspirin). Most aspirin formulations can all be sold over the counter (OTC) without prescription. The sale price of these formulations is not subject to any form of price control as is the case with certain prescription-only drugs.

Paracetamol

3.12. Paracetamol can be made in a number of different ways. The traditional chemical process starts with benzene and uses para-nitrochlorobenzene and para-nitrophenol as intermediates. This process is in the public domain and is used by Monsanto. The Rhône-Poulenc process is similar except that it first produces phenol from benzene before reaching the para- nitrophenol stage. The crude paracetamol obtained is purified, crystallised and then dried into a powder-like crystal.

3.13. A range of grades can be obtained by the use of mechanical processes such as crushing and screening. Both Rhône-Poulenc and Monsanto produce paracetamol in crystal, granular, direct compression and powder grades. Neither company produces in the United Kingdom.

3.14. Paracetamol is processed into tablet, powder, or liquid form and is a mild analgesic. Like aspirin it also reduces temperature but it does not have aspirin's anti-inflammatory effect. Substitution between aspirin and paracetamol is discussed in paragraph 3.20.

Primary raw materials

3.15. Phenol is the principal raw material used to manufacture salicylic acid, which in turn is used to manufacture methyl salicylate. Phenol is obtained from benzene, a widely available product of the petro-chemical industry. For the manufacture of aspirin the main ingredients are salicylic acid and acetic anhydride. The latter is a commodity chemical widely available on world markets. For the manufacture of paracetamol both Monsanto and Rhône-Poulenc use benzene as the basic raw material.

3.16. Rhône-Poulenc is `back-integrated' in that it manufactures both phenol (from benzene) and acetic anhydride. Monsanto does not manufacture these primary materials, purchasing them on the world market.

UNITED KINGDOM, EC AND WORLD SUPPLY OF THE PRODUCTS

3.17. Estimates for free market sales in the United Kingdom of the salicylates and paracetamol over the past five years are shown in Table 3.1. These estimates exclude transfers of products within companies. Estimation of United Kingdom sales is complicated by uncertainty over import sales (other than those of Rhône-Poulenc). Official statistics do not in all cases show separate figures for the products of our inquiry, aggregating them with other closely- related products. Moreover it is believed that certain imports may be re-exported from the United Kingdom without any further processing. The import figures incorporated in Table 3.1 may therefore be overestimates of United Kingdom sales for United Kingdom use.

TABLE 3.1 **United Kingdom sales of salicylates and paracetamol**

					By volume (tonnes)
	1984	*1985*	*1986*	*1987*	*1988*
Salicylic acid	1,077	1,504	1,442	1,581	1,976
Methyl salicylate	430	369	298	246	212
Bulk aspirin	1,686	1,578	1,271	1,048	1,081
Paracetamol	NA	NA	3,370	2,970	3,243
					By value (£'000)
Salicylic acid	1,112	1,840	1,563	1,709	2,190
Methyl salicylate	642	611	483	424	331
Bulk aspirin	3,387	3,376	2,672	2,128	2,318
Paracetamol	NA	NA	9,439	7,705	9,746

Source: MMC from companies' figures.

Salicylic acid

3.18. The value of 1988 sales to third parties was £2,190,000. Monsanto is the only significant producer of salicylic acid in the United Kingdom. None of the sales shown in Table 3.1 is for use in bulk aspirin production in the United Kingdom. In 1988 in-house transfers for bulk aspirin and methyl salicylate production by Monsanto were about 3,500 tonnes of salicylic acid as compared with the total United Kingdom sales for other uses of 1,976 tonnes of salicylic acid. The upward trend in salicylic acid sales between 1984 and 1988 reflects growth in its use for manufacture of aromachemicals and dyes and in other industrial processes. Also, there has been a technical shift in certain aromachemical processes from using methyl salicylate to the use of salicylic acid. Rhône-Poulenc and Monsanto both consider that United Kingdom sales of salicylic acid are likely to remain at 1988 levels in the next few years.

Methyl salicylate

3.19. Sales value in 1988 was £331,000, the smallest of the four products under investigation. Sales declined by about half between 1984 and 1988, partly reflecting the shift to salicylic acid for some processes in the manufacture of aromachemicals. A major United Kingdom customer for methyl salicylate told us that its requirements in the next few years are likely to be much lower than formerly. The downward trend in demand over 1984 to 1988 is therefore likely to continue.

Bulk aspirin

3.20. United Kingdom sales fell in each of the years 1985 to 1987 while 1988 saw a slight recovery to a value of £2,318,000. Tonnes sold in 1988 were about two-thirds of the 1984 level. The decline in bulk aspirin sales is because of a movement in the pharmaceutical markets away from aspirin-based analgesics. There have been a number of alleged side-effects of aspirin which have contributed to this; over recent years while sales of aspirin preparations have fallen those of paracetamol preparations have risen so that paracetamol sales have overtaken those of aspirin. In 1988 aspirin's share of the OTC analgesics' market was 39 per cent, paracetamol's 45 per cent. The sales of Ibuprofen, the main rival product, have risen fastest of all at about 20 per cent a year, giving it the third largest share of the market with 11 per cent. The therapeutic properties of aspirin, paracetamol and ibuprofen are as follows:

	Aspirin	*Paracetamol*	*Ibuprofen*
Analgesic	*	*	*
Anti-inflammatory	*		*
Antipyretic (reduces temperature)	*	*	*

More recently aspirin has been identified as an anti-coagulant prophylactic against heart attacks. However, in this use the dosage involved is low and market studies carried out by Rhône-Poulenc and Monsanto suggest that any growth of sales for this usage would not offset the other trends identified. There are also new analgesic preparations coming on to the market, such as naproxen and ketoprofen, both non-steroidal anti-inflammatory drugs.

3.21. Both Monsanto and Rhône-Poulenc consider that United Kingdom sales of bulk aspirin will be static over the next few years.

Paracetamol

3.22. The factors identified above also explain the growth in United Kingdom sales of paracetamol whose value was £7,300,000 in 1988. Both Monsanto and Rhône-Poulenc forecast growth in United Kingdom sales of bulk paracetamol of 2 to 3 per cent a year over the next five years.

3.23. The effects of developments in the end-product markets on the price of the salicylates and paracetamol are discussed in paragraphs 3.72 and 3.73.

EC supply of the products

3.24. Table 3.2 shows estimates of the shares held by Rhône-Poulenc, Monsanto and other producers in the European Common Market for the year 1987 of the free market supply of salicylates and paracetamol.

TABLE 3.2 **EC sales and market share estimates**

		Rhône-Poulenc	*Monsanto*	*Other EC*	*Imports*	*Total*
Salicylic acid	(tonnes)	1,679	1,736	756	877	5,048
	(%)	33	34	15	18	100
Methyl salicylate	(tonnes)	223	143	136	408	910
	(%)	24	16	15	45	100
Bulk aspirin	(tonnes)	1,945	737	90	1,106	3,878
	(%)	50	19	2	29	100
Bulk paracetamol	(tonnes)	1,360	52	1,768	1,170	4,350
	(%)	31	1	41	27	100

Source: Rhône-Poulenc and Monsanto for own figures. Rhône-Poulenc estimates for other figures.

World supply of the products

3.25. In general the world demand for the salicylates and paracetamol exhibits the same characteristics as United Kingdom demand, with static demand for the salicylates and growth in demand for paracetamol. For all products there is substantial overcapacity, with new plant being built in recent years in the Third World and Eastern Europe. Table 3.3 illustrates this with estimates for 1987 made by Rhône-Poulenc and Monsanto. Monsanto and Rhône-Poulenc consider that the 1988 situation was not substantially different. Because many Western producers exported to the Third World, the growth of domestic capacity in these countries, often accompanied by measures to protect the local industry, has led to Western producers facing reduced export opportunities at the same time as increasing competition from imports in their own domestic markets. The impact of these developments in the United Kingdom market is discussed for each of the products in the paragraphs on imports below.

TABLE 3.3 **World capacity and production estimates**

	Estimated capacity	*Estimated production*	*Production as % of capacity*
Salicylic acid	74,700*	51,000*	68
Methyl salicylate	11,700**	7,120**	61
Bulk aspirin	64,180	43,750	68
Paracetamol	44,850	34,700	77

Source: Monsanto and Rhône-Poulenc joint estimate.

*Chinese and Colombian figures are unavailable.
**US and Taiwanese figures are unavailable.

EXPORTS OF MONSANTO AND RHONE-POULENC

3.26. The export activities of Monsanto and Rhône-Poulenc affect their unit costs of production which depend upon volume of output. For Monsanto, exports were as follows in the years 1986 to 1988.

TABLE 3.4 **Monsanto exports from Ruabon**

	1986	*1987*	*1988*
			By volume (tonnes)
Salicylic acid	1.572	1,864	2,328
Methyl salicylate	322	518	784
Bulk aspirin	1,773	1,658	2,411
Paracetamol	74	203	123
			By value (£'000)
Salicylic acid	1,723	2,061	2,522
Methyl salicylate	439	566	829
Bulk aspirin	3,758	3,173	4,238
Paracetamol	234	520	272

Source: Monsanto.

3.27. As can be seen, Monsanto's export sales of the three salicylates increased over the period. Between 1986 and 1988 the volume of exports of bulk aspirin increased by 36 per cent by volume, but only 13 per cent by value. A description of price movements is given in paragraphs 3.90 and 3.91.

3.28. The total salicylates production of Ruabon comprises output for the United Kingdom market, for in-house transfer (in the case of salicylic acid) and for export. Production figures for Ruabon in 1988 are shown in Table 3.5.

TABLE 3.5 **Monsanto production at Ruabon**

tonnes

	Salicylic acid	*Methyl salicylate*	*Bulk aspirin*
Production	6,777	900	3,144
United Kingdom sales	921	117	733
Exports	2,328	783	2,411
Transfers	3,528	-	-

Source: Monsanto.

3.29. From this table it can be seen that for bulk aspirin, exports made up about three-quarters of total sales by volume in 1988. For salicylic acid in-house transfers made up about half of total sales, exports about 35 per cent and United Kingdom sales about 15 per cent. For methyl salicylate exports were about 87 per cent of total sales by volume, with United Kingdom sales 13 per cent.

3.30. Rhône-Poulenc's production at its French factories was as shown in Table 3.6 in 1988.

TABLE 3.6 **Rhône-Poulenc production in France**

tonnes

	Salicylic acid	*Methyl salicylate*	*Bulk aspirin*
Production	12,000	1,300	5,300
United Kingdom sales	780	60	186
Imported into United Kingdom for re-export as bulk	-	-	412

Source: Rhône-Poulenc.

UNITED KINGDOM MARKET SHARES

3.31. Market shares by value and volume over the past three years are shown in Tables 3.7 and 3.8. The import figures shown are based on official import statistics. Some imports may be re-exported without further processing. Because we would not consider these as part of the United Kingdom market the estimates of imports' share of the United Kingdom market may be biased upwards.

3.32. The salicylates and paracetamol are easily transported, requiring no special facilities. Rhône-Poulenc provided us with estimates of current transport costs for delivery to United Kingdom customers as follows:

France-United Kingdom	£50-£90 per tonne
New York-United Kingdom	£95-£110 per tonne
Far East-United Kingdom	£80-£100 per tonne

The costs vary according to the size of shipment. To assess the differential transport cost of imports the above costs can be compared with transport costs within the United Kingdom. Monsanto's average freight costs for deliveries within the United Kingdom in 1989 have varied from £28 to £41 a tonne. The additional transport costs of imports are estimated for each of the salicylates in the following paragraphs.

Salicylic acid

3.33. Monsanto's sales of salicylic acid are all produced at the Ruabon plant, while Rhône-Poulenc's are made at its plant at Roussillon. As can be seen from Tables 3.7 and 3.8, Monsanto and Rhône-Poulenc had similar sized shares of the United Kingdom market in 1988, after a dip in Rhône-Poulenc's share in 1987. (The combined market share of Rhône-Poulenc and Monsanto in 1988 was 86 per cent by volume and 84 per cent by value.)

3.34. There are two different grades of salicylic acid, both of which are supplied in the United Kingdom by both Rhône-Poulenc and Monsanto. The two Monsanto grades are substitutable by the Rhône-Poulenc grades but, for some uses, Rhône-Poulenc grades are not substitutable by Monsanto product. Grade availability can be a problem with some imports.

Imports

3.35. Imports of salicylic acid, other than those from Rhône-Poulenc, represent 16 per cent of the United Kingdom sales by value in 1988 compared with 23 per cent in 1987 and 26 per cent in 1986. Because of possible re-exports these percentages may be overestimates of the true United Kingdom market shares of imports.

3.36. The statistics of country of origin of imports are not always disaggregated because of protection of commercial confidentiality. However, in 1986 the main source of imports into the United Kingdom was Poland followed by West Germany. For 1987 no information on country of origin of imports is available for commercial confidentiality reasons. For 1988, when total other (ie non-Rhône-Poulenc) imports were 275 tonnes (or 14 per cent of sales), Rhône-Poulenc believes that the major source countries were Poland, Bulgaria and Romania. There are no indications of recent imports from the USA.

EC import duties

3.37. For salicylic acid there is a rate of duty for imports into the EC of 8.2 per cent. However, imports from countries which fall within the Generalised Scheme of Preferences (GSP) incur no duty. The GSP covers most Third World countries including China and India as well as some Eastern European countries. Romania and Yugoslavia fall within the GSP but not Bulgaria or Poland.

TABLE 3.7 **United Kingdom market shares by volume**

	1986		1987		1988	
	Tonnes	*%*	*Tonnes*	*%*	*Tonnes*	*%*
Salicylic acid						
Monsanto	547	38	781	50	921	47
Rhône-Poulenc	510	35	400	25	780	39
Combined	1,057	73	1,181	75	1,170	86
Other imports	385	27	400	25	275	14
Total	1,442	100	1,581	100	1,976	100
Methyl salicylate						
Monsanto	231	78	141	57	117	55
Rhône-Poulenc	21	7	75	31	60	28
Combined	252	85	216	88	177	83
Other imports	46	15	30	12	35	17
Total	298	100	246	100	212	100
Bulk aspirin						
Monsanto	776	61	631	60	733	68
Rhône-Poulenc	284	22	184	18	186	17
Combined	1,060	83	815	78	919	85
Other imports	211	17	233	22	162	15
Total	1,271	100	1,048	100	1,081	100
Paracetamol						
Monsanto	1	< 1	14	1	120	4
Rhône-Poulenc	106	3	216	7	375	12
Combined	107	3	230	8	495	16
Other UK	2,018	60	1,964	66	2,116	65
Other imports	1,245	37	776	26	632	19
Total	3,370	100	2,970	100	3,243	100

Source: MMC from companies' data.

TABLE 3.8 **United Kingdom market shares by value**

	1986		1987		1988	
	£'000	*%*	*£'000*	*%*	*£'000*	*%*
Salicylic acid						
Monsanto	602	39	849	50	963	44
Rhône-Poulenc	560	36	470	27	870	40
Combined	1,162	75	1,319	77	1,833	84
Other imports	401	25	390	23	357	16
Total	1,563	100	1,709	100	2,190	100
Methyl salicylate						
Monsanto	375	78	225	53	193	58
Rhône-Poulenc	40	8	105	25	75	23
Combined	415	86	330	78	268	81
Other imports	68	14	94	22	63	19
Total	483	100	424	100	331	100
Bulk aspirin						
Monsanto	1,736	65	1,377	65	1,632	70
Rhône-Poulenc	611	23	387	18	390	17
Combined	2,347	88	1,764	83	2,022	87
Other imports	325	12	364	17	296	13
Total	2,672	100	2,128	100	2,318	100
Paracetamol						
Monsanto	3	< 1	45	1	310	3
Rhône-Poulenc	318	3	650	8	1,125	12
Combined	321	3	695	9	1,435	15
Other UK	5,652	60	5,095	66	6,359	65
Other imports	3,466	37	1,915	25	1,952	20
Total	9,439	100	7,705	100	9,746	100

Source: MMC from companies' data.

Developed countries outside the EC such as the USA and Japan do not fall within the scheme and their imports into the United Kingdom thus attract the full import duty. Imports into the United Kingdom from other EC countries are duty-free.

Transport costs

3.38. Monsanto's average transport cost for the delivery of salicylic acid in the United Kingdom in 1989 has been £23 per tonne. The additional transport costs of imported salicylic acid would range from £27 to £87 a tonne, approximately 3 to 8 per cent of the total cost, depending on the source of imports and the size of shipment.

Methyl salicylate

3.39. United Kingdom shares for this product for the years 1986 to 1988 are shown in Tables 3.7 and 3.8. Monsanto has the major share of the market, followed by Rhône-Poulenc. Their combined share in 1988 was 83 per cent by volume and 81 per cent by value. The rest of the market was met by imports, although because of the possibility of re-exports, the true share of imports in the United Kingdom market may have been less than 17 per cent by volume. Monsanto's supplies are manufactured at Ruabon, Rhône-Poulenc's at St Fons. East Germany has been the major source of other imports in the past two years. The United Kingdom market for this product is small relative to the other salicylates: total imports other than from Rhône-Poulenc were only 35 tonnes in 1988 (16 per cent of sales). Total demand in 1989 will probably be lower than in 1988 because one of Monsanto's major United Kingdom customers has told us of a considerable reduction in its requirements.

EC import duties

3.40. There is an import duty of 17.6 per cent. As with salicylic acid, GSP countries are exempt from this, and there is no duty on intra-EC trade.

Transport costs

3.41. Monsanto's average transport cost for methyl salicylate has been £41, higher than for the other salicylates because of smaller quantity shipments. The additional cost of imports would be around £50 to £70 per tonne or 3 to 4 per cent of total cost.

Bulk aspirin

3.42. United Kingdom market shares for the years 1986 to 1988 are shown in Tables 3.7 and 3.8. Monsanto had about two-thirds of the United Kingdom market in 1988 up from about 60 per cent in the previous two years. Rhône-Poulenc's share was about 17 per cent in 1988, slightly higher than that of other imports at 15 per cent. The companies' combined share in 1988 was 85 per cent by volume and 87 per cent by value.

3.43. Unlike the other two salicylates, differences in the final form of bulk aspirin mean that some forms of the product are unsuitable for some uses. For the process of tabletting, certain grades of bulk aspirin granules are more suitable. For proprietary tablets, the quality of grades is of particular importance to maintain the look and feel of brand-name products. For soluble tablets, finer grades are needed. There is also a market for aspirin- based powders. Because of the varying requirements, some purchasers do not consider Monsanto and Rhône-Poulenc bulk aspirin product completely interchangeable. Monsanto has told us that it produces ten grades of bulk at Ruabon: three crystal, three powder and four different sizes of granules. Rhône-Poulenc produces eight grades: three crystal, three powder and two granule, and it told us that five of its grades were substitutable for

Monsanto grades at no cost. However, one of these substitutable grades was not produced in sufficient quantity to enable Rhône-Poulenc to offer the grade to United Kingdom customers. Customers have told us that they consider there to be no direct alternative to certain Monsanto grades; to use other grades would only be possible if their own tabletting equipment was converted or if they undertook their own compacting and regrading of bulk aspirin. From information given to us by Monsanto, Rhône-Poulenc and their customers we estimate that over a half of Monsanto's sales are not directly substitutable by grades from other sources. All Monsanto grades are made at Ruabon, those of Rhône-Poulenc at St Fons.

Imports

3.44. Imports other than those of Rhône-Poulenc were 162 tonnes in 1988, which is 15 per cent of the market by volume. Because some of these imports may be immediately re-exported this may overstate the share of imports in the United Kingdom market. United Kingdom purchasers of bulk aspirin generally consider that there are problems with the grade availability and occasionally purity of overseas bulk aspirin. For example, the bulk aspirin made by China is produced only in crystal form. Although crystals can be satisfactorily used for certain products (eg some generic tablets) it is unsuitable for others. Upgrading of crystals can be undertaken and Rhône-Poulenc informed us of two West German companies, one of which has upgraded Chinese and the other East German product. Imports from China have been significant in the past, although they fell to 31 tonnes in 1988. Other major suppliers have been East Germany (70 tonnes in 1988) and Spain (42 tonnes in 1988), whilst imports from the USA have been negligible.

EC import duties

3.45. Bulk aspirin imports into the EC attract an import duty of 12 per cent with exemptions for GSP countries. For aspirin, China is not included under the GSP. For 1989 there was a quota available for imports of Chinese aspirin at nil duty but this was exhausted by 30 January 1989. None of the duty-free imports were into the United Kingdom. Where imports are re-exported a rebate on duties is claimable.

Transport costs

3.46. Monsanto's average transport costs for United Kingdom delivery in 1989 have been £27.50 per tonne; the additional transport costs of imports would be in the range £23 to £83, or 1 to 4 per cent of total cost, depending on the source of imports and size of shipment.

Paracetamol

3.47. Rhône-Poulenc and Monsanto sales are a relatively much smaller part of the United Kingdom market than with salicylates. Estimates are given in Tables 3.7 and 3.8.

3.48. Neither Monsanto nor Rhône-Poulenc makes paracetamol in the United Kingdom. The sales figures shown for Monsanto are for amounts imported from its USA plant and sold by Monsanto UK. Rhône-Poulenc manufactures paracetamol at Roussillon. The combined market share of the two companies was 16 per cent by volume in 1988, most of which was Rhône-Poulenc's.

3.49. The main share of the United Kingdom market is taken by Hartington Chemicals and Sterling Organics, the only two producers in the United Kingdom and whose estimated free market sales are shown as `Other UK'. Hartington Chemicals is a business group of Staveley Chemicals; its para-nitrophenol and paracetamol business interests were sold to Mallinckrodt Specialty Chemicals (UK) Ltd, a subsidiary of Mallinckrodt Inc of the USA, on 1 September 1989. Sterling Organics is a division of the Sterling-Winthrop Group plc. In addition to the amounts shown Sterling is known to transfer substantial amounts of paracetamol to its associate company Sterling Winthrop (estimated by Rhône-Poulenc to be about 800 tonnes a year).

3.50. Imports other than those of Monsanto and Rhône-Poulenc have a substantial part of the market. This was 37 per cent in 1986, falling to 26 per cent in 1987 and 19 per cent in 1988. The major source of imports in 1988 other than Rhône-Poulenc itself was the USA (excluding Monsanto imports) with 237 tonnes. West Germany supplied 219 tonnes, India 89 tonnes and China 70 tonnes. The fall in the market share of imports over the years 1986 to 1988 is partly explained by a fall in imports from China which declined from 607 tonnes in 1986 to 70 tonnes in 1988. It was argued by a commodity trader in evidence that the imposition of an anti-dumping levy against Chinese imports contributed to this decline.

EC import duties and anti-dumping duty

3.51. There is a duty of 7.4 per cent on imports into the EC with exemption for GSP countries including China. However, in June 1988 an EC regulation imposed an anti-dumping duty on Chinese imports into the EC, adding 15 per cent or five ECUs to their price (whichever was the higher).

Merchants and wholesalers

3.52. There is negligible wholesaling activity in the United Kingdom market, customers usually dealing direct with suppliers. Merchants play a role in importing. There are about ten United Kingdom firms which trade in one or more of the products under inquiry. They are able to obtain quotations for supplies from any of the producing countries and arrange shipping and documentation.

3.53. The comments of merchants on the merger are summarised in Chapter 5. Several of them confirmed the comments of customers on the problems of grade availability and reliability of supply of products from Eastern Europe and the Third World and the effect of the anti-dumping duty on imports of paracetamol from China.

Imports as potential competition

3.54. Rhône-Poulenc and Monsanto made the point to us that whatever the current level of imports, imports were a competitive force by virtue of their potential; customers could turn to them quickly and easily if the prices of the products supplied by Rhône-Poulenc and Monsanto became uncompetitive.

3.55. In our questionnaire we asked present customers of Rhône-Poulenc and Monsanto for their opinion of the competitiveness of imports. Most did not consider them a realistic alternative source to Monsanto and Rhône-Poulenc for the supply of salicylates and paracetamol. Of 35 firms which answered the question, six thought that imports were a realistic source of supply. Of these six, five were purchasers of bulk aspirin, two purchased salicylic acid, one methyl salicylate and two paracetamol. One other firm thought that imports were competitive for paracetamol but not for aspirin. All the others responding thought not. Reasons given were as follows (some respondents mentioned more than one reason):

Price	10
Quality	15
Delivery time	10
Minimum quantity conditions	6
Reliability of supply	17

Respondents' concern about quality was not so much that overseas supplies did not meet BP standards but that particular grades were unavailable.

3.56. Several respondents mentioned that the products of American manufacturers or the German producer, Bayer, would meet their grade requirements. United States imports are, however, subject to the EC import duties already mentioned. Bayer, which had been used by several purchasers for salicylates in the past, does not currently market bulk analgesics into the United Kingdom. There are no other major EC producers of salicylates, apart from Bayer. Despite the stated concerns over price there was evidence from price quotations from overseas suppliers obtained by manufacturers and merchants that prices of imports were competitive relative to United Kingdom prices (see paragraph 3.91).

3.57. One way to meet some of the grade availability problems of overseas supplies of aspirin would be to undertake upgrading. This is discussed in paragraphs 3.77 to 3.80. Problems over security of supply and delivery time can be alleviated by holding higher stock levels. All these measures have a cost. To investigate the cost that purchasers of salicylates and paracetamol might impute to the various problems they had identified with imports we asked them what relative price change in their supplies would induce them to switch to imports. The replies were as follows:

Up to 5 per cent	3
5 to 10 per cent	6
10 per cent or more	8
Would not switch at any price for other reasons	7
No answer	5
Not applicable (firm thought that imports were a realistic alternative)	6
Total	35

Such replies do need to be treated with caution because there may be a tendency for firms to exaggerate the price rise that would be necessary for them to look to overseas supplies. These answers can be compared with our estimates of the cost of aspirin upgrading in paragraphs 3.78 to 3.80.

THE STRUCTURE OF UNITED KINGDOM DEMAND FOR THE PRODUCTS

3.58. The United Kingdom sales of the products under inquiry are to a relatively small number of firms, most of whom were multinational companies. The number and nature of these are described below for each of the products.

Salicylic acid

3.59. An analysis of 1988 sales revealed that over a half of Monsanto's sales were to one customer. Sales to four customers made up over three-quarters of total sales. For Rhône-Poulenc in 1988 there was one customer which accounted for about a half of its total sales. Rhône-Poulenc had a total of four customers in the United Kingdom.

Methyl salicylate

3.60. In 1988 Monsanto had 14 United Kingdom customers, with the top four purchasing about two-thirds of total sales. Rhône-Poulenc had two United Kingdom customers, one of which accounted for nearly all of its total sales. One major customer of Monsanto has said that its requirements for methyl salicylate in 1989 and beyond will be no more than a few tonnes, because of a switch to an alternative process which does not use methyl salicylate.

Bulk aspirin

3.61. In 1988 Monsanto's top six customers accounted for over three-quarters of its total United Kingdom bulk aspirin sales. Of Rhône-Poulenc's total United Kingdom sales in 1988, over three-quarters were accounted for by its top three customers.

Paracetamol

3.62. Rhône-Poulenc's United Kingdom sales of 375 tonnes of paracetamol in 1988 were to 13 customers in total. Over three-quarters of these were accounted for by four customers. Monsanto had nine United Kingdom customers, the top three accounting for over three-quarters of total sales.

END-PRODUCT MARKETS AND AVAILABILITY OF SUBSTITUTES

3.63. Salicylic acid has various end-uses, and we asked Monsanto and Rhône-Poulenc to estimate what proportion of their sales went to each. Monsanto gave us the following estimates for its 1988 sales of 921 tonnes.

	%
Flavours and fragrances	65
Industrial (dyestuffs, inks etc)	32
Pharmaceuticals	3

Rhône-Poulenc's corresponding estimates for its 1988 United Kingdom sales of 780 tonnes were as follows:

	%
Perfumery products	57
Pharmaceuticals salicylates	33
Other pharmaceutical products	5
Colourants	5

3.64. The distribution of Monsanto's sales of methyl salicylate in 1988, according to end-use, was as follows:

	%
Flavours and fragrances	84
Pharmaceuticals	7
Other	9

For Rhône-Poulenc 96 per cent of its 1988 sales were for pharmaceutical products, the other 4 per cent for fragrances.

3.65. The market for flavours and fragrances, which accounts for the major part of the use of salicylic acid and methyl salicylate, is competitive and international. We received evidence that the cost of salicylic acid and methyl salicylate made up about 50 per cent of the product cost of aromachemicals. A major manufacturer told us that this gave manufacturers great incentive to obtain competitive prices from the suppliers of their raw materials.

3.66. Bulk aspirin is used only as an ingredient for pharmaceutical products. An important categorisation in these final products, and also for those containing paracetamol, is into generic and proprietary products. The nature of the final products market is discussed in further detail below.

3.67. Various trends in these end-product markets and their effect on demand for bulk aspirin and paracetamol were described in paragraphs 3.20 to 3.22.

3.68. Monsanto estimates that in 1988 about 63 per cent by volume of Monsanto's bulk aspirin sales were to manufacturers of branded products, with about 30 per cent to manufacturers of generic tablets (the balance going to traders). It considers that these proportions are likely to apply also to total sales in the United Kingdom.

3.69. From estimates provided by Monsanto, we have assessed the relative importance in the retail prices of end-products of the cost of raw materials. For generic aspirin tablets, using Monsanto's list prices for bulk aspirin, the cost of bulk aspirin content as a proportion of retail price (including VAT) ranged between 4.8 and 7.1 per cent for a variety of pack sizes and different retail outlets (excluding certain high-volume packs).

3.70. Branded products sell at considerably higher prices than generics, although they contain the same levels of active ingredients. The cost of bulk aspirin content as a proportion of retail price for a variety of aspirin brands ranged between 1.8 and 2.4 per cent.

3.71. For paracetamol the pattern was similar. In generic products, the bulk paracetamol cost ranged between 4.3 and 10.3 per cent as a proportion of retail price (including VAT). For branded products the range was 2.2 to 4.0 per cent. In combination products (where another active ingredient is combined with paracetamol or aspirin) the percentages are similar.

3.72. We asked both Monsanto and Rhône-Poulenc and a number of pharmaceutical manufacturers about price sensitivity of demand in end-product markets. The answers we received were all similar. Products are bought mainly for their perceived efficacy and quality. Demand is affected by information on medical effects or side-effects (as has been shown by the move away from aspirin) and by customer preference with regard to taste and appearance. Thus advertising can play an important role. One manufacturer pointed out that on medical grounds alone, the effect of generic and branded products should be the same. But his firm had suffered a sharp fall in sales of its product after a change of the grade of active ingredient led to a change in its appearance and feel in the mouth. All the evidence we received on this question was that retail sales were not particularly sensitive to price. One manufacturer made the point that if they were, then branded products would hardly be able to survive.

3.73. The above evidence, of relatively low price sensitivity of demand in final products markets for aspirin and paracetamol preparations and the low relative proportion of the cost of the bulk products in final retail prices, suggest that manufacturers are not so constrained in their final product markets that any attempt to pass on price rises in product costs would quickly lead to loss of sales. Manufacturers sell to wholesalers, who are obviously keen to obtain good prices, but several manufacturers told us that, in the face of an input product cost increase, common to all manufacturers, it is likely that prices could be passed on.

Substitutes for products

3.74. In our survey questionnaire we asked purchasers of the products about substitutes. For non-pharmaceutical uses of salicylates, all answered that there were no substitute products which they could use (we have mentioned in paragraph 3.18 substitution of salicylic acid for methyl salicylate in aromachemical manufacture).

3.75. As regards pharmaceuticals, no substitution is possible by definition for generics. For branded products, it is not easy for a manufacturer to simply substitute one analgesic for another in the formulation of his product. For medical safety reasons the product licence issued by the Department of Health which every manufacturer must hold specifies the active ingredients to be used. Changing them involves an application for an amended licence. The usually preferred method when a manufacturer wishes to make such a substitution is to launch a new product with the different ingredient, to be sold alongside or instead of the old product.

3.76. Thus there are no ready substitutes for aspirin and paracetamol for the pharmaceutical manufacturers which they could use as an alternative in the face of price rises in their bulk ingredients.

Substitution between grades

3.77. We have already mentioned the requirements of customers with regard to the grades of product and in the case of bulk aspirin how certain grades of product are necessary for certain types of final product. According to most customers who gave us evidence these factors considerably lessen the competitive potential of imports from Eastern Europe and the Third World.

3.78. Rhône-Poulenc and Monsanto said that such quality problems could always be overcome by conversion of grades, either by a pharmaceutical company or an intermediary, at a modest cost. They quoted the examples of a West German manufacturer which upgraded East German imports and the merchant Aubing which has recrystallised Chinese bulk aspirin to improve its acceptability for use in West Germany.

3.79. Evidence from United Kingdom customers is that there would be problems for them to undertake such upgrading in-house. Some said that the investment in the necessary machinery would be prohibitively expensive, given the volumes required. Others foresaw problems with batch quality control.

3.80. The upgrading required would entail either grinding bulk aspirin to the required grade of powder or compacting bulk aspirin to enable the production of the required size of granule. For the former operation, we have been told of a range of milling equipment costing from upwards of £40,000. A pharmaceutical manufacturer told us that to process its own requirements of 200 tonnes per annum would require a capital investment of £140,000 and that the total cost of grinding or milling including capital charges would be over £200 per tonne. Compacting and granulating is somewhat more expensive with suitable equipment costing upwards of £100,000. Monsanto has provided us with estimates of the costs that would be incurred by a manufacturer in compacting and granulating its own requirements of 300 tonnes per annum. The estimated installed cost would be £300,000 and the total cost of compacting and granulating including capital charges would be £250 per tonne.

PROSPECTS OF NEW ENTRY IN SUPPLY

3.81. The potential for imports from various sources has already been discussed, as has the issue of aspirin upgrading either by pharmaceutical manufacturers or intermediaries. In this section we discuss the barriers to new entry in the supply of bulk salicylates. We confine this discussion to the prospect of new entry in the EC; as was stated in the section on imports, there has been new capacity installed in a number of countries outside the EC and overall there is world overcapacity.

3.82. Within EC countries there are no institutional or regulatory barriers to new entry, apart from the need for a firm to obtain product licences. These are issued when the regulatory authorities are satisfied that product quality standards are met. There are no outstanding patents involved in production technology, nor any problems of access to raw materials. The two main United Kingdom suppliers have supply contracts of no longer than one year with nearly all customers.

3.83. The grade requirements of present Monsanto customers might be difficult for a new entrant to meet, although customers might be willing to use different grades if there were a large enough price differential and upgrade the product themselves or through an intermediary. One leading EC manufacturer told us that the need for constant quality was a barrier to entry to this market.

3.84. Monsanto suggested to us that potential new entrants into salicylic acid production were current bulk aspirin manufacturers not back-integrated into salicylic acid production. All the examples of such firms that it quoted were outside Europe.

3.85. Monsanto's best estimate of the cost of commissioning a salicylic acid plant with 1,500 tonnes per annum capacity in the United Kingdom was £5 million. For aspirin production, based on its Thailand plant, with 1,500 tonnes per annum aspirin capacity, Monsanto estimated a cost of £5 million, with an extra £650,000 for a granulation plant to produce a wide range of grades. Monsanto believed that Dow Chemical Company had invested some $30 million in a plant that could produce up to 5,000 tonnes per annum of bulk aspirin. This had been in the USA in the mid-1980s. Monsanto also mentioned toll manufacturers, which would already have some general-purpose plant that could be used for salicylate products.

3.86. Evidence we received from pharmaceutical manufacturers suggested that it would be uneconomic for toll manufacturers to enter the market for salicylates because the volumes they might expect to sell would make the investment uneconomic.

3.87. Overall, with regard to the United Kingdom market, the combination of a static market for the products and the large market shares of two incumbent suppliers are likely to make new entry relatively unattractive. Since both main United Kingdom suppliers make substantial exports as well as selling to the United Kingdom market, they benefit from economies of scale which a new entrant would find difficult to obtain, given the competitive state of the world markets.

PRICING POLICY AND PRICE TRENDS

3.88. Both Rhône-Poulenc and Monsanto produce internal price lists which, although not published, are used by its salesmen as a basis for individual price discussions with customers.

3.89. For salicylic acid and methyl salicylate prices are reviewed at three-monthly or six-monthly intervals. Once a price is agreed for such a period, the customer can place single orders, or a series of orders, at that price. Aspirin prices are set in a similar way except that prices are reviewed at annual intervals. Examples of supply agreements covering periods of more than one year are rare.

3.90. Over the years 1986 to 1988, the prices obtained by the two companies in the United Kingdom have changed little. In real terms, with United Kingdom inflation of about 9 per cent between 1986 and 1988, all the prices have fallen. In real terms, costs of production have not fallen, but prices have, resulting in a squeeze on margins.

3.91. The prices in the world market diverge from those in the United Kingdom. At our request Monsanto provided details of its average realised United Kingdom and export prices for the three salicylates and paracetamol over the years 1986 to 1988. For salicylic acid, United Kingdom and export prices have been broadly the same. For the other products, United Kingdom prices have been higher than export prices throughout the three years and the divergence has grown as world prices have fallen faster in real terms than United Kingdom prices. We obtained evidence from merchants on current prices for supplies of salicylates from Eastern Europe and the Third World. After adjusting for import duties (where applicable) and transport costs, prices for bulk aspirin and methyl salicylate were significantly lower than typical current prices paid by United Kingdom customers; prices for salicylic acid were about the same.