

THE MONOPOLIES COMMISSION

Colour Film

A Report on the Supply and Processing of Colour Film

*Presented to Parliament in pursuance of
Section 9 of the Monopolies and Restrictive Practices
(Inquiry and Control) Act, 1948*

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Report on the Supply and Processing of Colour Film

INTRODUCTION

(i) The following report on the supply of colour film and the application of any process to colour film is submitted in compliance with section 2(1) of the Monopolies and Restrictive Practices (Inquiry and Control) Act 1948 (as amended) and section 2(3) and 2(4) of the Monopolies and Mergers Act 1965. The reference, which is reproduced in appendix 1, was received from the Board of Trade on 14th May 1963.

(ii) The investigation was at first conducted by the Commission as a whole. Members newly appointed in or after 1965 did not take part, however, and on 4th October 1965 (in accordance with the provisions of section 1 of the 1965 Act and paragraph 9(1) of schedule 1 thereto) those members who were then concerned with the inquiry were formally constituted as the group responsible for discharging the functions of the Commission in relation to this investigation. The report is accordingly made by this group, except that Mr. Levy, who was originally its Chairman, has subsequently retired (see paragraph (ix)).

(iii) We have received evidence from Kodak Ltd., the principal supplier and processor of colour film.

(iv) We have also received evidence from other suppliers and processors of colour film, from wholesale and retail distributors, from associations of photographic manufacturers, importers, processors and distributors, and from amateur photographic associations and clubs. From some of these witnesses we took oral evidence after we had considered their written submissions. A list of our principal sources of evidence is given in appendix 2. Members of the Commission and of the staff visited a number of factories and processing stations.

(v) Representatives of Kodak attended a meeting in November 1964 to clarify outstanding matters of fact.

(vi) In January 1965, we informed Kodak Ltd. of our provisional conclusions that the conditions of the 1948 Act (as amended) prevailed in respect of the supply of colour film and in respect of the application of a particular process to colour film; and we notified the company of the respects in which it might be contended that, so far as it was concerned, the conditions, or the things done as a result of or for the purpose of preserving the conditions, operated or might be expected to operate against the public interest. Kodak made certain representations to us in writing and in June 1965 representatives of the company attended a hearing for the purpose of discussing these matters with us. At this meeting Kodak was represented by Counsel.

(vii) In January 1965 we also informed a number of other companies of our provisional conclusions that the conditions prevailed in respect of the application of certain processes to colour film, and invited their observations upon

a number of questions which appeared to us to be relevant to our judgment upon the public interest in this connection. One of these companies, Agfa Ltd., attended a hearing in August 1965, when it was represented by Counsel.

(viii) We wish to record our appreciation of the assistance given to us by Kodak and all the others who have provided us with the information required for our investigation. Some of the information relates to confidential business affairs and we have been careful not to disclose it in our report unless it is essential for a proper understanding of the issues.

(ix) Mr. R. F. Levy, QC, retired from the Chairmanship of the Monopolies Commission shortly before this report was completed. He had in this, as indeed in all our investigations, carried much of the burden and we take this opportunity to express our indebtedness to him.

General Background

Colour film

1. The goods to which our terms of reference apply are colour films defined as 'sensitised positive or negative stock, on a base other than paper, for use (otherwise than in the cinematograph film industry) for colour photography and made up for sale by retail otherwise than as flat film'. In general, we use the term 'colour film' in this report to mean film of the kind covered by our reference, that is, in effect, colour films which are made up for sale to the amateur photographer. Colour films made up from positive stock, generally known as 'reversal' films, provide after exposure direct positive transparencies in which the tone and colour values are those of the original scene; still transparencies may be mounted for viewing in the hand or by projection, and cine film is of course, viewed by projection. Colour films made up from negative stock, generally known as 'negative-positive' films, provide negatives which are reversed from the original scene in both tone and colour values. From these negatives colour prints are subsequently made, by contact or enlargement, but neither the prints nor the sensitised paper on which they are made are within our terms of reference. Our reference is confined to the supply and processing of colour films in the United Kingdom, and where in this report we use such expressions as 'sales of colour film' or 'colour film business' we intend to refer only to the home trade unless a different meaning is clearly indicated in the context.

2. The colour film of the present day has been evolved after many years of research and experiment, beginning with the first colour photographs produced by Clerk Maxwell in the 1850's. Although in the past the so-called 'additive' system of construction was used¹, modern colour film is based upon the 'subtractive' system (originally described by du Hauron in France in 1862) in which the images formed in layers of emulsion coated on the film successively subtract different components (or colours) from the light by which they are viewed. Effectively there are three such layers which record respectively the bluish (green-blue, blue, violet), greenish (yellow-green, green, blue-green) and reddish (red, orange, yellow) elements in the scene, though between the first and second recording layers there is generally a filter layer to absorb any residual bluish light and there may be other layers for various subsidiary purposes. All the colour films with which we are concerned are in this 'integral tripack' form. The film base is generally made of cellulose acetate and the emulsions which form the layers consist essentially of certain light-sensitive salts mixed with gelatine. A description of the manufacture of colour film is given in appendix 3.

3. Apart from the fact that colour films may be either of the reversal or the negative-positive type, a further distinction needs to be made between substantive and non-substantive films. In the former the light-sensitive layers incorporate 'colour-couplers' which, when processed after exposure, produce

¹ The additive colour photographic materials produced commercially included Autochrome plates and films, Finlay plates, Agfa films, Kodak amateur cine films available in the late 1920's and early 1930's, and Dufaycolor films which were available in the 1930's and for a short time after the war.

the visible coloured image (positive or negative, as the case may be) on the developed film ; but in the latter the sensitive layers contain no colour-couplers, which therefore have to be introduced in the course of processing. In practice, all negative-positive films are of substantive construction, but both substantive and non-substantive reversal films are marketed.

4. Thus we are concerned with three main categories of colour film, namely negative-positive, substantive reversal and non-substantive reversal. In 1964 negative-positive film and substantive reversal film each accounted for rather less than one-fifth (by area) of all the colour film sold by manufacturers and importers, the rest being non-substantive reversal film. The approximate proportions of each type sold in 1963 and 1964 were as follows :

				1963	1964
				%	%
Non-substantive reversal	...	...	...	62	64
Substantive reversal	...	...	...	19	18
Negative-positive	...	...	...	19	18
				100	100

The high proportion of non-substantive film in the reversal category was due to the popularity of a particular brand.

Processing

5. Our terms of reference require us to investigate not only the supply of colour film but also 'the application of any process' to such film. We consider in more detail in chapter 10 the question of what constitutes a distinct process ; for the present purpose it is sufficient to say that we regard the processes applied to negative-positive and reversal films as distinct (since the one produces a negative and the other a positive result), and that the process applied to non-substantive film (since it includes the highly critical operation of introducing the colour couplers) is distinct from that applied to substantive film. In practice, therefore, we are concerned with three processes, namely those applied to negative-positive film, to substantive reversal film and to non-substantive reversal film (see paragraphs 3 and 4). Further details of these processes are given in appendix 3.

Suppliers and processors

6. Non-substantive and substantive reversal films of the subtractive type were introduced successfully by Eastman Kodak (USA) and Agfa (Germany) respectively, in the mid-1930's and were available in this country though not made here. Apart from these two makes, which were re-introduced after the war, practically all the different brands of colour films available today, including all brands of negative-positive, were first introduced in the 1950's. According to figures published by the Photographic Information Council the ratio of exposures, as between colour and black and white films, has risen from 1:100 in 1952 to 1:2 in 1964. There are only two manufacturers of colour film in this country, Kodak Ltd. and Ilford Ltd. The number of manufacturers throughout the world is small and the products of most, if not all, of the principal manufacturers abroad are also available here.

7. Most manufacturers of colour film also undertake, directly or indirectly, the processing of at any rate some of their products. Some brands are sold only at prices which include a charge for the subsequent processing, in which case the manufacturer or importer, or a processor appointed by the manufacturer or importer, is the sole processor in this country of that brand.

8. The following types of colour films are manufactured and processed by Kodak Ltd. and Ilford Ltd.:

Kodak manufactures and supplies non-substantive and substantive reversal films, cine and still, under the brand names 'Kodachrome' and 'Ektachrome', respectively, and negative-positive films under the brand name 'Kodacolor'. Kodachrome is sold at process-paid prices but Ektachrome and Kodacolor are not. As well as processing Kodachrome, Kodak offers processing services for Ektachrome and processing and printing services for Kodacolor.

Ilford manufactures and supplies non-substantive reversal films and negative-positive films; the cine reversal is supplied under the brand name 'Ilfochrome', the still reversal under the brand names 'Colorslide' and 'Super Colorslide' and the negative-positive under the brand name 'Colorprint'¹. All these films are sold at process-paid prices. The still reversal and negative-positive films are marketed only in the 35mm size.

9. The following are the principal makes of imported films:

Agfacolor reversal films, cine and still, and negative-positive films are made by Agfa-Gevaert AG, West Germany. The films are supplied in this country by *Agfa Ltd.*, a British-owned company in which the German manufacturer has no financial interest. The reversal films are sold at process-paid prices, and processing is carried out by *Agfa Processing Ltd.* (a subsidiary of Agfa AG, Germany) which also offers processing and printing services for the negative-positive films².

Gevacolor reversal films, cine and still, and negative-positive films are made by Gevaert-Agfa NV, Belgium, whose wholly owned subsidiary, *Gevaert Ltd.*, supplies them in this country. The reversal films are sold at process-paid prices and processing is carried out by Gevaert Ltd. which, however, offers no processing or printing services for the negative-positive films.

Perutz still reversal films are made by Perutz Photowerke GmbH, West Germany, and are imported and sold process-paid by *Hanimex (UK) Ltd.* Until 1962 the films were posted to Germany for processing by Perutz. Since 1962, processing has been carried out by an independent photo finisher, *Perutz Color Service Ltd.*, by arrangement with Perutz.

Dynachrome reversal films, cine and still, are made by the Dynacolor Corporation (USA) which was acquired by Minnesota Mining & Manufacturing Co. (USA) (3M), in 1963. Until recently, Dynachrome films were imported by *Gratispool Ltd.* which sells them under its own trade name and carries out the processing. (Gratispool also sells and processes Ektachrome and Kodacolor films.) In 1965 the British subsidiary of 3M started to import

¹ Until 1965 Ilford was marketing reversal films, cine and still, under the name 'Ilfochrome' and negative-positive films under the name 'Ilfocolor'. See paragraphs 73 and 76.

² See paragraph 103 for the amalgamation in 1964 of the photographic interests of Agfa AG and Gevaert Photo-Producten NV, the relationships between the various Agfa and Gevaert companies concerned and the relationship between Agfa AG and Perutz GmbH.

Dynachrome film for supply to outlets other than Gratispool, and as from January 1966 it has also supplied Gratispool.

Ferraniacolor reversal films, cine and still, are made by Ferrania (Italy). The films were first imported and sold by Neville Brown Ltd., which was later acquired by *The Rank Organisation Ltd.* In 1964, Ferrania was acquired by 3M, whose British subsidiary, *Minnesota Mining & Manufacturing Co. Ltd.*, took over the importation and supply of the films from Rank in 1965. The cine and one type of still reversal are sold at process-paid prices and are processed by Rank by arrangement with Ferrania. Rank also offers processing services for a number of makes of colour films which are sold exclusive of processing, including one type of Ferraniacolor reversal.

Ansochrome still reversal films are made by General Aniline & Film Corporation (USA), and imported by *David Williams (Cine Equipment) Ltd.* The standard sizes are sold at process-paid prices and processing is carried out by an independent photo finisher, *Colour Centre Ltd.*, by arrangement with General Aniline.

All the reversal films mentioned in this paragraph are of the substantive type, except Dynachrome. The small supplies of other makes of imported colour films are mentioned in paragraphs 116 to 118.

10. The principal colour films for which tied arrangements for processing are not made and which are available to the wholesale photo finishing trade are, accordingly, Ektachrome, one type of Ferraniacolor reversal film, and all makes of negative-positive other than Ilford's.

11. The following table shows the total sales of colour films by the manufacturers and importers in 1964, by net sales value¹ and by area :

	Negative-positive		Substantive reversal		Non-substantive reversal		Total	
	£'000	sq. ft. '000	£'000	sq. ft. '000	£'000	sq. ft. '000	£'000	sq. ft. '000
Kodak	932	1,385	406	452	2,996	5,074	4,334	6,911
Ilford	90	153	—	—	113	292	203	445
Agfa	41	59	506	714	—	—	547	773
Gevaert... ..	13	26	108	238	—	—	121	264
Gratispool	—	—	—	—	185	532	185	532
(Dynachrome)								
Rank (Ferraniacolor) ...	—	—	85	121	—	—	85	121
Hanimex (Perutz) ...	—	—	113	92	—	—	113	92
David Williams	—	—	27	18	—	—	27	18
(Ansochrome)								
Others	26	31	5	4	—	—	31	35
Totals	1,102	1,654	1,250	1,639	3,294	5,898	5,646	9,191

The figures are for the calendar year, or for suppliers' financial years ended 31st October 1964. 'Rank' means Rank or its predecessor as importer of Ferrania films (see paragraph 9).

¹ Manufacturers' and importers' selling prices are exclusive of purchase tax but the prices for imported films take import duty into account. Where films are sold at a price inclusive of a charge for processing the portion of the price attributable to this charge has been excluded.

12. The quantity of film processed in any period is unlikely to be the same as the quantity sold in that period. As we have already shown, a high proportion of the processing is done by the manufacturers and importers or their appointees, from all of whom we have obtained figures of the quantities (area) of colour film they have processed, but it was not possible to obtain accurate figures from most of the independent photo finishing trade (see paragraph 14). In the table below we summarise the information we have obtained about the quantities processed in 1964:

	Negative-positive	Substantive reversal	Non-substantive reversal
	<i>sq. ft. '000</i>	<i>sq. ft. '000</i>	<i>sq. ft. '000</i>
Kodak	566	120	5,427
Ilford	69	—	510
Agfa Processing ...	18	739	—
Gevaert... ..	—	271	—
Gratispool	—	—	424
Rank	—	99	—
Perutz Color Service ...	—	92	—
Colour Centre	—	16	—
Others	900 to 1,100	300 to 400	—
Totals	1,550 to 1,750	1,650 to 1,750	6,361

The figures for Gratispool, Rank, Perutz Color Service and Colour Centre relate only to their business as sole processors of certain process-paid films. Since all non-substantive reversal films are sold process-paid there is no processing of these films by 'Others'; in the remaining two columns, the figures for 'Others' and the totals are necessarily rough estimates made in the light of the sales figures in paragraph 11.

Distribution

13. In the earliest days of amateur photography, chemists carried out on their own premises the developing and printing of amateur black and white films and became the normal retail outlets for films and other amateur photographic goods. The growth of amateur photography after the first world war resulted in the establishment of professional photo finishers but, though most chemists no longer undertook developing and printing and some specialist photographic retailers began to appear, chemists' shops continued to be the principal retail outlets. With the continued growth of amateur photography, particularly since the end of the last war, the number of specialist retailers has increased substantially, as has the number of general stores with photographic departments, but chemists remain, both numerically and by the total volume of business handled, the principal retailers of films. As colour films have come on to the market they have simply taken their place beside other photographic goods in this pattern of distribution. In common with most other photographic goods, they have always been price maintained¹ and the discounts allowed to distributors have followed those already established for black and white films and are, with minor exceptions, the same throughout

¹ See paragraph 230 for the position consequent upon the enactment of the Resale Prices Act 1964.

the trade. Retailers of film also accept films (other than those sold process-paid) for processing; and since the public rarely specify a particular processor, the choice of processor is largely in their hands.

The wholesale photo finishing trade

14. With the advent of non process-paid colour films in the 1950's, some of those professional photo finishers who, as we have mentioned, had established themselves between the wars, added colour work to their black and white finishing activities and a number of new entrants to the trade only handle colour. Wholesale photo finishers either receive or collect orders for the processing and printing of colour films from photographic dealers and the discount off their retail prices allowed to the dealers has followed that already established for black and white finishing and is, with minor exceptions, standard throughout the trade.

Trade associations

15. The two manufacturers of colour films with whom we are concerned are members of *The British Photographic Manufacturers Association Ltd.*, whose membership totals thirty-two. The Association negotiates with government departments on behalf of the manufacturing industry on many matters and co-operates with the British Standards Institution in the promulgation of standards for a number of photographic products. *The Photographic Importers' Association*, to which most of the importers of colour film belong, performs similar functions on behalf of its members. The activities of the *Wholesale Photo Finishers' Association*, with a membership of 560 of which 155 handle colour films, and *The Photographic Dealers' Association*, with a membership of some 3,500, are described in chapters 5 and 6 respectively.

Legislation and government policy

16. The photographic industry falls within the Board of Trade's responsibility for trade and commerce. During and for some years after the war there was strict control of imports of films of all types but this was progressively relaxed from 1949. Imports from Western Europe were covered by open general licence from 1949 to 1952, when licensing was re-introduced on a quota basis, but an open general licence was restored in 1954. Imports from the USA and Canada were restricted until 1959, and from Japan until 1960, when they were covered by an open general licence. At the present time, imports of films from all sources other than the Eastern area are covered by an open general licence.

17. The current rates of import duty applicable to amateur colour films are as follows:

	Full	Commonwealth	EFTA
Of a length less than 12 ft. ...	20%	free	4½%
Of a length of more than 12 ft.	¼d. per linear ft.	¼d. per linear ft.	⅓d. per linear ft.

In addition, a temporary surcharge of fifteen per cent. ad valorem was imposed on 27th October 1964; this was reduced to ten per cent. on 27th April 1965. Nearly all the colour films imported are from sources to which the full rate of duty is applicable. The linear rates apply to cine

films and to the bulk rolls of film which are subsequently cut and packed by some importers. (The bulk of imports of colour films is imported already packed for retail sale.)

18. Colour films are subject to purchase tax of twenty-five per cent. The amount of tax payable is based on the notional wholesale price exclusive of any charge for processing.