FOMA

since 1921

PRODUCTS CATALOGUE

applications • procedures • informations

FOMA BOHEMIA spol. s r.o. (Ltd.)

Present times and the history

FOMA BOHEMIA spol. s r.o. (Ltd.) is a producer of photographic materials with long tradition. It has been founded in March 1995 through the privatization of the National Enterprise FOMA (FOTOCHEMA before 1990).

The firm's origin has dated from 1921 when a company named FOTOCHEMA Ltd. in Hradec Králové has been founded. Its products were delivered with a brand name FOMA. At first only photographic plates and processing chemicals were produced. After a period of ten years the production of black-and-white papers and a year later the production of black-and-white roll films were opened.

In 1949 after the National Enterprise FOTOCHEMA was established, the range of products has extended comprising X-ray films, black-and-white positive copy film, black-and-white papers for industrial use, black-and-white reversal film, colour paper, colour negative film and colour reversal film.

After 1990 essential changes were made and the production of black-and-white light sensitive materials has become the dominant production program of the company.

Since September 1997 when this has been confirmed with a certificate all activities of FOMA comply with the international standard ISO 9001.

High flexibility of FOMA and its wilingness to fulfil even less usual requirements in orders of customers result in continuously increasing export. FOMA materials are exported nearly to 85 countries, such as Germany, USA, China, Russia, Poland, Ukraine, Italy, UK, Spain, France, Japan, India, Venezuela etc.

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BLACK-AND-WHITE MATERIALS

1. BLACK-AND-WHITE FILMS

1.1.Application and specific features of films

Wide choice of negative, reversal and positive films of FOMA and their harmonically balanced sensitometric features (speed, granularity, resolving power etc.) offer plenty of possibilities to be applied in photography.

Application field	Film type				
	Fomapan 100 Classic	Fomapan 200 Creative	Fomapan 400 Action	Retropan 320 soft	Fomapan R
General use	●	●	●		
Portrait	●	●	●	●	●
Still life	●	●		●	●
Landscape	●	●		●	●
Architecture	●	●		●	●
Reportage		●	●		
Structure, macrography	●	●			●
Sport, movement, action–without flash			●		
Reproduction	●	●			
Photography in experiments	●	●	●	●	●
Cinematography					●

Specific features of black-and-white FOMA films

Characteristics	Fomapan 100 Classic	Fomapan 200 Creative	Fomapan 400 Action	Retropan 320 soft	Fomapan R
High resolving power	●	●			●
Very fine grain	●	●			●
Fine grain			●	●	
High contour sharpness	●	●			●
Wide exposure latitude	●	●	●	●	
Wide gray scale halftones	●	●	●	●	●
Using of an advanced emulsion technology		●			
Processing by reversal developing process R-100					●

1.2. Survey and characteristics of negative black-and-white films

FOMAPAN 100 Classic
is a black-and-white negative film designed for taking photographic pictures. The film meets high requirements for fine-granularity, very high resolution, excellent contour sharpness and a wide range of halftones. The nominal speed of ISO 100/21° combined with wide exposure latitude gives very good results even with overexposures up to 1 EV (corresponding to ISO 50/18°) or underexposures up to 2 EV (corresponding to ISO 400/27°) (exposure value), both without any change in processing. Rich and wide scale of halftones, even in highlighted areas, makes this film especially suitable for portrait photography and similar applications.

FOMAPAN 200 Creative
is a black-and-white negative film designed for taking photographic pictures. The film meets high requirements for fine-granularity, high resolution, good contour sharpness and a wide range of halftones. The film has a nominal speed of ISO 200/24°, thanks to the wide exposure latitude, however, very good results can be achieved even with overexposures up to 1 EV (corresponding to ISO 100/21°) or underexposures up to 2 EV (corresponding to ISO 800/30°), both without any change in processing. Rich and wide halftone reproduction, even in the highlighted are as, makes this film especially suitable for portrait photography and similar applications.

FOMAPAN 400 Action
is a black-and-white negative film suitable for taking pictures under unfavourable light conditions. High requirements for fine-granularity, good resolution and contour sharpness and a wide range of halftones are met with this film. Having the nominal speed of ISO 400/27° combined with wide exposure latitude, Fomapan 400 yields very good results even with overexposures up to 1 EV (corresponding to ISO 200/24°) or under-exposures up to 2 EV (corresponding to ISO 1600/33°), both without any change in processing.

RETROPAN 320 soft
is a negative black and white film with fine grain, good resolution and edge sharpness. The film offers a broad range of half tones and soft light presentation which makes it suitable for photography and subsequent contact printing or "retro" style enlarging of negatives (photographs of still lives, architecture, experiments, landscapes, portraits, etc.). The sensitivity of the film is ISO 320/26° but its great exposure latitude provides very good results also with overexposures by min. 1 EV (ISO 160/23°) and underexposures by 2 EV (1250/32°). For positive development, variable contrast enlarging papers are recommended – Fomabrom Variant, and papers of warm tones of both base and silver – Fomatone MG Classic. Other types of black and white enlarging papers, however, may also be used; in order to emphasize the "retro" effect or the vividness and plasticity of the image, they may be further toned – e.g. using Fomatoner Sepia brown toner.

Schwarzschild effect
In the following table, the approximate values are given of prolonged exposure multiples and aperture number corrections for the basic series of FOMA films. They should be applied when exposure time exceeds 0.5 second and may thus cause the so called Schwarzschild effect.

Film type	*Time (exp.meter)*	*Exposure correction*	*Aperture correction*	*Time (exp.meter)*	*Exposure correction*	*Aperture correction*	*Time (exp.meter)*	*Exposure correction*	*Aperture correction*
Fomapan 100 Classic	**1 s**	2x	- 1	**10 s**	8x	-3	**100 s**	16x	-4
Fomapan 200 Creative	**1 s**	3x	- 1,5	**10 s**	9x	-3	**100 s**	18x	-4
Fomapan 400 Action	**1 s**	1,5x	-1	**10 s**	6x	-2,5	**100 s**	8x	-3
Retropan 320 soft	**1 s**	1.5x	-1	**10 s**	6x	-2,5	**100 s**	8x	-3

1.3. Survey and characteristics of film processing baths

FOMADON LQN
is a one-part liquid concentrate to make a fine-grain, normal-working phenidone-hydroquinone developer designed for all types of black-and-white negative films.
It is supplied in PE bottles of 0.25 l and diluted for use with water (1+10 or 1+14).

FOMADON LQR
is a one-part liquid concentrate to make a fine-grain, contrast-working phenidone-hydroquinone negative developer. It is designed for the manual processing of all types of black-and-white negative films.
It is supplied in PE bottles of 0.25 l and diluted for use with water (1+10 or 1+14).

FOMADON R 09
is a one-part liquid concentrate to make a fine-grain, normal-working p-aminophenol developer designed for all types of black-and-white negative films.
It is supplied in PE bottles of 0.25 l and diluted for use with water (1+25 to 1+100).

FOMADON P
is a two-component, powder form metol-hydroquinone developer, which agree to the developer Kodak D76 or Ilford ID11, designed for manual processing of all types of black-and-white films. It is supplied in packaging to make up 1 litre of working solution.

FOMADON EXCEL
is a two-component, powder type of a slightly alkaline developer, based on the advanced formula with new developing substances. It is designed for manual processing of all types of black-and-white negative films and ensures high reproducibility, stability and tolerance to variations. It yields fine-grain negatives with excellent sharpness, enhanced resolving power and distinct drawing in lights as well as in shadows.
It is supplied in packaging to make 1 litre of working solution.

UNIVERSAL DEVELOPER
is a two-component, normal-working phenidone-hydroquinone developer in powder form. The developer is designed for the manual and automatic processing of all sorts of black-and-white negative and positive photomaterials. It is supplied in packaging to make up 1 or 5 litres of working solution, diluted for use with water (1+3).

RETRO SPECIAL DEVELOPER
is a special, two-component, metol-hydroquinone developer in a powder form produced for the purpose of achieving the most suitable sensitometric characteristics and typical image aspects of the new special film Retropan 320 soft. It still does not exclude its potential use for different types of negative films. The developer is provided in a packaging suitable for the preparation of 1 litre of the working solution.

FOMACITRO
is a liquid concentrate of a stop bath (interrupter), designed for general use in manual processing of all types of black-and-white negative films and papers.
It is supplied in PE bottles of 0.25 l and diluted for use with water (1+19).

FOMAFIX
is a one-part liquid concentrate to make a rapid fixer designed for manual and machine processing of all types of black-and-white negative films and papers.
It is supplied in PE bottles of 0.5 l (larger packages can be supplied on demand) and diluted for use with water (1+5 for manual processing and 1+4 for machine processing).

FOMAFIX P
is a two-component, powder type acid fixer, designed preferably for manual processing of all types of black-and-white negative films and papers.
It is supplied in packaging to make 750 ml of working solution.

1.4. Developing times of FOMAPAN films

The developing times given below for black-and-white negative FOMA films are valid for spiral tank processing on condition that agitation of the developer or tilting (turning over) of the tank is performed continuously for the first 30 seconds and then for 10 seconds at the beginning of every following minute.

FOMA developer	Developing time (minutes) at 20 °C			
	Fomapan 100 Classic	Fomapan 200 Creative	Fomapan 400 Action	Retropan 320 Soft
Fomadon LQN (1+10)	7 – 8	5 – 6	9 – 10	–
Fomadon LQN (1+14)	9 – 10	7 – 8	12 – 13	–
Fomadon LQR (1+10)	5 – 6	5 – 6	7 – 8	9 – 10
Fomadon LQR (1+14)	7 – 8	7 – 8	9 – 10	12 – 13
Fomadon R 09 (1+25)	4*/	5*/	6*/	7 – 8
Fomadon R 09 (1+50)	9*/	10*/	12*/	14 – 16
Fomadon R 09 (1+100)	20 – 22	24 – 26	32 – 34	–
Fomadon P	7 – 8	5 – 6	10 – 11	–
Fomadon Excel	5 – 6	6 – 7	7	–
Universal developer (1+3)	5	3,5	7,5	–
Retro special developer 1 litr	3 – 4	3 – 4	3 – 4	4 – 5

Note:
The lower value in the range corresponds to the lower gradient, the upper value of the developing times range is valid if higher gradient is desired.

**/ Medium contrast* g = *0,65*

Time corrections for temperatures differing from the recommended 20 °C
(valid for FOMA – as well as for other manufacuter's developers)

Temperature of the working solution should be checked before each film processing. If the bath temperature differes from the recommended value of 20 °C, it is necessary to multiply the recommended developing time by a corresponding factor as given in the table below. If developer temperature changes significantly during the (longer) development, the developing time should be changed accordingly, too.

temperature	16 °C	18 °C	20 °C	22 °C	24 °C	26 °C
factor	1,45	1,2	1,0	0,85	0,75	0,6

Developing times of FOMAPAN films in other manufacturer's developers

Other (foreing made) developers	Developing time (minutes) at 20 °C		
	Fomapan 100 Classic	Fomapan 200 Creative	Fomapan 400 Action
Kodak X-tol	**5–6** g=0,60–0,67	**6 – 7** g=0,59–0,66	**7** g=0,66
Kodak T-Max (1+4)	**5–6** g=0,62–0,67	**5 – 6** g=0,63–0,68	**7–8** g=0,63–0,68
Kodak HC 110 (1+31)	–	–	**6,5** g=0,69
Ilford ID11-stock/Kodak D76	**6–7** g=0,63–0,70	**5 – 6** g=0,59–0,6	**7–8** g=0,61–0,66
Ilford ID 11 (1+1)	**8–10** g=0,57–0,63	**8 – 9** g=0,63–0,68	**12–13** g=0,64–0,68
Ilford ID 11 (1+3)	**15–16** g=0,64–0,67	**12–13** g=0,60–0,66	**22–23** g=0,66–0,68
Ilford Microphen-stock	**5–7** g=0,60–0,66	**5 – 6** g=0,58–0,64	**8–9** g=0,66–0,69
Ilford Microphen (1+1)	**8–9** g=0,62–0,64	–	**12–13** g=0,63–0,66
Ilford Microphen (1+3)	**13–14** g=0,66–0,68	**12–13** g=0,65–0,68	**24–25** g=0,65–0,66
Ilford Perceptol-stock	**8** g=0,67	**6** g=0,64	**9–10** g=0,62–0,67
Ilford Perceptol (1+1)	**10–11** g=0,63–0,66	**7 , 5** g=0,66	–
Ilrod Perceptol (1+3)	**14–15** g=0,63–0,66	**12–13** g=0,63–0,68	–
Ilford Ilfosol S (1+9)	**6–7** g=0,62–0,68	**3,5** g=0,65	**6** g=0,63
Ilford Ilfosol S (1+14)	**7–8** g=0,63–0,68	**5 – 6** g=0,57–0,65	**11–12** g=0,66–0,69
Tetenal Emofin Liquid	**4–5** g=0,58–0,64	**4 – 5** g=0,60–0,66	**6–7** g=0,63–0,68
Tetenal Emofin (powder)	**4–6** g=0,55–0,70	**6 – 8** g=0,55–0,66	**6–8** g=0,55–0,66
Tetenal Ultrafin Plus (1+4)	**5** g=0,64	**5** g=0,64	**7–8** g=0,64–0,68
Tetenal Ultrafin Plus (1+6)	**7,5** g=0,62	**7 – 8** g=0,60–0,66	**11–12** g=0,64–0,67
Tetenal Ultrafin T-Plus (1+4)	**4,5-5**	**6-6,5**	**7,5-8**
Tetenal Ultrafin Liquid (1+20)	**7,5** g=0,68	**7,5** g=0,66	**15** g=0,63

1.5. Development of films

For black-and-white negative FOMAPAN films, the recommended developing procedure can be at best performed either manually in a spiral tank or in a processing machine. The results of the development depend on a number of factors (e.g. the lighting and contrasts of the photographed scene, film type and its characteristics, developer type and concentration, developing time and temperature, developer agitation etc.). For reversal processing of the black-and-white reversal Fomapan R film, a special process R-100 is suitable.

Safelighting

All panchromatically sensitized FOMA films should be processed in total darkness or under infrared light.

1.6. Stop bath (process interruption)

When development has been finished, it is essential to rinse the film immediately in running water (for at least 30 seconds).
A more efficient method uses interruption in an acid bath, e.g. Fomacitro or in a 2% acetic acid solution for at least 10 seconds. Stop bath lengthens the life of the fixer.

FOMACITRO
is a liquid concentrate of a stop bath (interrupter), designed for use in manual processing of all types of black-and-white films and papers. Developing substances contained in the emulsion layer after development are neutralized by Fomacitro solution, their reduction effect is removed and development process stops immediately. Eventual exhaustion of the stop bath is indicated by a colour change from yellow-orange to blue-green; then it should be replaced with a fresh working solution. The stop bath temperature should correspond to the previous bath (developer) temperature within the tolerance range of 5 °C.

1.7. Film fixing

During the fixing process, the undeveloped silver halides are solubilized and prepared to be removed from the emulsion layer, where they otherwise might cause undesirable darkening due to light. Optimum results can be achieved when producer´s recommendations are observed, and namely the fixing time and the amount of films processed in the given working solution. Once fixing has been completed, the film may be checked under normal illumination. According to a general rule, the fixation should be continued for twice the time of film clearing.

FOMAFIX
is a liquid concentrate of a rapid fixer with ammonium thiosulphate as the main constituent, designed both for manual and machine processing of films and papers.
Black-and-white Fomapan films are fixed for 3 minutes at the working solution temperature of 18-25 °C.

FOMAFIX P
is a two-component, powder type acid fixer, designed preferably for manual processing of films and papers (see paragraph 1.3.). It is dissolved to make 750 ml of working solution.
Black-and-white Fomapan films are fixed for 10 minutes at the working solution temperature of 20 °C.

1.8.Washing and drying of films

A thorough final wash of the fixed material is highly recommendable to ensure good stability and steady quality at storage. Efficiency of the washing procedure depends on temperature, agitation and exchange of wash water.

Recommended washing methods:
Washing with running (filtered) water, input directly into the tank. In this case, the washing time is 30 minutes at wash water temperature under 15 °C or 15 minutes at wash water temperature higher than 15 °C.

Processed and washed film is submerged in a final bath containing FOTONAL for 1 minute. In this way, even draining of water off the film surface makes drying quicker and prevents stains to be left on the negative.

FOTONAL
is a liquid concentrate of a wetting agent containing surface active substances and additives for increasing the processed image stability. To make a working solution, 5 ml concentrate is added to one litre water.

Drying
Before starting the drying process, the hanging film band may be carefully wiped:
in addition to elimination of stains, drying time will be cut down. According to the recommen-dation, drying of films proceeds best in a drying cabinet at the temperature of 30–45 °C or at room temperature in a clean and dust-free place.

1.9. Capacity (yield) of film processing baths

The amount of films developed in individual FOMA developers ,as given below, is valid only if proper storage conditions of working solutions had been kept as stated in paragraph 1.10. After the guaranteed working life, the exhausted solution should be replaced by a fresh one. Only in this way, high and standard quality of processing can be ensured. If development has been interrupted after processing of less than the allowed number of films, the working solution should be kept in darkness and prevented from oxidation, e.g. by squeezing the PE bottle before recapping.

FOMA bath type	Packaging		Working solution	
	Concentrate volume	Number of processed films	Working solution volume	Number of processed films
Fomadon LQN, Fomadon LQR (1+10) – sheet films (13x18 cm) – perforated or roll films	250 ml	 min. 30 min. 12	 1250 ml 660 ml	 14 3
Fomadon R 09 (1+50) – sheet films (13x18 cm) – perforated or roll films	250 ml	 min. 62 min. 25	 1250 ml 660 ml	 3 – 4 1 – 2
Fomadon P (powder developer) – sheet films (13x18 cm) – perforated or roll films	–	–	1000 ml	 25 10
Fomadon Excel (powder developer) – sheet films (13x18 cm) – perforated or roll films	–	–	1000 ml	 30 12
Universal developer (powder developer) – sheet films (13x18 cm) – perforated or roll films	–	–	4000 ml	 30 12
Retropan Special Developer (powder developer) – sheet film (5x7, 8x10 inch) – perforated or roll films	–	–	1000 ml	 50, 25 25
Fomafix (1+5) – sheet films (13x18 cm) – perforated or roll films	500 ml	 min. 110 min. 50	1000 ml	 40 17
Fomafix P / Acid Fixer (powder fixer) – sheet films (13x18 cm) – perforated or roll films	–	–	750 ml	 35 15

Table of lengthening factors (for the developing time) for film processing

FOMA bath type	Film type		
	Fomapan 100 Classic	Fomapan 200 Creative	Fomapan 400 Action
Fomadon LQN (1+10)	f = 1.5x	f = 1.4x	f = 1.7x
Fomadon LQN (1+14)	f = 1.7x	f = 1.7x	f = 1.7x
Fomadon LQR (1+10)	f = 1,4x	f = 1.4x	f = 1.4x
Fomadon LQR (1+14)	f = 1.6x	f = 1.6x	f = 1.6x

Note:

f = *lengthening factor for the developing time – should be applied for each successive film exceeding the number of films recommended for the given solution*

1.10. Usability time (storage life) and storage conditions for films and baths

Films

As recommended, unexposed FOMA films should be stored in the original packaging in dry and cool places (temperature 5 – 20 °C and relative humidity 50 – 60%),out of reach of harmful fumes, gasses and ionizing radiation. When stored in a refrigerator, film packages should be adapted to room temperature for approximately 2 hours before opening.

Exposed films should preferably be processed as soon as possible.

Liquid and powder processing baths.

FOMA processing chemicals should be stored in the original packaging in dry, well ventilated rooms at the temperature of 5 – 25 °C and relative humidity not exceeding 65 %. Protection against sudden temperature changes and direct sunshine is important as well. If transport of liquid concentrates proceeds under the conditions of low outer temperature, precautions should be taken to prevent the solution temperature drop below the lower limit of the tolerated temperature range. If crystallization of any of the dissolved compounds appears at the temperature under the lower limit of the given range, the working solutions should preferably be prepared using water heated at 40 °C. Working solutions made from liquid concentrates or powder chemicals should be stored under the above given conditions, including limited air access (oxidation prevention).This condition is essential especially for developers and presumed for the data of storage life in the following table.

Type of FOMA bath	Form of packaging	Storage conditions	Storage life (usability time)
Fomadon LQN	liquid concentrate	original package working solution (1+10), (1+14)	min. 12 months 2–3 hours
Fomadon LQR	liquid concentrate	original package working solution (1+10), (1+14)	min. 12 months 2–3 hours
Fomadon R09	liquid concentrate	original package working solution (1+25) working solution (1+50)	min. 24 months 3–4 days 8–10 hours
Fomadon P	powder	original package working solution	min. 24 months 2 months
Fomadon Excel	powder	original package working solution	min. 24 months 12 months
Universal developer	powder	original package working solution	min. 24 months 6 hours
Retro Special developer	powder	original package working solution (1+0)	min. 24 months 12 months
Fomacitro	liquid concentrate	original package working solution (1+19)	min. 24 months 6 months
Fomafix	liquid concentrate	original package working solution (1+5)	24 months 6 months
Fomafix P	powder	original package working solution	min. 24 months min. 6 months

1.11. Survey and characteristics of black-and-white reversal films

FOMAPAN R */

is a medium sensitive (ISO 100/21 °C), panchromatically sensitized black-and-white reversal film featuring very fine grain, high resolving power and contour sharpness, and higher contrast. The film provides excellent differentiation of grey tones both in highlighted areas and in shadows. Spectral sensitization of Fomapan R allows true transfer of colours to the grey scale, and in addition, enables full speed exploitation even at artificial lighting. The film is designed for work with cine-camera or for taking photographic pictures for slide presentation. Conventional processing is also possible. The film can be used for digitization

Packaging

Fomapan R is manufactured and supplied in the following sorts and sizes:

– 16 mm one-edge perforated / 30.5 m
– 2x8 mm (standard) / 10 m
– 2xsuper 8 mm (DS 8) / 10 m
– 35 mm double-edge perforated in 135-36 cartridge for exposures 24x36 mm

1.12. Reversal films processing

All sorts of black-and white Fomapan R films can be processed by any convenient processing procedure designed for this type of films. For easier access, a specially designed FOMA R-100 process can be applied both for manual and for machine processing. Detailed description of the process is an implicate part of the Fomapan R technical sheet (provided on demand by the manufacturer).

Another possibility processing this film is the use of the Processing set for Fomapan R 100.

*/ This product could be delivered only towards an order after an arrangement with the manufacturer.

List of sizes of manufactured black-and-white films

Films		FOMAPAN 100 Classic	FOMAPAN 200 Creative	FOMAPAN 400 Action	RETROPAN 320 soft
Perforated	*135–36*	●	●	●	●
	135–24	●	●	●	
	35 mm / 17, 30.5 and 50 m	●	●	●	●
	35 mm / 305 and 610 m	●	●	●	
Roll-films	*type 120 (6x9 cm)*	●	●	●	●
Sheet films	*4x5 inch/50 sheets*	●	●	●	●
	5x7 inch/50 sheets	●	●	●	●
	8x10 inch/50 sheets	●	●	●	●
	9x12 cm / 50 sheets	●	●	●	●
	10x15 cm / 50 sheets	●	●	●	
	12x16.5 cm / 50 sheets	●			
	13x18 cm / 50 sheets	●	●	●	●
	18x24 cm / 50 sheets	●	●	●	
and other sizes according to an agreement with manufacturer					

2. BLACK-AND-WHITE PAPERS

2.1. Application and specific features of photographic papers

Wide choice of FOMA photographic papers offers extensive application possibilities. Photo papers on a resin coated base fulfil the demands for rapid and easy processing, those on a baryta and natural papers base (Fomabrom, Fomabrom Variant, Retrobrom and Fomatone MG Classic) show high stability and a specific appearance. They will find their way especially to the creative world of exhibitions and museums.

FOMA papers are manufactured as fixed contrast ("Sp, N, C") or as variablecontrast (Fomaspeed Variant, Fomabrom Variant, Fomatone MG Classic) types. High speed of most of the FOMA papers cuts down the necessary exposure time, while, on the contrary, low speed papers Fomatone MG Classic and Retrobrom are preferably used for contact copying. Warm image tones are achieved with the papers on a cream tinted base – Fomatone MG Classic the resulting picture may be further modified using a special Fomatol PW developer, LITH print, Fomatoner Sepia, Indigo.

Specific features of black-and-white FOMA photo papers

Characteristics	Paper type					
	Fomabrom	Fomabrom Variant	Retrobrom	Fomaspeed	Fomaspeed Variant	Fomatone MG Classic
RC base				●	●	
FB (baryta) paper base	●	●	●			●
NB (natural) paper base						●
Fixed contrast	●		●	●		
Variable contrast		●			●	●
Low speed			●			●
High speed	●	●		●	●	
Warm tone of silver			●			●
Warm tone of base			●			●
LITH print			●			●
Archival image stability	●	●	●			●

2.2. Survey and characteristics of photographic papers

FOMABROM
is a black-and-white photographic paper for general use, coated on a conventional double-weight baryta paper base. The paper features high exposure latitude and an outstanding image stability. Due to the built-in optical brightener, a brilliant print appearance is achieved. The paper is manufactured on a double-weight FB (baryta) paper base (280 g/sq.m.) in a glossy, matt and silk-grain surface and in two contrast grades: normal (N) and hard (C).

FOMABROM VARIANT
a black-and-white variable-contrast enlarging photographic paper on a baryta paper base (FB). Its contrast can be varied in a large extent from extra soft up to ultra hard by using colour filters at exposure**.** The paper is designed for amateur, commercial and artistic photography as well as for other applications. It is manufactured on an baryta paper base in a glossy, matt and fine-grain surface.

RETROBROM
is an unique black-and-white paper using silver bromide-iodide emulsion and made on a thick double-weight baryta paper base (FB). The paper features a rich halftone scale, exposure or developing flexibility, fine-grain and warm green-brown tone of the developed silver image, with the paper base coloured in lightly green-yellow tint. Middle level of the optical sensitivity of this material enables application of the techniques of contact copying and even enlarging to big formats. The specific warm tone of the image makes this paper suitable for works in retro-style, especially for portrait photos, but also for other photo genres (still life, landscape, structure and detail, abstraction, etc.). It is produced on baryta paper base, in glossy and semi-matt surface in one contrast grade: special (Sp).

FOMASPEED
is a black-and-white photographic paper for general use on PE-resin coated (RC) base. Emulsion layer containing optical brighteners and development accelerators gives a brilliant print appearance achieved even at shortened development times in rapid processing. It is manufactured in two contrast grades: normal (N) and hard (C), and in three surfaces: glossy, matt and velvet.

FOMASPEED VARIANT
is a variable-contrast black-and-white enlarging paper on PE resin coated (RC) base, designed for commercial, art, industry and police photography, among other applications. When special colour filters are used for contrast control, the contrast grades may range from very soft up to very hard, which helps to make quality photographs even from negatives with extremely low or extremely high gradient. Its high speed and developing substances contained also in the emulsion layer cut down exposure times substantially. This advantage is emphasized when exposure to higher contrast grade and/or enlargement to big size is demanded. The paper is available in glossy, matt and velvet surface.

FOMATONE MG Classic
is a variable-contrast black-and-white photo paper with a warm tone base and image, suited especially for portrait photography and retro-style works. Special silver chlorobromide emulsion of this paper enables the consumers to use creative methods within so-called „lith" process (LITH PRINT).
FOMATONE MG CLASSIC – is manufactured on baryta (FB) paper base (double weight) in surfaces: glossy, matt and fine-grain

2.3. Summary and characteristics of processing baths

Black and white positive developers FOMA are suitable for many different kinds and types of photopapers FOMA and photopapers from other manufacturers. When processing the usual types of photopapers (Fomabrom, Fomaspeed, Fomabrom Variant and Fomaspeed Variant), developers Fomatol LQN, Fomatol P and Universal Developer etc. provide the final silver image with neutral to slightly warm tone. In case of these and similar types of developers the fine brown-green tone can be achieved by using of photo paper Fomatone MG Classic. Cold, or more precisely, blue-black tone of the silver image can be achieved by the application of developer Fomatol LQN.

More intensive warm brown tones can be achieved by developer Fomatol PW with photopapers Fomatone MG Classic.

FOMA photo papers can also be processed in other standard developers (Ilford Bromophen, Ilford Multigrade Developer, Adox Adotol Liquid, Kodak Polymax, Moersch Eco 4812 etc.) or in special developers (Ilford Warmtone, Ilford Cooltone, , Moersch SE Warm ,Rollei RHD High contrast and others.).

FOMATOL LQN
is a one-part liquid concentrate to make up a normal-working phenidone-hydroquinone developer, designed both for manual and machine processing of all types of black-and-white papers. It is supplied in bottles of 0.25 l and 0.5 litre or in canisters of 5 litre. They are diluted for use with water (1+7 for manual or 1+4 for machine processing).

FOMA GD-L

is a single-component liquid concentrate for the preparation of a contrasting hydroquinone developer, designed especially for manual and automatic processing of graphic materials of the line type (line and pen artwork) and photographic materials (black and white photographic papers). It is supplied in bottles of volume 1 litre or in canisters of volume 5 litres. FOMA GD-L developer concentrate is best thinned using distilled or demineralised water, for graphic materials in the recommended ratio 1+3, for photographic papers in the recommended ratio 1+2 (1+1 to 1+4).

FOMATOL P.
is a two-component, powder form normal-working phenidon-isoascorbate developer, designed for manual processing of all types of black-and-white photo papers. It produces images in neutral black tone. It is supplied in packaging to make up 1 litre of working solution.

FOMATOL PW
is a powder type, special isoascorbate developer supporting a warm image tone, designed for manual processing of Fomatone MG series of papers. It is supplied in packaging to make up 1 litre of working solution.

UNIVERSAL DEVELOPER
is a two-component, normal-working (slightly warm working with Fomalux 111) phenidon-hydroquinone developer in powder form. The developer is designed for the manual and automatic processing of all sorts of black-and-white negative and positive photomaterials. It is supplied in packaging to make up 1 or 5 litres of working solution.

FOMACITRO
is a liquid concentrate of a stop bath (interrupter), designed for general use in manual processing of all types of black-and-white negative films and papers.
It is supplied in PE bottles of 0.25 l and diluted for use with water (1+19).

FOMAFIX
is a one-part liquid concentrate to make a rapid fixer designed for manual processing of all types of black-and-white films and papers.
It is supplied in PE bottles of 0.5 litre (larger packages can be supplied on demand) and diluted for use with water (1+5 for manual processing and 1+4 for machine processing).

FOMAFIX P
is a two-component, powder type acid fixer, designed preferably for manual processing of all types of black-and-white papers and also for films.(see paragraph 1.7).
It is supplied in packaging to make 1 litre of working solution (for papers).

2.4. Conditions, methods and procedures of paper processing

Darkroom safelights
For the right choice of darkroom safeligting , it is necessary to know first of all the spectral sensitivity of the respective photo papers. The wavelength of the light source (e.g. LED diode) or of the colour filter absorption are the decisive factors to be considered.

Safelighting for fixed-contrast FOMA papers
Photopapers from the fixed-contrast group as Fomabrom, Retrobrom and Fomaspeed are routinely, processed at indirect safety illumination with wavelength of **575 nm** and higher, corresponding colour of safety illumination is yellow, yellow-green, amber or orange colours are recommended. Regarding its high sensitivity the processed material has to be exposed to such illumination only for the time necessary for its processing. Length of exposure and a distance of the processed material from the illumination source should be tested. Direct light has to be diffused by inserting mat glass.

Safelighting for variable-contrast FOMA papers
The spectral sensitization of variable-contrast photopapers differs substantially from sensitization of the fixed contrast type, so that a different kind of safelighting should be used. Fomabrom Variant and Fomaspeed Variant are routinely, routinely processed at indirect safety illumination with wavelength of **625 nm** and higher, corresponding colour of safety illumination is orange or red. As to its high sensitivity the processed material has to be exposed to such illumination only for the time necessary for its processing. Length of exposure and a distance of the processed material from the illumination source should be tested.

Safelighting for FOMATONE MG Classic
Fomatone MG Classic are routinely, processed at indirect safety illumination with wavelength of **610 nm** and higher, corresponding colour of safety illumination is orange. Regarding its low sensitivity the processed material can be exposed to such and/or another adequate type of safety illumination for longer period than common types of black and white papers (Fomabrom, Fomaspeed, etc.).

Manual processing of papers on RC base
RC base, i.e. a paper laminated on both sides with polyethylene, is an up-to-date option for producing photo papers ideal for rapid and easy processing .
Drying not only in hot air dryers, but even at the room temperature scarcely exceeds a few minutes. Papers on a resin coated base permit only drying, not glazing with conventional glazing presses or drums. Unlike baryta papers, RC papers practically do not get curled when properly processed (washed and dried).

Processing of FOMA papers on a baryta (FB) and natural (NB) paper base
Processing of photo papers on a baryta and natural paper base needs some more time, resulting however in guaranteed archiving stability, so that they are especially suitable for art photography and exhibitons.

Processing of fixed-contrast FOMA papers
FOMA photo papers have been traditionally produced in a variety of fixed-contrast grades. To choose the most suitable contrast grade, certain aspects should be taken into consideration as e.g. contrast of the negative image, enlarger type and the author´s creative intentions. For most applications, suits contrast grades N (normal). The resulting image contrast can be further modified by the developer type or its dilution.

Table of some criteria and recommendations for right contrast grade choice

Contrast of negative image	Enlarger with condenser (insufficiently diffused light)				Enlarger with diffusion (scattered) light			
	Contrast grade of photo paper				Contrast grade of photo paper			
	S	***Sp***	***N***	***C***	***S***	***Sp***	***N***	***C***
low				●				●
lower			●				●	(●)
medium		●	(●)				●	
higher	(●)	●				●		
high	●				●			

Coding of FOMA photographic papers

Numerical code with three digits

1st digit = base type
1 – double-weight (FB)
2 –single-weight (FB)
3 –resin-coated (RC)
4 – resin-coated (RC) (110 g per sq.m)
5 – natural double-weight (NB)

2nd digit = base whiteness
1 – extra white
2 – white
3 – cream-coloured
4 – chamois

3rd digit = surface type
1 – glossy
2 – matte
3 – velvet (fine-grain)
4 – lustre
5 – silk- grain

Contrast grade
soft (S), special (Sp), normal (N), hard (C), variable (Fomabrom Variant, Fomaspeed Variant, Fomatone MG)

Processing of variable-contrast FOMA papers

The main advantage of this group is the possibility to use just one kind of photo paper for achievement of various contrast grades. Changing the contrast during enlargement or printing helps to make quality photographs even from very uneven negative film originals.

FOMA manufactures and supplies following types of variable-contrast photo papers:
Fomaspeed Variant, Fomabrom Variant, Fomatone MG, Fomatone MG Classic.

Contrast grading of these materials can be controlled by use of:
– separate correction filter sets (Foma Variant Filters, Ilford Multigrade Filters etc.) with various number of filters -usually yellow or magenta coloured
– magenta and yellow filters in colour mixing heads
– special enlarging heads for variable- contrast papers
– programmable colour printers - with a programme for variable contrast paper
– black-and -white printers for variable-contrast papers

FOMA VARIANT – correction filters

Foma Variant correction filters are designed for the contrast control of variable-contrast (multigrade) black-and-white photo papers (e.g. Fomaspeed Variant, Fomabrom Variant, Fomatone MG Classic, Ilford Multligrade etc.) during their exposure. The filters are manufactured as a standard set of 6 pieces, containing 3 kinds of filters, i.e. pairs of yellow (Y), light magenta (M1) and darkmagenta (M2) filters.

This set extends the resulting print contrast variability up to seven grades (including exposure without correction), from extra soft to ultra hard.

Correction filters-application

After a decision what the desired contrast should be, a corresponding filter (or filter pair) is inserted in the filter drawer of the enlarger, i.e. between the light source and the condenser. It is necessary to adapt the FOMA Variant filter sizes to the given enlarger drawer. For different types of enlargers, FOMA Variant correction filters are manufactured and supplied in sizes 8.9x8.9 cm and 15.2x15.2 cm.

For various correction filters and their combinations, exposure times should be prolonged by a so called lengthening factor (see the following table):

FOMA Variant filter sign	Contrast grade to get	Exposure lengthening factors for FOMA papers	
		Fomaspeed Variant Fomabrom Variant	*Fomatone MG Classic*
2xY	extra soft	*1,6*	*2,0*
Y	soft	*1,4*	*1,5*
no filter	*/	–	–
M1	special	*1,4*	*1,5*
2xM1	normal	*2,1*	*1,8*
M2	hard	*2,6*	*2,0*
2xM2	ultra hard	*4,6*	*3,0*

*/ *a value corresponding approximately to the "special" contrast grade*

Development times for FOMA photo papers (at the temperature of 20 °C)

	Fomabrom Fomabrom Variant	Fomaspeed Fomaspeed Variant	Fomatone MG Classic	Retrobrom
Fomatol LQN (dilution 1+7)	90–130 s	60–90 s	1 – 3 min	1,5 – 4 min
Fomatol P (working solution)	90–130 s	60–90 s	1 –3 min	1,5 –4 min
Fomatol PW (working solution) – dilution (1+1) – dilution (1+2)	– – –	– – –	2 – 3 min 4 – 6 min 7 – 10 min	4 – 6 min 8 – 10 min 12 – 15 min
Foma GD-L (dilution 1+3)	90–130 s	60–90 s	1– 3 min	1,5– 4 min
Universal developer (working solution)	90–130 s	60–90 s	1– 3 min	1,5– 4 min

2.5. Stop bath (paper processing interruption)

A more efficient method than rinsing a film with water is an interruption of the process in an acid bath. A 2% acetic acid solution or a stop bath, e.g. FOMACITRO is suitable, the treatment time should be 10 – 20 seconds. Stop bath makes the development more reproducible and lengthens the life of the fixer. Contamination of the fixer with remaining developing substances especially when interruption is inadequate may cause deterioration of the image by fogging and yellow-brown stains occurrence, i.e. phenomena induced by continuing silver reduction in the emulsion layer.

FOMACITRO
is a liquid concentrate of a stop bath (interrupter). It is used in manual processing of all types of black-and-white films and papers. Developing substances contained in the emulsion layer after development are neutralized by Fomacitro solution, their reduction effect is suppressed so that development process stops immediately.
Eventual exhaustion of the stop bath is indicated by a colour change from yellow-orange to blue-green; replacement with a fresh working solution is necessary as soon as possible. The stop bath temperature should not vary from that of the previous bath (developer) by more than 5 °C

2.6. Film fixing

Efficiency of the fixing process is strongly dependent on the actual exhaustion of the given working solution and on the fixing time, which is influenced by other factors, too, as the bath temperature or the fixing substance used, e.g. ammonium thiosulphate for rapid fixers (Fomafix). Unnecessary lengthening of fixing time brings no positive effect and may induce undesirable accumulation of colloid silver on print edges with consequent improper washing.

FOMAFIX
is a liquid concentrate of a rapid fixer with ammonium thiosulphate as the main constituent, designed both for manual and machine processing of papers and films.
In manual processing at 20 °C with the fixer diluted with water (1+5),sufficient fixing time is 3 (2.5*/) minutes for Fomabrom, Fomabrom Variant and Retrobrom papers and 1.5 minutes for other FOMA papers. In machine processing, at the working solution temperature of 30 °C and dilution 1+4, the fixing time is 25–35 seconds for Fomaspeed, Fomaspeed Variant, Fomatone MG papers.

FOMAFIX P
is a two-component, powder type acid fixer, designed preferably for manual processing of papers as well as films. It is dissolved to make up a total volume of 1 litre of working solution.
Black-and-white Fomabrom, Fomabrom Variant, Fomatone MG Classic and Retrobrom papers are fixed for 5 minutes at 20 °C, other FOMA papers on the FOMA RC base for 3 minutes.

2.7. Washing and drying of papers

Washing of papers on a baryta base (FB)
As the baryta base can soak up considerable amounts of liquids, washing of this kind of photo papers after fixing lasts longer than the washing of papers on a resin coated (RC) base. Washing with running water at the temperature over 12 °C takes 30 minutes; at the temperature lower than 12 °C, washing for 45 minutes is necessary. Time of the washing procedure, or time for which photographs remain immersed in water, may be lengthened substantially without any danger of deterioration of their quality.

Washing of papers on RC base
Photo papers on RC base demand only 2 minutes of washing with circulating water at the temperature over 12 °C; below 12 °C, washing for 4 minutes is necessary.
Prolonged time of the washing procedure (over 12 minutes) causes swelling of paper edges which may result in prints edges curling during drying.
Before drying, it is advisable to submerge the processed and washed papers in a wetting agent (Fotonal) solution for 1 minute.

FOTONAL
is a liquid concentrate of a wetting agent containing surface active substances and additives for increasing the processed image stability. Application of the Fotonal containing final bath ensures even draining of water off the film surface, accelerates drying and prevents stains formation caused by inhomogenous drying.

Drying of baryta papers (FB)
Sufficiently washed photographic papers should drip and get carefully wiped with a soft viscous sponge or a special wiper to remove the surplus water off their surface. They are stretched in a usual way, at best onto a glass plate (emulsion side up).
This method is suitable both for matt and glossy surface: the glossy surface gains an interesting velvet appearance. Alternatively, baryta photo papers can be pressed.

Drying of RC papers
After wiping down the surplus water, papers on RC base are dried (but never glazed). They are stretched on a nylon rack, well absorbing clean pad (cotton cloth etc), or hanged loose. Drying takes 10-30 minutes at room temperature, warm air drying (max. up to 85 °C) is quicker.

2.8. Adjustment and finishing of photo papers

All black-and-white FOMA photographic papers can be further modified and adjusted. The author´s intention as well as the overall picture impact can be varied by toning, colouring in, graphic techniques, virage, collage etc. Unavoidable part of photo papers finishing is retouching and reverse side legend. FOMA photographic papers are easily adjusted to any desired format, fastened by both-side adhesives, provided with a special lacquer, laminated, inserted into archiving or presentation foils, albums, mounts or frames.

Toning

FOMA photographic papers including Fomatone type papers can be toned by FOMA toners or similar baths of other manufacturers. The colour of new as well as older photographs may be successfully modified with a brown toner – Fomatoner Sepia or with a blue one - Fomatoner Indigo.

FOMATONER SEPIA

is a liquid concentrate of a two-bath sulphide-based toner designed for modifying the black-and-white photographs: tones ranging from yellow-brown up to purple-brown can be achieved, the resulting tone quality and intensity depends mainly on the second (toning) bath temperature. Other factors may add to the final tone, too, as e.g. the kind of paper to be toned, development time in enlargement process or the level of bleaching. Images on both RC and baryta papers can be toned.
Fomatoner Sepia is manufactured and supplied as a two-component concentrate in packaging of 2x250 ml.

FOMATONER INDIGO

is a liquid concentrate of a one-bath toner designed for toning black-and-white photographs to get a blue tone of the developed silver. Tone intensity depends on the temperature and time of toning, the decisive factor is, however, the dilution of the working (toning) solution. Even though baryta papers can be toned with good results, the best and standard tones are achieved with photographic papers on RC base.
Fomatoner Indigo is manufactured and supplied as a two-component concentrate in packaging of 2x250 ml.

Retouching

of FOMA photographic papers on a baryta or RC base and with any surface type can be performed by a conventional method, i.e.with brushes or felt-tipped pens, or by an ”american retouch” – spraying method .

2.9. Capacity (yield) of paper processing baths

The efficiency of FOMA processing baths depends not only on the number of papers processed so far (see the table below), but also on storage conditions of working solutions (developer oxidation prevention etc.), not overrunning the working lives and expiration times, correct making up the working solutions (dilution with distilled water etc.).

FOMA bath type	*Concentrate volume*	*Working solution volume*	Yield (number of processed papers)	
			baryta (FB) base	RC base
liquid developer Fomatol LQN (1+7)	250 ml	1 l	1,5 m^2	3,0 m^2
Fomatol P (powder developer)	–	2,5 l 1 l	3,75 m^2 1,5 m^2	7,5 m^2 3 m^2
Fomatol PW (1+0) (powder developer)	–	1 l	1,5 m^2	3 m^2
Foma GD-L (liquid developer (1+2)	–	1 l	2,5 m^2	5 m^2
Universal developer (1+0) (powder developer)	–	1 l 5 l	1,5 m^2 7,5 m^2	3 m^2 15 m^2
liquid fixer Fomafix (1+5)	0,5 l	1 l	2 m^2	4 m^2
Fomafix P (powder developer)	–	1 l 5 l	1,5 m^2 7,5 m^2	3 m^2 15 m^2

2.10. Usability time (storage life) and storage conditions for papers and baths.

Papers

FOMA photographic papers should be stored in the original packaging in dry and cool places (temperature up to 20 °C and relative humidity 50 – 60%),out of reach of harmful fumes, gasses and ionizing radiation

Liquid and powder chemicals for baths

Developers, stop bath (interrupter) and fixers both in liquid and in powder form should be stored in the original packaging in dry, well ventilated rooms at the temperature of 10 – 25 ° and relative humidity not exceeding 65 %. Protection against sudden temperature changes and against direct sunshine is important, too. If transport of liquid concentrates takes place at low outer temperature, precautions should be taken to prevent the solution temperature drop below the lower limit of the tolerated temperature range. If crystallization of any of the dissolved compounds appears at the temperature under the lower limit of the given range, the working solutions should preferably be prepared using water heated at 40 °C. Working solutions made from liquid concentrates or powder chemicals should be stored under the above given conditions, including limited air access (oxidation prevention).This condition is important especially for developers and presumed for the data of storage life given in the following table.

Type of FOMA bath	Packaging	Storage conditions	Storage life
Fomatol LQN	liquid concentrate	original package working solution (1+7)	24 months 2 days*
Fomatol P	powder	original package working solution (1+0)	min. 24 months 2 days*
Fomatol PW	powder	original package working solution (1+0) working solution (1+1) working solution (1+3)	24 months 2–3 days max. 2 days max. 24 hours
Foma GD-L	liquid concentrate	original package working solution (1+2)	24 months 4 days
Universal developer	powder	original package working solution (1+0)	24 months 2 days
Fomacitro	liquid concentrace	original package working solution (1+19)	min. 24 months 1 month
Fomafix	liquid concentrace	original package working solution (1+5)	24 months 6 months
Fomafix P / Acid fixer	powder	original package working solution	min. 24 months min. 6 months

Note:

** The data are valid on condition that (in case of process interruption) the developer is stored in a covered tray for at least 12 hours; if oxidation is prevented better (by squeezing and recapping the bottle, by antioxidation gas etc.), the working life (usability) limit may be lengthened. In addition to the time of exposure to atmospheric oxygen, the deterioration (oxidation) rate may be influenced also by the contact area (e.g. by the size of the developing tray).*

List of available sizes of FOMA papers

Standard sizes black-and-white photopapers FOMA:

– 8.9x12.7 cm / 100 sh.
– 10.5x14.8 cm / 100 sh.
– 12.7x17.8 cm / 25, 100 sh.
– 17.8x24 cm / 10, 25 50*/ sh. (*/Fomaspeed Variant, Fomabrom Variant, Fomatone MG Classic)
– 20.3x25.4 cm / 10, 25, 50 sh.
– 27.9x35.6 cm / 10, 25 sh.
– 24x30.5 cm / 10, 25, 50 sh.
– 30.5x40.6 cm / 10, 50 sh.
– 40,6x50,8 cm / 10 sh.
– 50.8x61 cm / 10 sh.

2.11. Photographic emulsion

Unstandard sizes and version – can be supply through an agreement between the manufacturer and the buyer. The photographic emulsion enables creating works of great value both in artistic and photographic respect. The emulsion features medium contrast and extremely high covering power which enable gaining a wide scale of halftones even by a relative high yield of 3 to 6 sq. m. per 1 kg of emulsion. An advantage of this high-speed emulsion are short exposures which make large size enlarging possible. With the majority of developers, this emulsion gives a neutral to mildly warm image tone. The emulsion can be spread on the most different bases, as e. g. wood, textile, glass, china, ceramics, metals, leather, stone, concrete, plaster etc.

The actual offer of FOMA Bohemia Ltd comprises the following products:

for amateur and professional photographers:

FOMAPAN black-and-white negative films, FOMASPEED black-and-white papers with fixed and variable contrast, FOMABROM black-and-white papers with fixed, variable contrast, FOMATONE MG Classic black-and-white papers with warm tone, RETROBROM black-and-white papers with fixed contrast and specific processing chemicals.

for medical use

special types dental X-ray films DENTIX - intraoral and extraoral.

for industrial defectoskopy

INDUX X-ray films for industrial use – for non-destructive testing (NDT), completed by an additional assortment of products, service and consulting;

special materials

films for personal dosimetry, gelatine lifters for criminal investigations, registration paper for tachographs of motorized rail vehicles;

processing chemicals for all kinds of delivered materials as liquid concentrates or in solid form, toning solutions and wetting agents;

instrumentation

instruments and equipment for non-destructive tests;

In the world market, FOMA has successfully tried to introduce all products in the quality fully comparable with the corresponding competitive products, to ensure its own stable and long lasting position.

FOMA has its own research and development department and continues almost the 100 years of experience and tradition in the manufacturing of light-sensitive materials. All products are subject of continuous innovation process. As a middle size company, FOMA is able to react flexibly even to special demands of customers (there is a possibility to manufacture some products according to individual parametres' demands, in relatively small quantities, using atypical packaging, uncommon sizes etc. including the private label confectioning).

RETROBROM

PHOTOPAPER

baryta base, grade special Sp
glossy surface 151 and semi-matt 152
exceptional color tonality
green-brown shade Ag image
creative - possible for „lith print"
fine-grade
polishable

Suitable for retro style themes, portrait photography and other photo genres

LIMITED
RETRO EDITION

FOMAPAN

ROLLFILM TYPE 120

since 1921 100 YEARS ANNIVERSARY

FOMA 2020

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