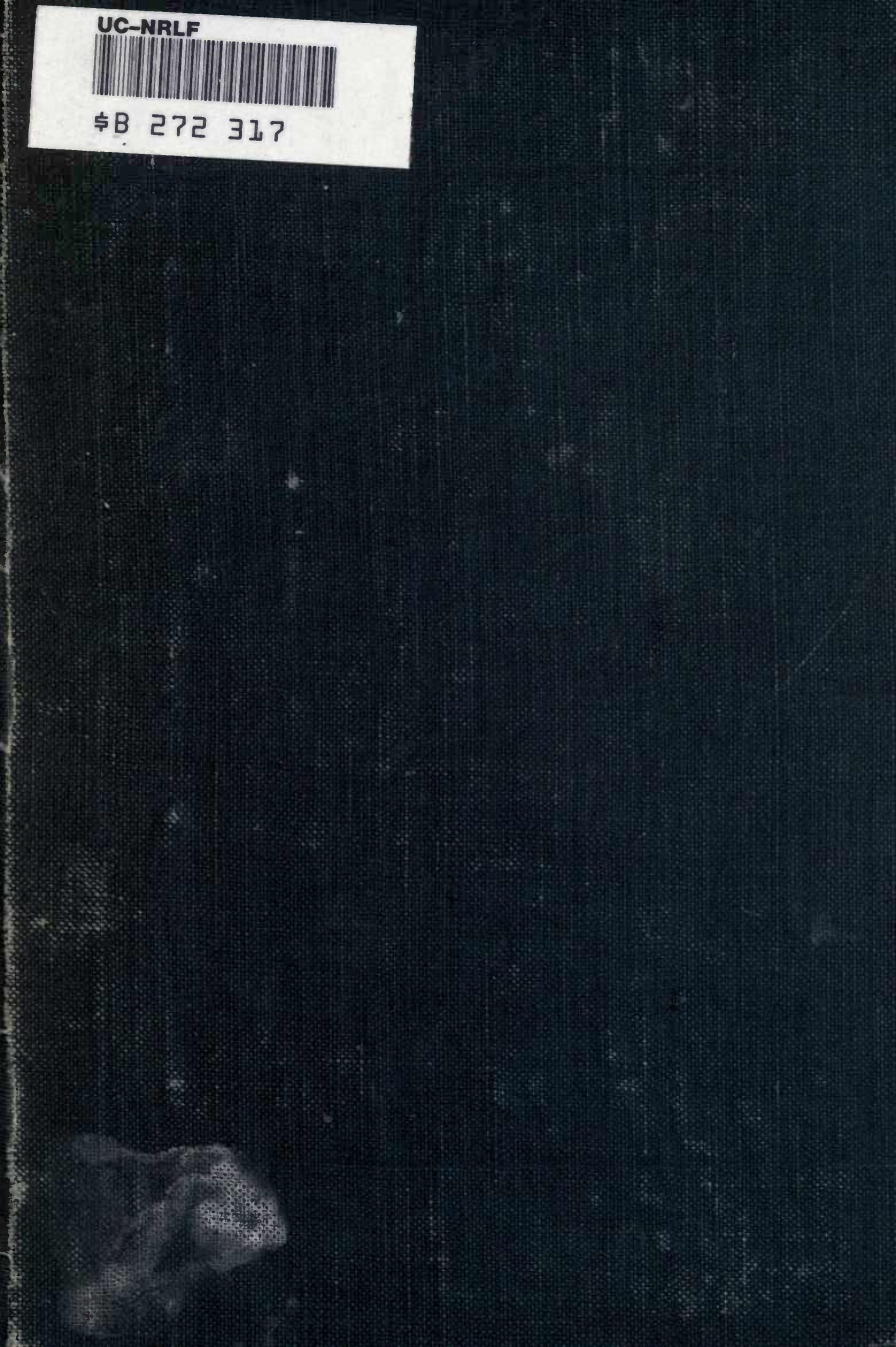

THE
"AGFA"-BOOK
OF
Photographic Formulae

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Foreword

The object of this book is to give a clear and definite explanation of the various "Agfa" developing agents, thereby showing the most advantageous developer to use in keeping with the results you are after.

The successful working of any formula is its careful preparation, and more especially its adaptability to the make of plate, film or paper used.

We have, therefore, endeavored to secure the formula first hand from the various makers of plates, films and papers, and compiled these for your convenience.

Introduction

We sometimes receive complaints from our customers to the effect that a plate is said to be defective; which, however, on close examination generally turns out to be developed improperly. We therefore consider it a necessity to preface the articles on developers with a few hints on the real causes and on the avoidance of these conditions.

Pinholes or minute white specks are very common, and are caused by small particles of dust settling on the plate or film while it is being handled in loading the plate holder, making the exposure, or developing, the developer thereby being prevented from properly acting upon the sensitive film. To avoid pinholes, carefully dust the plates, both when loading and just before developing, using either a camel's hair brush or a soft velvet covered pad, both of which must be kept clean and dry. The camera should also be frequently and carefully dusted inside.

Small white spots of clear gelatine are due to air bubbles that cling to the surface of the film when in the developer, and prevent the solution from acting upon that particular place. They should be instantly removed with the finger or a soft brush by rubbing lightly the plate or film. Bubbles will not appear if the following rule is observed: Place the plate in an empty tray and tilt the same slightly away from the body; take the graduate in the right hand and pour the developer upon the plate, moving the graduate from side to side. Another frequent cause of air bubbles is soaking the plate in water before development or by pouring on the developer unevenly. A stale developer will generally cause trouble in this respect. Care should be taken not to use water for diluting a solution that has been drawn straight from a tap; it should be allowed to stand a while.

Streaks, unequal density, etc., are caused by not allowing the developer to act evenly all over the plate, leaving parts of the plate uncovered by the solution while developing, and by failing to cover the entire plate quickly enough. The remedy is to pour the developer as described above, using enough solution to immerse the plate, and then to rock the tray, keeping the solution in motion until the plate is developed sufficiently. This trouble usually occurs with a powerful, energetic developer and a fully exposed plate.

Now and then frilling of the film at the edges will occur. *This is due to the prolonged use of too warm a solution or to a difference in the temperatures of developer, washing water and fixing bath,* all of which must be used at a temperature of 65 degrees Fahrenheit.

"Agfa"-Metol

"Agfa"-Metol is a pure white crystalline powder and one of the most energetic of modern developers, and it produces negatives of great softness. It is peculiar in that it first brings out all the detail and then gradually builds up the density in perfect gradation. "Agfa"-Metol is particularly useful in the development of portrait or instantaneous work, as it works up the image so rapidly. For this reason one should be careful not to under-develop the negative as *it will lose some of its density in the fixing solution.*

Due to its tendency to render soft negatives, full of detail "Agfa"-Metol is often used in combination with "Agfa"-Hydrokinone or "Agfa"-Pyro, which tend to give more density to the image.

While it is advisable to follow the formula recommended by the manufacturers of the plates and papers that you are using, and which are found in another part of this book, the following solutions are recommended for general use:

CONCENTRATED SINGLE SOLUTION.

Dissolve First.

"Agfa"-Metol	½ oz.
Water	35 ozs.

And then add in succession

Sodium Sulphite, crystals	5 ozs.
Potassium Carbonate	2½ ozs.
Potassium Bromide	30 grs.

For use, this solution, which keeps well, has usually to be diluted with three times its volume of water.

If thin negatives are desired, take less Potassium Carbonate (for example, only 230 grains), and also less or even no Potassium Bromide.

If it be wished to have greater contrasts in the negative, the developer is employed in a more concentrated solution, to which more Potassium Bromide is added. For example, 77 to 150 grains of Potassium Bromide are used in preparing the solution, which is diluted with only once or twice its volume of water.

SEPARATE SOLUTIONS.

Recommended to those who prefer to work with this method.

1.—*Dissolve First*

"Agfa"-Metol	½	oz.
Distilled Water	35	ozs.
Sodium Sulphite, crystals	5	ozs.

And shake until dissolved.

2.—*Dissolve*

Sodium Carbonate, crystals	5	ozs.
Distilled Water	70	ozs.

For use, mix, for example, No. I—1 part with No. II—2 parts.

According to the character of the plates, exposure, etc., add to every 3 ozs. of the prepared solution 5 to 10 drops of a solution of Potassium Bromide (1 to 10).

"AGFA"-METOL-HYDROKINONE.

(One Solution).

Has similar powers to "Agfa"-Pyro-Metol; but as the resulting negative is of a more actinic quality, development needs to be fully carried out. This combination is the best developer for bromide and gaslight papers, and, perhaps, the

most popular on account of its adaptability to exposures of all descriptions.

Water	44	ozs.
"Agfa"-Metol	90	grs.
Sodium Sulphite, crystals	1½	ozs.
"Agfa"-Hydrokinone	30	grs.
Potassium Carbonate	½	oz.
Potassuim Bromide	15	grs.

Dissolve "Agfa"-Metol first, then add the Sodium Sulphite, adding "Agfa"-Hydrokinone and carbonate last.

"AGFA"-METOL-HYDROKINONE.

This is a favorite all-round developer for Plates, Lanterns, Slides, Bromide and Gaslight Papers:

A—*As a single solution.*

Water	16	ozs.
"Agfa"-Metol	12½	grs.
"Agfa"-Hydrokinone	4	grs.
After thorough solution add—		
Soda Sulphite, crystals	62	grs.
Potassium Carbonate	25	grs.
Potassium Bromide	1¼	grs.

This solution for normal development should be diluted with an equal amount of water.

B—*In two solutions.*

A—Water	16	ozs.
"Agfa"-Metol	4	grs.
Soda Sulphite, crystals	80	grs.
Soda Phosphate	8	grs.
"Agfa"-Hydrokinone	7	grs.
Hypo Solution, 10%	4	min.
B—Water	20	ozs.
Potassium Carbonate	2	ozs.

For use take equal parts of A and B.

C—*For Collodion Plates.*

A—Water	25 ozs.
"Agfa"-Metol	60 grs.
B—Water	25 ozs.
Potassium Carbonate	4 ozs. 3 drms.
C—95% Alcohol	12½ ozs.
"Agfa"-Hydrokinone	1¼ ozs.
D—Water	12 ozs.
Ammon. Bromide	1¼ ozs.

For use in half-tone work, especially in color process, mix as follows:

A	200 minims, drams or parts.
B	200 minims, drams or parts.
C	10 minims, drams or parts.
D	8 minims, drams or parts.
Water	5 minims, drams or parts.

For photo gelatine and line work solutions C and D may be doubled. The developer temperature must be 15 degrees Cel. (65 Fahr.); development will then be complete in from 30 to 50 seconds.

The development of Bromide and Gaslight Papers may be performed with the same solutions as given for plates. "Agfa"-Metol alone gives gray-black tones; "Agfa"-Metol-Hydrokinone blue-black tones.

"AGFA"-METOL-PYRO DEVELOPER.

This developer gives very strong and dense negatives:

Solution 1.

Water	25 ozs.
"Agfa"-Metol	¼ oz.
Pot. Metabisulphite	288 grs.
"Agfa"-Pyro	¼ oz.

Solution 2.

Water	25 ozs.
Soda Carb	5 ozs.

The heaviest density is obtained by taking 1 part of I and 2 parts of II and adding up to 5 drops of 10 per cent. Potassium Bromide solution to every 2½ ozs. of solution.

By using less soda solution softer negatives are obtained.

PRICE LIST:

1 ounce bottle	$ .75
4 ounce bottle	2.75
8 ounce bottle	5.25
16 ounce bottle	10.00
32 ounce bottle	19.75

"Agfa"-Amidol

"Afga"-Amidol comes in the form of fine, shiny crystals which sometimes assume a grayish tint, but this does not have the slightest effect on its developing properties.

It is a quick and powerful developer, gives excellent detail, and is easily soluble in water; also differs from all others in that it acts in the presence of sodium sulphite without the addition of any alkali, which is a decided advantage, as strong solutions may be used for prolonged development *without ill-effects to the emulsion or the fingers.*

"Agfa"-Amidol is also excellent for lantern slides, bromide and gaslight papers, rendering rich blue-black tones without fog, and being a single solution developer its simplicity and activeness are worthy of consideration when a large number of prints are to be made.

"Agfa"-Amidol in solution deteriorates rapidly and should be mixed just before use, but as it is readily soluble it can be prepared in a few moments. The following method will obviate the difficulty of rapid deterioration which is due to the sulphite in the solution.

Make a stock solution as follows:

Water	25 ozs.
Sodium Sulphite Crystals	1¼ ozs.

Immediately before development add 3 grains of "Agfa"-Amidol to every 1¼ ounces of above solution. In case of over-exposure, add to every ounce of solution 40 to 60 drops of a 10 per cent. solution of Potassium Bromide.

For Bromide enlargements prepare the following stock solution:

Sodium Sulphite	1	oz.
Citric Acid	20	grs.
Potassium Bromide	15	grs.
Water	40	ozs.

Just before use add to each ounce of stock solution "Agfa"-Amidol (dry) 3 grains.

Give a full exposure.

It is necessary to observe the following precautions when using "Agfa"-Amidol.

1. Potassium Bromide solution (10 per cent.) has a clearing effect when used in small quantities, and only when used freely does it have a restraining effect.

2. Use only the very freshest Sodium Sulphite, and one that is free from the white powdery oxidization.

3. Develop a little more than appears necessary, as the negative looses density slightly in the fixing bath.

4. Diluted solutions do not keep, although they give no visible sign of loss of power and do not discolor. The concentrated solution cannot be considered of good keeping properties.

For Gaslight Papers, use the first formula; the addition of Bromide gives an olive-green black tone; without Bromide the tones are blue-black.

PRICE LIST.

1 ounce bottle	$ .75
4 ounce bottle	2.75
8 ounce bottle	5.25
16 ounce bottle	10.00
32 ounce bottle	19.75

"Agfa"-Eikonogen

"Agfa"-Eikonogen is supplied in powder form. It is suitable to all methods of development, giving negatives of harmonious detail, and is, therefore, much favored by many of the leading workers.

It has the special quality of producing negatives full of detail and softness, even when development has been forced. This characteristic indicates that "Agfa"-Eikonogen is invaluable for snapshots, flashlights *and for conditions when there has been great contrast in the lighting of the subject.*

An admirable developer is produced by mixing "Agfa"-Eikonogen with "Agfa"-Hydrokinone, uniting as it does, the softness and detail of the former with the density-giving power of the latter. A good formula is given later on.

There is no developer on the market more powerful or more capable of producing the best results than "Agfa"-Eikonogen. It is invaluable as a *medium for developing under-exposures, bringing out all detail without harsh contrasts.*

Cold solutions give less density than those used at the correct temperature, which is 65 degrees Fahr. Should the solution be warmer the density is very much intensified. This characteristic of "Agfa"-Eikonogen is demonstrated when dry plates that produce heavy contrasts are used.

Solutions which have been repeatedly used assume gradually a darker tone, but their strength reduces very slowly.

FORMULA FOR DEVELOPMENT.

I.—Concentrated Single Solution.

Sodium Sulphite, crystals	3 ozs.
Potassium Carbonate, pure	1¼ ozs.
"Agfa"-Eikonogen	¾ oz.
Boiling water	25 ozs.

While still warm the mixture is put into bottles which must be tightly corked.

Provided that boiling water and perfectly fresh Sodium Sulphite are used, this solution will keep in good condition for an indefinite time.

If the developer proves to be too strong, it should be diluted with water as found necessary.

If especially soft negatives be desired, only about one-half of the usual quantity of Potassium Carbonate should be used in preparing solution.

If over-exposure be suspected, development should be commenced with a fresh, undiluted solution, an abundance of a 10 per cent. solution of Potassium Bromide being added, or, what is better still, an old developing solution, which has been repeatedly used, should be employed.

II.—Separate Solutions.

This formula is recommended to those who prefer to prepare the developing solution only shortly before using it:

Solution A.

Sodium Sulphite Crystals	2 ozs.
Water	30 ozs.
"Agfa"-Eikonogen	½ oz.

Solution B.

Sodium Carbonate, crystals	1½ ozs.
Water	10 ozs.

For use, 3 parts of Solution A are mixed with 1 part of Solution B.

For use in developing Bromide Papers, Formula I or Formula II, as employed for dry plates, should be further diluted with 2 or 3 times its volume of water. Under certain circumstances, however, for particularly brilliant pictures, these developers are used undiluted, a few drops of a 10 per cent. solution of Potassium Bromide being added.

We recommend, also, the following combined developer:

"AGFA"-EIKO-PYRO.

A—Water, Distilled	16	ozs.
Soda Sulphite, crystals	1½	ozs.
"Agfa"-Eikonogen	¼	oz.
"Agfa"-Pyrogallic Acid	¾	oz.
Sulphuric Acid	5	drops.
B—Water, Distilled	16	ozs.
Soda Carbonate, crystals	2	ozs.

For use, take Solution A, 1 part; Solution B, 1 part; water, 6 to 8 parts.

PRICE LIST.

1 ounce can	$ .37
4 ounce can	1.20
8 ounce can	2.10
16 ounce can	3.95

"Agfa"-Glycin

"Agfa"-Glycin comes in flake crystals and is soluble in Sulphite Sodium solution, but more so in Carbonic Alkali.

"Agfa"-Glycin has two characteristics which make it valuable as a developer: it develops very clearly, and its action is under easy control. It also has the further advantage of giving particularly "clean" negatives, and is for that reason a very popular developer for black-and-white work, being used extensively by makers of half-tone and other reproduction blocks. It gives good density with a beautiful transparency in the shadows, without loss of detail and without any possibility of stain. The resultant negative is very fine grained, for which reason "Agfa"-Glycin is especially recommended for the development of photo-micrographs.

"Agfa"-Glycin belongs to the slow-working class of developers and is, therefore, peculiarly suitable for tank development and for uncertain exposures.

FORMULA NO. I.

Solution A.

Distilled Water	25 ozs.
Sodium Sulphite	2½ ozs.
"Agfa"-Glycin	½ oz.

Dissolve with gentle heat.

Solution B.

Distilled Water	12½ ozs.
Potassium Carbonate	2½ ozs.

For correctly exposed plates use—

Solution A	2½ ozs.
Solution B	1¼ ozs.
Water	2½ ozs.

To obtain less contrast use—

Solution A	1 oz.
Solution B	1¼ ozs.
Water	4 ozs.

To obtain more contrast use—

Solution A	3¾ ozs.
Solution B	1¼ ozs.
Water	1¼ oz.

If over-exposure is feared add to any of these mixtures a few drops of 10 per cent. solution of Potassium Bromide.

FORMULA FOR TANK DEVELOPMENT.

"Agfa"-Glycin	30 grs.
Water	18 to 38 ozs.
Sodium Sulphite, crystal	30 grs.
Potassium Carbonate	225 grs.

For normal or under-exposed plates take the smaller quantity of water. For over-exposures take the full quantity.

Time ½ to 1 hour.

"AGFA"-GLYCIN TANK FORMULA.

"Agfa"-Glycin	120 grs.
Sodium Sulphite (Anhyd)	360 grs.
Sodium Carbonate (Anhyd)	360 grs.
Water	35 ozs.

For use take 1 part of above solution to 3 parts water. Time, 20 minutes. Temperature, 65-70 degrees.

"AGFA"-GLYCIN-METOL FORMULA.

Hot Water	96	ozs.
"Agfa"-Metol	40	grs.
"Agfa"-Glycin	20	grs.
Sodium Sulphite (Anhyd)	75	grs.
Potassium Carbonate (Anhyd)	300	grs.

Time, 45 minutes. Temperature, 65 degrees.

PRICE LIST.

1 ounce bottle	$ .75
4 ounce bottle	2.75
8 ounce bottle	5.25
16 ounce bottle	10.00
32 ounce bottle	19.75

"Agfa"-Ortol

"Agfa"-Ortol comes as a coarse crystal powder, very soluble in water and in its dry state, guarded from light, it keeps unchanged for an indefinite period.

"Agfa"-Ortol is a quick and powerful developer, giving negatives closely resembling those produced by "Agfa"-Pyro; but, as the deposit is of a more actinic nature, developments need to be carried further than is apparently sufficient to obtain a clean printing negative.

"Agfa"-Ortol produces excellent gradations and ample density; it may be used over and over again, and apparently does not lose its power as soon as some other developers.

"AGFA"-ORTOL SODA FORMULA.

Solution 1.

Water, Cold	10	ozs.
Potassium Metabisulphite	35	grs.
"Agfa"-Ortol	70	grs.

Solution 2.

Water	10	ozs.
Sodium Carbonate, crystals	1¼	ozs.
Sodium Sulphite, crystals	1¾	ozs.
Potassium Bromide	5-10	grs.

"Agfa"-Ortol Potash. For those who prefer a solution containing Potash, replace the Sodium Carbonate in Solution No. 2 with half the quantity of Potassium Carbonate (¾ oz.).

For rapid development take one part of Solution No. 1, and one part of Solution No. 2.

For slow and softer development take one part of Solution No. 1, one part of Solution No. 2, and one part of water.

"Agfa"-Ortol gives clear negatives of great density, having a fine brownish-black color. The picture appears in about 20 seconds, and is completely developed at the end of four or five minutes.

If still more rapid development, more density and a browner color be desired, the Sodium Sulphite may be omitted in preparing Solution No. 2.

By modifying the proportions of Solutions Nos. 1 and 2, the developer may be adapted to every make of plate. If more of Solution No. 1 and less of Solution No. 2 be taken, harder negatives will be obtained; if less of No. 1 and more of No. 2 be taken, softer negatives will be obtained.

Potassium Bromide, 10 per cent. solution, has a very great retarding effect on the developer's action, whereas Caustic Potash, 10 per cent. solution, acts as an energetic accelerater.

The same developing bath may be used several times. It keeps for a long period in well-stopped bottles, if Solution No. 2 be made up with Sodium Sulphite, according to the formula. If the Sodium Sulphite be omitted, the devolper, after having been once used, remains good only for the same day.

Developing solutions of "Agfa"-Ortol which have turned brown are exhausted and should not be used.

FORMULA FOR TANK DEVELOPMENT.

Water	20	ozs.
"Agfa"-Ortol	10	grs.
Potassium Metabisulphite	5	grs.
Sodium Sulphite	65	grs.
Sodium Carbonate	65	grs.

Time, 30 minutes. Temperature, 65 degrees.

PRICE LIST.

1 ounce bottle	.75
4 ounce bottle	$2.75
8 ounce bottle	5.25
16 ounce bottle	10.00
32 ounce bottle	19.75

"Agfa"-Pyrogallic Acid

(Pyro)

"Agfa"-Pyrogallic Acid comes either resublimed or in the crystal form. Both are easily soluble in water, giving a clear solution.

"AGFA"-PYRO-SODA FORMULA.

Solution A.

Distilled Water	17½	ozs.
Sodium Sulphite	3¼	ozs.
"Agfa"- Pyro	215	grs.
Sulphuric Acid	5 to 10	drops

Solution B.

Sodium Carbonate	770	grs.
Distilled Water	17½	ozs.

For use, take equal parts A, B and water.
Both solutions keep well in stopped bottles.

"AGFA"-PYRO POTASH FORMULA.

Solution A.

Distilled Water	3½	ozs.
Sodium Sulphite	1	oz.
"Agfa"-Pyro	154	grs.
Sulphuric Acid	3 to 8	drops

Solution B.

Distilled Water	7	ozs.
Potassium Carbonate	3	ozs.
Sodium Sulphite	1	oz.

For use take equal parts A, B and water.

"AGFA"-PYRO METOL FORMULA.

(This developer gives very strong negatives.)

Solution 1.

Water, Distilled	25	ozs.
"Agfa"-Metol	¼	oz.
Potass. Metabisulphite	288	grs.
"Agfa"-Pyro	¼	oz.

Solution 2

Water, Distilled	25	ozs.
Sodium Carbonate	5	ozs.

The greatest density is obtained by using one part No. 1 and two parts No. 2, adding five drops of 10% solution Potassium Bromide to every 2½ ozs. of solution.

By using less solution No. 2 softer negatives are obtained.

FORMULA FOR TANK DEVELOPMENT.

Solution 1.

Water, Distilled	28 ozs.
"Agfa"-Pyro	1 oz.
Sulphuric Acid	20 drops

Solution No. 2.

Water, Distilled	28 ozs.
Sodium Sulphite (Anhyd.)	3 ozs.
Sodium Carbonate (Anhyd.)	3 ozs.

For use take 1 oz. solution No. 1, 1 oz. solution No. 2 and 24 oz. water; time, 20 minutes; temperature, 65 degrees.

PRICE LIST.

1 ounce can	$ .25
4 ounce can	.70
8 ounce can	1.30
16 ounce can	2.50
5 pound can	10.00
10 pound can	18.00

"Agfa"-Hydrokinone

(Quinol)

"Agfa"-Hydrokinone comes in fine crystalline needles, and is capable of giving great density and of being easily restrained.

It is recommended for use in combination with Potassium Carbonate. Owing to its giving great density "Agfa"-Hydrokinone is generally used in combination with a softer working developer such as "Agfa"-Metol or "Agfa"-Eikonogen. The following formula we recommend for a single Hydrokinone developer and it is of good keeping qualities:

"AGFA"-HYDROKINONE FORMULA.

Water, Distilled	15	ozs.
"Agfa"-Hydrokinone	½	oz.
Sodium Sulphite	4	ozs.
Potassium Carbonate	7	ozs.

For use dilute with four to six parts of water.

Potassium Bromide has a great restraining power in connection with this developer and is a preventive of fog. This solution should be used at a temperature of about 65 degrees, a colder solution working very slowly.

"Agfa"-Hydrokinone is recommended in combination with "Agfa"-Metol and "Agfa"-Eikonogen, formulae for which will be found under "Agfa"-Metol and "Agfa"-Eikonogen headings.

PRICE LIST.

1 ounce can	.17
4 ounce can	.45
8 ounce can	.80
16 ounce can	1.50
5 pound can	6.25
10 pound can	10.00

"Agfa"

Photographic Specialties

"Agfa"-Rodinal

(Patented)

"Agfa"-Rodinal is a highly concentrated developing solution which must be diluted with anywhere from 10 to 40 parts of tap or spring water, according to the exposure given and the make of plate.

As "Agfa"-Rodinal contains only traces of carbonic alkalies, the use of distilled water for dilution is not necessary. In connection with the use of "Agfa"-Rodinal the following remarks should be carefully noted:

In addition to neutral sulphite and water "Agfa"-Rodinal contains only an alkaline salt of Paramidophenol, but no excess of caustic alkali.

"Agfa"-Rodinal has excellent keeping qualities. This applies not only to full bottles but also to those that have been opened and partly used. Although it has been observed that in opened bottles "Agfa"-Rodinal becomes darker in color, *still this change produces no noticeable effects upon the working properties of the solution.* As is the case with all other dilute alkaline developers "Agfa"-Rodinal when prepared for use by the *addition of a large proportion of water, naturally does not keep quite so well.* After standing some days the solution assumes a reddish tinge and gradually loses in developing power. If it be desired to keep "Agfa"-Rodinal in a diluted condition for a long time, add instead of water a solution containing 5 to 10 per cent. of pure sodium sulphite (crystals) or half the quantity of dry or granular salt.

Owing to the highly concentrated character of "Agfa"-Rodinal small quantities of a white salt are deposited, espe-

cially in opened bottles, when the preparation is kept for a long time. This deposit does not affect the developer in any way. It is formed by the action of the air on the sulphite added to preserve the Paramidophenol salt, to which addition the keeping quality of "Agfa"-Rodinal is due. In no way is the energy of the developer affected thereby.

"Agfa"-Rodinal is adaptable to *every kind of dry plate on the market, rapid or slow, and of every make.* It is hardly necessary to add that, with the same methods of workings, different makes of plates will not give equally good results. When diluted in the proportion of from 1 in 10 to 1 in 20 "Agfa"-Rodinal develops very quickly and produces very strong contrasts. When further diluted—in the proportion of from 1 in 30 to 1 in 40—the development is slower and softer contrasts are obtained. From this it follows that plates which have a tendency to strong contrasts must be treated with a more dilute solution of "Agfa"-Rodinal, while for other kinds a more concentrated solution should be used.

"Agfa"-Rodinal is therfore more handy to use than any other developer; it produces perfect negatives, clear, clean and of perfect gradation in the lights, halftones and shadows.

TO DEVELOP.

In case of normal exposure develop with

"Agfa"-Rodinal	1 part
Water	20 parts

In case of over-exposure, with

"Agfa"-Rodinal	1 part
Water	10 to 20 parts

adding an ample quantity of a solution of potassium bromide (1 in 10) and

In case of under exposure use

"Agfa"-Rodinal	1 part
Water	20 to 40 parts

The most advantageous temperature for the developing solution is 15 degrees C. (equal to 59 degrees F.).

If it be desired to work more slowly with a strong solution of "Agfa"-Rodinal (1 in 10 to 1 in 20) an abundance of a 10 per cent. solution of potassium bromide must be added. This addition lengthens the time of development without influencing the character of the negative as much as in the case of the other alkaline developers.

Treated with a solution of "Agfa"-Rodinal (1 in 20) an over exposed plate gives a negative rich in detail but thin. Over exposed plates are advantageously treated with a strong solution of "Agfa"-Rodinal (1 in 20, to 1 in 10) to which a considerable quantity of a 10 per cent. solution of potassium bromide has been added. In this way it is possible to obtain even from over exposed plates negatives showing the finest details and rich in contrasts.

In case of under exposure a strong solution of "Agfa"-Rodinal will produce too much contrast. The high lights will disappear while the shadow details are coming up. Under exposed plates are therefore best developed with a more dilute solution of "Agfa"-Rodinal (1 in 30, to 1 in 40). The development takes somewhat longer, but on the other hand, the reproduction of the lighting of the subject is perfect and more harmonious. Should the negative be somewhat thin it may be strengthened by means of an intensifier. "Agfa"-Intensifier is especially recommended in this case.

The fact that a concentrated solution of "Agfa"-Rodinal produces more contrast, while a dilute solution works more softly, affords a valuable means of correcting any shortcomings in the lighting of the subject. Negatives taken in a vivid light—for example, street views by sunlight—are usually best treated with a weak solution of "Agfa"-Rodinal (1 in 25, to 1 in 35), while views taken in diffused light—for example, landscapes in cloudy weather—should be treated with a concentrated solution (1 in 20, to 1 in 15), to which a little potassium bromide should be added.

It follows from the foregoing that it is well to begin development with "Agfa"-Rodinal diluted in the proportion of 1

in 30 and then if necessary to correct by adding drop by drop a solution composed as follows:

"Agfa"-Rodinal	1 oz.
Potassium Bromide, Crystals	1/3 oz.
Water	1 oz.

Negatives developed with Rodinal seem to lose density in the fixing bath. It is therefore necessary to carry development a little further than is required.

"AGFA"-RODINAL

FOR BROMIDE AND GASLIGHT PAPERS.

"Agfa"-Rodinal is eminently suitable for the development of bromide papers on account of its economy in use, efficiency and cleanliness. It produces an image with clear high lights and full detail, with soft and pleasing blacks, and stain is an impossibility.

For ordinary bromide papers take

"Agfa"-Rodinal	1 part
Water	Up to 100 parts

The resultant tone varies from a pleasing blue-black to a rich grey-black and is dependent upon the proportions of the solution, strong solutions giving a blue-black color, while dilute solutions produce more of a grey tone. On the other hand, the strength of the solution must depend very much on the exposure, so that it is impossible to give a correct formula, but every worker can easily learn from experience what exposures require certain strengths of developer to produce a certain color. There is some advantage in developing with a weak solution in that a strong solution may be applied locally to bring out certain parts of a picture which otherwise would not be fully developed or prominent enough by the time the remainder of the picture is finished.

For developing papers take

"Agfa"-Rodinal ..... 1 part
Water .....15-20 parts.

Add 10 per cent. potassium bromide solution, 3 drops per ounce of solution.

"AGFA"-RODINAL

FOR LANTERN SLIDES AND TRANSPARENCIES.

The use of "Agfa"-Rodinal for the production of lantern slides is highly recommended because of the vivid detail, the clearness of the shadows and cleanliness of the high lights. The formula recommended is 1 part of "Agfa"-Rodinal to 30 parts of water, without the addition of bromide. Bear in mind when developing the characteristic loss of strength in an "Agfa"-Rodinal-developed image which occurs in the fixing bath, the final color is a rich blue-black and is very transparent, producing ideal slides for projection.

"AGFA"-RODINAL HYDROKINONE.

The use of "Agfa"-Rodinal Hydrokinone is advocated by many leading and experienced workers, as it combines the power and detail obtainable with "Agfa"-Rodinal together with the density given by "Agfa"-Hydrokinone. It is admirably calculated for snapshots, and highly recommended for portrait work when used in the quantities indicated below:

A—Sodium Sulphite ..... 1 oz.
Water .....20 ozs.
Citric Acid ..... 5 grs.
Potassium Bromide ..... 1 drm.
"Agfa"-Hydrokinone ..... 2 drms.

B—Potassium Carbonate ..... 2 ozs.
Water .....20 ozs.
"Agfa"-Rodinal ..... 1 oz.

For soft negatives (portraits, etc.) take equal parts of A, B and water. For brilliant negatives take equal parts of A and B.

For detail, increase the quantity of B. For density, increase the qnantity of A.

PRICE LIST.

3 ounce bottle	$ .60
8 ounce bottle	1.10
16 ounce bottle	2.00

"Agfa"-Intensifier

"Agfa"-Intensifier is introduced to replace the ordinary mode of intensification with Mercury or Uranium, and presents the following advantages:

Intensification is absolutely complete in one manipulation, without the troublesome secondary blackening with Ammonia, Cyanide of Silver or Soda Sulphite, which is necessary when the mercury process is employed, the image, when intensified with "Agfa"-Intensifier, assuming the desired depth at once.

"Agfa"-Intensifier gives no unstable reddish-brown stain, which occurs with Uranium, making it difficult to decide when the necessary degree of intensification has arrived.

"Agfa"-Intensifier is a clear liquid of unlimited durability, which is simply diluted with water to be ready for immediate use.

"Agfa"-Intensifier is, therefore, an ideal substitute for former intensifiers.

DIRECTIONS FOR USE.

Dilute 1 part of "Agfa"-Intensifier with 10 parts of water and immerse the negative to be intensified in the dilute solution, leaving it in this bath until the necessary intensification is arrived at, which can be judged with facility.

Intensification commences immediately, and at the expiration of two minutes is well advanced, and in many cases is quite sufficient.

The maximum intensification is complete in the first ten minutes. If the plate be left in the solution for a longer period

the image assumes a whitish-grey tone and is rendered more opaque.

In this case the plate should be well washed and then developed with any weak developer, when a very strongly intensified image will result.

The intensified negative is then well washed and dried. All traces of the intensifier may be removed, if necessary, by immersing the plate in a 1 per cent. solution of Soda Hyposulphite.

"Agfa"-Intensifier can be used with great advantage in photo-mechanical reproduction for the intensification of halftone negatives.

With the "Agfa"-Intensifier there is no separate blackening such as is required by the ordinary mercury intensifier. The manipulation is therefore not only simpler, but the effect of intensification can be controlled more easily than in the separate blackening operations.

The "Agfa"-Intensifier is to be preferred, because only one solution is required. Further, because the danger of a formation of fog does not exist.

The blackening can be extended so far with the "Agfa"-Intensifier that mercuric bromide intensification is surpassed in this respect.

PRICE LIST.

2 ounce bottle	$ .30
4 ounce bottle	.50
8 ounce bottle	.90
16 ounce bottle	1.60

"Agfa"-Rapid Fixing Salt

This product, being dissolved in water, gives an acid fixing bath that surpasses all previous methods of fixing.

1. It fixes much more quickly than any other bath containing an equal quantity of hypo.

2. The period of fixation is not appreciably extended by repeated use of the bath.

We have found by the most careful testing that a plate only requires about half the time in this new bath that is necessary in the baths generally in use (for instance, in the usual hypo bath of "1 in 4" strength). The absorption power of the product is much greater, thus, in 3½ ozs. 10 negatives only require one-fourth the time and 20 negatives only one-fifth the time taken by the ordinary fixing bath.

On these grounds it is claimed that the "Agfa" Rapid Fixing Salt is a most welcome and useful addition to the photographer's means of certain and rapid work, especially where, as in the case of travelling and in hot climates, it is desirable to get the negative through the various manipulations as quickly as possible.

To Professional, Press and Process Workers it is a great boon, permitting much more rapid work and removing the old annoyance and danger of congestion of work at the fixing bath.

Further, it is a wonderful help in the development of strips of roll film, and to amateurs, who can go on developing without the tiresome waiting for the last negative to fix.

Trials with this preparation show that a solution of 1 in 5 gives an acid fixing bath that is much more rapid in action than a solution of hypo 1-4. Also remains much longer in use, and its superiority is more marked the more plates are fixed in it.

The "Agfa"-Rapid Fixing Salt is an ammonia preparation and its solution 1-5 does not contain more thiosulphite than the usual hypo bath of 1-4, although the reduction of silver bromide is so much more rapid.

PRICE LIST.

No. 1 size ..... $ .15
No. 2 size ..... .25

"Agfa"-Copper-Intensifier

This is a new preparation which we have brought out after a most strenuous search for a preparation that would not contain the Mercury Salt.

It has the following great advantages: Requires one manipulation, no secondary treatment, such as blackening, needed. It is put up in dry form in a container, the stopper of which serves as a measuring glass. The contents of this stopper dissolved in 3½ ozs. of water gives an intensifier of beautiful working ability.

PRICE LIST.

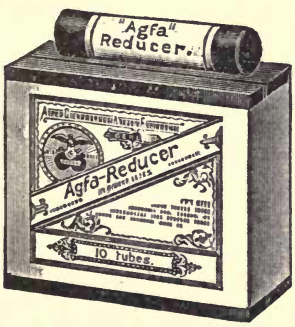
50 grm. bottle ..... $ .65
Box of 10 tubes ..... .85

"Agfa"-Reducer

In order to simplify the manipulations of the photographic worker we have brought out a reducer in a permanent form under this title. The "Agfa"-Reducer claims notice on account of its convenience in enabling a "ready-for-use" solution, to be instantly prepared by simply dissolving it in water: 1 part to 10 parts of water.

The "Agfa"-Reducer is very permanent in its dry form and is packed in a most convenient manner, so that a solution can at once be prepared without scales and weights.

The "Agfa"-Reducer, which is a novel and specially prepared combination of a ferric salt and an alkali thiosulphite, comes into the market as a granular yellowish-white powder contained in an orange-glass bottle fitted with a metal screw cap. Underneath the cap is a glass stopper, provided with an India-rubber washer, so that when the cap is properly screwed down an air-tight joint is made. The underside of the stopper is hollow and serves as a very convenient measure for the substance. When filled level to the top it holds about 5 grms., the proper quantity of the substance for making 50 centimetres of solution.



In order to prepare the Reducer, the measure full of the solid is dissolved in 50 cubic centimetres (1¾ fluid ozs.) of soft or distilled water, the solution being easily and quickly made without heating, if the water is vigorously shaken for a short time. The quantity is ample for a quarter-plate or 5x4 negative, and in a really flat dish can be made to answer for a half-plate. But, if necessary, a larger

quantity of the solution can, of course, be made up, the solid substance and the water being always kept in the same proportion, i. e., two measures of the solid for 100 cubic centimetres (3½ fluid ozs.) of water, and so on.

The best plan is to turn the measured solid substance on to a piece of paper, and then gradually drop it into the water, which should be kept in motion. If the solid is thrown in a mass into still water it is liable to form a kind of cake, with the result that the process of dissolving takes considerably more time.

The solution is poured over the negative, previously well soaked in water, and the dish is rocked gently. The reducing action begins almost immediately, proceeds regularly, and takes place in a remarkably even manner. The change is readily watched, and when reduction has gone far enough the negative is well rinsed with water, and afterwards well washed in the ordinary way, and the process is complete. Nothing could be more simple. The time required varies with the degree of reduction desired and also, to some extent, with the nature of the plate (harness of the gelatine, etc.), but, in ordinary cases of over-developed negatives five minutes is ususally sufficient. Lantern slides and diapositives can also be satisfactorily reduced in the same way. The color, if originally warm, becomes somewhat colder after reduction.

Bromide prints can likewise be successfully reduced by the "Agfa"-Reducer, though, if the desired reduction is slight, it is advisable to dilute the Reducer. Contrary to what happens in the case of diapositives, the color seems to be, as a rule, a little warmer after reduction. The process is very convenient in the case of slightly over-printed Bromide prints.

Direct experiments made by printing on Print-Out Papers from the same negatives before and after reductions show that the action of the "Agfa"-Reducer is practically proportional to the capacity of the image, and consequently the gradations and contrasts of the negatives are substantially the same before and after the reduction. For this reason the "Agfa"-Reducer

is especially valuable in the case of negatives and positives that have been over-developed without being fogged. There is a slight tendency toward increased contrasts in the reduced negative, but in most cases only very slight.

It is important to mention that soft or distilled water must be used for making up the reducing solution, as when hard water is used a certain quantity of a brown precipitate is formed. If, through the use of hard water, the negative or the positive should acquire a slightly brownish-yellow stain, this can readily be removed by immersion for a short time in a weak alum solution to which a small quantity of oxalic acid has been added.

The same quantity of reducing solution can be used for two or three negatives in succession, though its action naturally becomes weaker, and it is important that it should not be exposed for any length of time to bright daylight. The solid substance itself should also be kept in the shade.

The "Agfa"-Reducer is not only efficient and easily worked, but it is also particularly convenient, a point of importance in view of the fact that reduction is only an occasional operation. It is very compact in form, and is always ready for use. The making up of the solution is simple and rapid, and involves no weighing.

It has been decided to put the "Agfa"-Reducer in cartridge form as well as in bottles.

Each cartridge contains 10 grms., and is to be dissolved in 3½ ozs. of water (100 c. c.), the other operations being the same.

PRICE LIST.

4 ounce bottle	$ .65
Box of 10 tubes	.75

"Agfa"-Flashlight Powder.

(Called "Agfa"-Blitzlicht)

"Agfa"-Blitzlicht is a scientific combination of chemicals of a different composition than the usual Magnesium and Potassium Chlorate mixture and possess the following undisputed advantages:

1. Minimum smoke development.
2. Maximum amount of light.
3. The most rapid flash.
4. Silent discharge.
5. No danger of explosion.
6. Convenient packing.
7. Economy in use.

The claims we make on behalf of the small smoke development are that the "Agfa"-Flashlight Powder gives only one-tenth of the smoke produced by the usual magnesium and potassium chlorate mixture. Besides which, owing to the greater light development, "Agfa"-Flashlight only needs to be used in small quantities which, apart from economy, is a potential factor in the reduction of the smoke nuisance. What little smoke there is is a bluish transparent film which quickly rolls off and disappears. The great lighting power makes the "Agfa"-Flashlight very economical; the intensity and actinic power is three times as great as any other preparation used in the same proportions.

For instance:

For portraits use.....¼ grm. (4 grs.)
Small groups use.....1 grm. (15 grs.)
Large groups use.....2-3 grms. (30-45 grs.)
Very large groups use.....4-6 grms. (60-90 grs.)

The further advantage of rapid combustion is also important, the "flash" lasting in all only 1-30th of a second. This extraordinary short duration (maximum intensity is reached at 1-20th of a second) quite removes any possibility of movement in the subject. The firing takes place without the slightest noise. "Agfa"-Flashlight contains nothing explosive, and the separated components render it, before fixing, not even inflammable.

It keeps indefinitely in the original package.

DIRECTIONS FOR USE.

Empty the contents of the small bottle into the larger one (glass bottle).

Shake thoroughly so as to intimately mix the components; make a little heap on a piece of tin or wood, and stick a piece of the touch paper upright in the heap. Light this paper with a match and the sparks will quickly run down to and ignite the powder.

Other sparking methods may be employed, but the powder must not be used in a closed or blow-through lamp.

The "Agfa" Improved Lamp is recommended for certainty and noiselessness.

As a guide to the quantity of "Agfa"-Flash Powder it must be remembered that the quantity of light required at a given distance to illuminate a given object does not imply that twice the quantity of powder will give the same illumination at double the distance. It is an accepted fact that the intensity of light decreases in proportion to the square of the distance. Therefore, although we know that ½ a gramme of the powder will give correct exposure on a C. D. V. portrait at a distance

of two yards, we must make a little calculation to find what quantity we want if we have to take larger surfaces.

Now, remembering always that the flash must not occur in front of the lens, we will suppose that to take a group we have to move back the camera, and therefore the flash, to five yards. By the above rule we have to square the difference in the distance and multiply the result by the quantity of powder; thus the difference between 2 yards and 5 yards is 3, and squaring this, i. e., $3\times3=9$, so that we shall have 9 times less light on the object than before; we must, therefore, multiply the ½ gramme by 9, and this gives us 4½ grammes as the correct quantity.

This rule is constant as long as the lens aperture, etc., remain constant, so in taking a dinner party, should the chairman (presumably the principal object) be in the middle distance of the group, all will be well if the rule is followed, but supposing he is in the extreme distance and the rule is followed, the diners in the near foreground would be overexposed, so a certain amount of discretion must be used, and the light must be elevated as high as possible; this will have the result of putting the foreground into more or less shadow.

The intelligent reader can apply this to all interior subjects. No diffuser is required with the "Agfa"-Flashlight Powder, the light being naturally soft, but a plate giving soft results is to be desired, as also a developer that does not work for contrast; and in this respect Rodinal well diluted can be highly recommended. Development should not be forced; it is only a question of time, and a few minutes difference in the developing period is of little consequence.

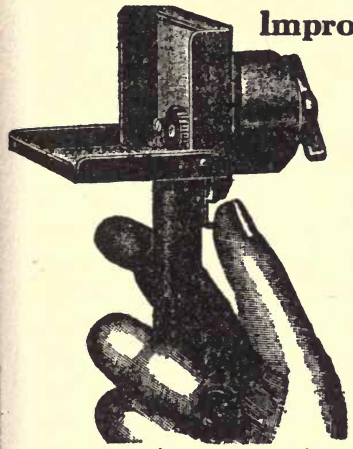
PRICE LIST.

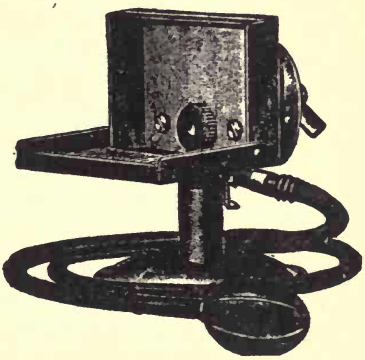
No. 1 size (10 grms.)	$ .35
No. 2 size (25 grms.)	.65
No. 3 size (50 grms.)	1.05
No. 4 size (100 grms.)	1.70

"Agfa"-Flash Lamp

(PATENTED.)

Improved Model





This is marketed in place of the uncertain striking safety match device. A spark-giving metal has been substituted, and a winding spring revolves a toothed wheel against this metallic substance, giving a stream of sparks at each revolution.

It is absolutely unfailing, is always ready for use at a moment's notice, and not affected by damp or climatic influences.

The instrument is small in size, is elegantly finished in nickeled metal and strongly built.

It is a handy pocket size and as simple as can be in working.

Many hundreds of sparks can be given without renewing the metal, which, however, can be replaced when the original is worn out.

A simple attachment permits the lamp being used as a stand lamp, and a pneumatic release can also be supplied if firing it at a distance.

PRICE LIST

"Agfa" Improved Flashlamp $2.00
Stand and Wire Release 1.50

Stand Development

We doubt if any one desiring to develop by stand method has the intention of making it a scientific pursuit, it is far rather a method of convenience in which it is also distinguished from Time, or Factorial Development.

Stand Development, as we hereafter describe, is purely and simply the placing of places in a more or less dilute developer, and examining them from time to time to see if they are done; by this means a batch of various exposures may all be developed in the same tank, and as the more fully exposed plates become sufficiently developed they are removed and the others left until completed or transferred to a stronger solution.

There is no doubt that this method produces a series of very level negatives and may suit many workers when once they have found the developer which produces the result they require. But it is reducing development to a mechanical process and gives very little scope for individuality.

Formulae for this method are given under "Agfa"-Glycin and "Agfa"-Rodinal, and a very useful table is given under this last heading showing the approximate time required at various temperatures.

Time, or Factorial Development

Time Development is perhaps more scientific and is performed by ascertaining a "factor" or number which is multiplied by the minutes or seconds of the time taken for the first indication of an image to appear; thus, the factorial numbers for the various developers are as follows:

"Agfa"-Amidol	18
"Agfa"-Eikonogen	9
"Agfa"-Glycin	10
"Agfa"-Hydrokinone	5
"Agfa"-Pyro-Soda	5
"Agfa"-Imogen-Sulphite	5
"Agfa"-Metol	30
"Agfa"-Metol-Hydrokinone	14
"Agfa"-Ortol	10
"Agfa"-Rodinal	30

so that supposing the image appears on the plate in a solution of "Agfa"-Eikonogen in 30 seconds, the dish may be covered up and rocked for 4½ minutes and the plate then transferred to the fixing bath without examination, as it would be fully developed. At least that is the theory, and is no doubt correct with an even exposure all over the plate. But with a plate that has been exposed on a contrasty subject it is well to examine it and decide if the result is what is desired.

These factorial numbers do not indicate the speed of the developer. For instance, to the novice "Agfa"-Metol and "Agfa"-Rodinal would appear rather slow, whereas they are two most rapid developers, and it is owing to the extraordinary rapidity of the first appearance of the image that they require such high factorial numbers.

Formulae for Film Development

"Agfa" Flat Film.

We recommend

Ansco Film.

"AGFA"-METOL HYDROKINONE.

Water	64	ozs.
"Agfa"-Metol	25	grs.
Sodium Sulphite (Granular)	¾	oz.
Sodium Carbonate	½	oz.
"Agfa"-Hydrokinone	45	grs.
Potassium Bromide	6	grs.

The chemicals must be added and thoroughly dissolved in the order given. From this stock solution enough is taken to fill the tray. The stock solution will keep indefinitely if in *full* bottles *tightly* stoppered.

FOR TWENTY MINUTE TANK DEVELOPMENT, TEMPERATURE 65°.

Dissolve the chemicals in order named in about 6 ozs. of lukewarm water, then add the balance of the water cold.

SMALL SIZE TANK.

"Agfa"-Pyro	10	grs.
Sodium Sulphite (Anhyd.)	30	grs.
Carbonate of Soda (Anhyd.)	20	grs.
Water	16	ozs.

THREE AND ONE-HALF INCH TANK.

"Agfa"-Pyro	22	grs.
Sodium Sulphite (Anhyd.)	66	grs.
Carbonate of Soda (Anhyd.)	44	grs.
Water	34	ozs.

FIVE INCH TANK.

"Agfa"-Pyro	30	grs.
Sodium Sulphite (Anhyd.)	90	grs.
Carbonate of Soda (Anhyd.)	60	grs.
Water	46	ozs

FOR TEN MINUTE TANK DEVELOPMENT, TEMPERATURE 65°.

SMALL SIZE TANK.

"Agfa"-Pyro	20 grs.
Sulphite of Soda (Anhyd.)	60 grs.
Carbonate of Soda (Anhyd.)	40 grs.
Water	16 ozs.

THREE AND ONE-HALF INCH TANK.

"Agfa"-Pyro	44 grs.
Sulphite of Soda (Anhyd.)	132 grs.
Carbonate of Soda (Anhyd.)	88 grs.
Water	34 grs.

FIVE INCH TANK.

"Agfa" Pyro	60 grs.
Sulphite of Soda (Anhyd.)	180 grs.
Carbonate of Soda (Anhyd.)	120 grs.
Water	46 ozs.

Barnet Film.

"AGFA"-PYRO-SODA FORMULA

Solution No. 1.

Water (Distilled)	80 ozs.
"Agfa"-Pyro	1 oz.
Potassium Bromide	60 grs.
Nitric Acid	20 drops
Time	20 min.
Temperature	65 deg.

Solution No. 2.

Water, Distilled)	80 ozs.
Sodium Sulphite	9 ozs.
Sodium Carbonate	8 ozs.
Time	20 min.
Temperature	65 deg.

For use take equal parts of 1 and 2.

"AGFA"-RODINAL TANK DEVELOPMENT.

"Agfa"- Rodinal	1 oz.
Water	40 ozs.
Time	20 min.
Temperature	65 deg.

"AGFA"-ORTOL TANK DEVELOPMENT.

Water	20 ozs.
"Agfa"-Ortol	10 grs.
Potassium Metabisulphite	5 grs.
Sodium Sulphite	65 grs.
Sodium Carbonate	65 grs.
Time	30 min.
Temperature	65 deg.

Eastman Film.

Solution No. 1.

Water	28	ozs.
Sulphuric Acid	20	drops.
"Agfa"-Pyro	1	oz.

Solution No. 2.

Water	28	ozs.
Sodium Sulphite (Desiccated)	3	ozs.
Sodium Carbonate (Desiccated)	2	ozs.

For dark room development take:

Solution No. 1	½	oz.
Solution No. 2	½	oz.
Water	4	ozs.

For Kodak Developing Machine, Brownie Developing Box (6 minute development) or Kodak Film Tank (10 minute development) take the following proportions:

Solution No. 1	1	oz.
Solution No. 2	1	oz.
Water	10	ozs.

For Kodak Film Tank (20 minute development) take the following proportions:

Solution No. 1	1	oz.
Solution No. 2	1	oz.
Water	22	ozs.
Temperature	65	deg.

"AGFA"-GLYCIN FOR TANK DEVELOPMENT.

Stock Solution.

Water	35	ozs.
"Aga"-Glycin	120	grs.
Sodium Sulphite (Anhyd)	360	grs.
Sodium Carbonate (Anhyd)	360	grs.

To develop take:

Stock Solution	10	ozs.
Water	30	ozs.
Time	20	min.
Temperature	65	deg.

"AGFA"-ORTOL FOR TANK DEVELOPMENT.

Water	20	ozs.
"Agfa"-Ortol	10	grs.
Potassium Metabisulphite	5	grs.
Sodium Sulphite	65	grs.
Sodium Carbonate	65	grs.
Time	30	min.
Temperature	65	deg.

"AGFA"-RODINAL FOR TANK DEVELOPMENT.

"Agfa"-Rodinal	1	oz.
Water	100	ozs.
Time (Landscape)	30	min.
Time (Architectural)	23	min.
Time (Portrait)	18	min.
Temperature	65	deg.

Ensign Film.

"AGFA"-PYRO SODA FORMULA.

Stock Solution.

Water	8	ozs.
Nitric Acid	20	drops.
"Agfa"-Pyro	1	oz.

Solution No. 1.

Stock Solution	2	ozs.
Water	20	ozs.

Solution No. 2.

Water	20	ozs.
Sodium Sulphite (Cryst)	2½	ozs.
Sodium Carbonate (Cryst)	2¼	ozs.

For use take equal parts of No. 1 and No. 2. For known over-exposure take two parts No. 1 to one part No. 2.

"AGFA"-METOL HYDRO FORMULA.

Water	35	ozs.
"Agfa"-Metol	100	grs.
"Agfa"- Hydrokinone	120	grs.
Sodium Sulphite (Anhyd)	2½	ozs.
Sodium Carbonate	2½	ozs.
Potassium Bromide	7	grs.

For use take one part of the above solution to four parts of water.

"AGFA"-METOL GLYCIN FOR TANK DEVELOPMENT.

Hot water	96	ozs.
"Agfa"-Metol	40	grs.
"Agfa"-Glycin	20	grs.
Sodium Sulphite (Anhyd)	75	grs.
Potassium Carbonate	300	grs.
Time	45	min.
Temperature	65	deg.

"AGFA"-RODINAL FOR TANK DEVELOPMENT.

"Agfa"-Rodinal	1	oz.
Water	40	ozs.
Time	20	min.
Temperature	65	deg.

Lumiere Film.

"AGFA"-METOL FORMULA.

Solution A.

Temperature 65 to 70 degrees	Factor	25.
Water (Distilled)	16	ozs.
Sodium Sulphite (Dry)	1	oz.
"Agfa"-Metol	120	grs.

Solution B.

Water (Distilled)	16	ozs.
Carbonate Potassium	2	ozs.

For use take 4 ozs. Solution A, 1 oz. Solution B and 5 ozs. Distilled Water.

"AGFA"-RODINAL FORMULA.

Factor 30.

"Agfa"-Rodinal	¼	oz.
Water	10	ozs.

"AGFA"-GLYCIN FORMULA.

Solution A.

Temperature 65 to 70 Degrees	Factor	8.
Water (Distilled)	16	ozs.
Sodium Sulphite (Dry)	½	oz.
"Agfa"-Glycin	160	grs.

Dissolve Glycin in hot water.

Solution B.

Water (Distilled)	24	ozs.
Carbonate Potassium	3	ozs.

For use take 2 ozs. Solution A, 3 ozs. Solution B.

Formulae
for
Dry Plate Development

"Agfa" Plates.

Ordinary "Agfa" Plates.

We recommend

"Agfa" Chromo Plates.

"AGFA"-METOL HYDRO FORMULA.

"Agfa"-Metol	48 grs.
"Agfa"-Hydrokinone	72 grs.
Sodium Sulphite (cryst.)	2 ozs.
Potassium Carbonate	192 grs.
Potassium Bromide	10 grs.
Water	20 ozs.

"AGFA"-RODINAL FORMULA.

"Agfa"-Rodinal	20 grs.
Water	1 oz.

"Agfa" Isolar Plates.

We recommend

"Agfa" Chromo Isolar Plates.

We recommend

Barnet Plates.

If the exposure of the plate has been correct, then the development is simple enough. Development of a Barnet Ortho Plate should be carried a little further than might be considered necessary for a non-ortho plate, and if fully exposed the result will be soft and well graded.

"AGFA"-PYRO SODA FORMULA.

(Strongly Recommended.)

Stock Solution A.—Dissolve 100 grains of Potassium Meta-Bisulphite in water and then add 1 oz. of "Agfa"-Pyro and 60 grains of Potassium Bromide and make up with water to measure 8 oz.

DEVELOPER.

No. 1 Solution.

Stock Solution A	2	ozs.
Water	18	ozs.

No. 2 Solution.

Soda Carbonate, Crystal	2	ozs.
Soda Sulphite	2¼	ozs.
Water, to make	20	ozs.

For use, take equal parts of Nos. 1 and 2.

ONE SOLUTION "AGFA"-METOL-HYDRO FORMULA.

"Agfa"-Metol	25	grs.
"Agfa"-Hydrokinone	20	grs.
Soda Sulphite	½	oz.
Soda Carbonate	½	oz.
Potass. Bromide	10	grs.
Water, to make up to	10	ozs.

Be careful that the developer is neither too warm nor too cold; a good temperature is from 60 to 65 degrees.

Rinse the plate thoroughly after development to prevent stains and fix.

Cramer Plates.

"AGFA"-PYRO FORMULA.

A.

Pure Water	16	ozs.
Oxalic Acid	12	grs.
"Agfa"-Pyro	1	oz.

B.

Pure Water	16	ozs.
Cramer's Dry Sulphite of Soda	2	ozs.

(Which will test 60 deg. by hydrometer.)

If negatives are too yellow use more Sulphite.

C.

Pure Water	16	ozs.
Cramer's Dry Carbonate of Soda	1	oz.

(Which will test 30 deg. by hydrometer.)

Mix for immediate use, A, 1 oz.; B, 1 oz.; C, 1 oz.; Water (65 to 70 de. F.), 10 ozs.

In summer the developer should be used cooler (about 60° Fahr.) or with more water. In winter it should be used warmer (about 75° Fahr.) or with less water. Less water hastens development and increases contrast. More water slows development, gives less contrast and is better for short exposures.

If Cramer's Dry Carbonate of Soda is used, Solution C as given above is of the proper strength. When other brands are used it may be necessary to vary the strength of this solution, bearing in mind that an excess of Carbonate blocks the lights and increases contrasts.

"AGFA"-PYRO TANK FORMULA.

A.

Pure Water	16	ozs.
Citric Acid	20	grs.
Cramer's Dry Sulphite of Soda	¼	oz.
"Agfa"-Pyro	1	oz.

B.

Pure Water	16	ozs.
Cramer's Dry Sulphite of Soda	2	ozs.

(Which will test 60 deg. by hydrometer.)

C.

Pure Water	16	ozs.
Cramer's Dry Carbonate of Soda	2	ozs.

(Which will test 60 deg. by hydrometer.)

Mix for immediate use, A, 1 oz.; B, 1 oz.; C, 1 oz.; Water (at 50 deg. Fahr), 50 ozs.

"AGFA"-RODINAL TANK FORMULA.

Water (at 50 deg. Fahr.)	100	ozs.
"Agfa"-Rodinal	1	oz.

In addition to the normal formulas described in the preceding chapter the following formulas are selected from the great many now in use. Any other good developer can be employed, provided its strength is regulated to suit the plate.

"AGFA"-ORTOL FORMULA.

In One Solution.

Pure Water	60	ozs.
"Agfa"-Ortol	300	grs.
Bromide of Potassium	20	grs.
Cramer's Dry Sulphite of Soda	3	ozs.
Cramer's Dry Carbonate of Soda	1½	ozs.

For use, mix 1 part of this Stock Solution and Water, 1 to 2 parts for winter use, or 2 to 4 parts for summer use, according to density desired.

The "Agfa"-Ortol Developer can be used repeatedly and keeps well, particularly if the stock solution is put up in small bottles quite full and tightly corked to exclude air. Dilute with water when wanted for use. Always carry the development far enough to insure good printing quality.

"AGFA"-HYDROKINONE-METOL FORMULA.

A.

Pure Water	25	ozs.
"Agfa"-Metol	30	grs.
"Agfa"-Hydrokinon	90	grs.
Cramer's Dry Sulphite of Soda	1	oz.

B.

Pure Water	25	ozs.
Cramer's Dry Carbonate of Soda	½	oz.

(Which will test 10 deg. by hydrometer.)

For use mix A and B in equal parts. Can be used repeatedly.

SAME FORMULA IN ONE SOLUTION.

A and B mixed in equal parts keeps well. The above ingredients can all be put together in one solution. With fresh developer it may be necessary to add to each ounce 1 drop of Bromide of Potassium solution (containing 1 part of Bromide Potassium to 10 parts of water).

NOTE.—This is a very fine and desirable developer. It should not be used too old or too much diluted, as it is then liable to produce peculiar streaks and blotches.

Solution B can be replaced by an equal quantity of diluted Acetone (Cramer's Liquid Acetone) to 20 parts of water.

"AGFA"-EIKONOGEN FORMULA.

A.

Pure Hot Water	60	ozs.
"Agfa"-Eikonogen	1	oz.
Cramer's Dry Sulphite of Soda	2	ozs.

B.

Pure Water	60	ozs.
Cramer's Dry Carbonate of Soda	2	ozs.

(Which will test 16 deg. by hydrometer.)

For use take A, 3 ozs.; B, 1 oz.

This developer works best after being used a few times.

When starting with fresh solution, add some old, or if no old is on hand, add to each ounce 1 drop of a 10% Bromide of Potassium solution to make it work clear. For short exposures use 3 ozs. A, ½ oz. B.

"AGFA"-HYDROKINONE-EIKONOGEN FORMULA.

A.

Pure Hot Water	48	ozs.
Cramer's Dry Sulphite of Soda	1½	ozs.
"Agfa"-Eikonogen	1	oz.
"Agfa"-Hydrokinone	¼	oz.

B.

Pure Water	16	ozs.
Cramer's Dry Carbonate of Soda	1	oz.

(Which will test 30 deg. by hydrometer.)

For use take A, 3 ozs.; B, 1 oz.; Water (at 65 deg. to 70 deg. Fahr.), 10 ozs.

A few drops of Bromide of Potassium solution should be added if the developer is quite fresh.

"AGFA"-PYRO-METOL FORMULA.

A.

Pure Water	30	ozs.
"Agfa"-Metol	1	oz.
Citric Acid	40	grs.
"Agfa"-Pyro	½	oz.
Bromide of Potassium	20	grs.
Cramer's Dry Sulphite of Soda	¼	oz.

B.

Pure Water	30	ozs.
Cramer's Dry Sulphite of Soda	4	ozs.

(Which will test 64 deg. by hydrometer.)

C.

Pure Water	30	ozs.
Cramer's Dry Carbonate of Soda	4	ozs.

(Which will test 64 deg. by hydrometer.)

For use take A, ½ oz.; B, ½ oz.; C, ½ oz.; Water (at 65 deg. to 70 deg. Fahr.), 10 to 20 ozs.

A, B and C may be added together and keep well in one solution, which should be diluted for use with from 6 to 12 parts of water.

TROPICAL DEVELOPER.

FOR HOT CLIMATES WHERE NO ICE IS AVAILABLE.

Pure Water	50	ounces.
Cramer's Dry Sulphite of Soda	1	oz.
Bromide of Potassium	20	grs.
Citric Acid	20	grs.

For use: To 4 oz. of of the above solution add 10 grs. dry "Agfa"-Amidol. Before developing place the plate in Water, 60 parts, Formalin, 1 part. for about three minutes, then rinse well and place in the developer. Fix in the Acid Fixing and Hardening Bath.

"AGFA"-RODINAL FORMULA.

For use: Dilute 1 part with 20 to 40 parts water for tray development or 1 part with 100 parts water for tank development.

FORMULAE FOR TRANSPARENCIES

(LANTERN SLIDES).

"AGFA"-HYDROKINONE.

Pure Water	20	ozs.
"Agfa"-Hydrokinone	60	grs.
Cramer's Dry Sulphite of Soda	120	grs.
Bromide of Potassium	6	grs.
Citric Acid	6	grs.
Cramer's Dry Carbonate of Soda	1	oz.

"AGFA"-HYDROKINONE AND PARAMIDOPHENOL.

A.

Pure Water	32 ozs.
Cramer's Dry Sulphite of Soda	6 ozs.
"Agfa"-Paramidophenol	240 grs.
"Agfa"-Hydrokinone	240 grs.
Bromide of Potassium	120 grs.

B.

Water	32 ozs.
Caustic Potash	240 grs.

For use mix equal parts A and B.

Both formulas are excellent for producing clear, brilliant transparencies and slides.

Eastman Dry Plates.

"AGFA"- PYRO FORMULA FOR TRAY DEVELOPMENT.

Stock Solution A.

Water	8	ozs.
Oxalic Acid	10	grs.
"Agfa"-Pyro	1	oz.

Stock Solution B.

Water	16	ozs.
Eastman Sulphite Soda (hydrometer test 60)	2	ozs.

Stock Solution C.

Water	16	ozs.
Eastman Carbonate Soda (hydrometer test 40)	1½	ozs.

To develop use A, ½ oz.; B, 1 oz.; C, 1 oz.; water, 7 ozs.

"AGFA"-METOL-HYDRO FORMULA FOR TRAY DEVELOPMENT.

Stock Solution.

Water	16	ozs.
"Agfa"-Metol	30	grs.
Eastman Sulphite Soda	½	oz.
"Agfa"-Hydrokinone	30	grs.
Eastman Carbonate of Soda	¼	oz.

Dissolve chemicals in order given.

To develop use Stock Solution, 1 oz.; water, 7 ozs.

The temperature of Developer should be from 65 to 70 degrees.

NOTE.—If other brands of desiccated Carbonate of Soda are used, a greater quantity will be required. If crystal sodas are used, take about three times the quantity of carbonate and double the quantity of sulphite.

Carbonate of Soda has a decided action as regards the density of the negative. An increased amount will increase the density of the negative.

If the Carbonate of Soda be added to the developer in excessive quantities, it will neutralize the action of the preservative (Sulphite Soda) and have a tendency to produce yellow negatives.

"AGFA"-PYRO FORMULA FOR TANK DEVELOPMENT.

For 4 *by* 5 *Eastman Plate Tank.*

"Agfa"-Pyro .....22 grs.
Eastman's Sulphite of Soda (desiccated).....66 grs.
Eastman's Carbonate of Soda (desiccated).....44 grs.

Dissolve the chemicals in order named in 5 or 6 ozs. of lukewarm water, then add cold water to fill tank to lower embossed line, making 26 ozs. of solution.

Temperature of Developer, 65 degrees Fahr. Develop 15 minutes.

Hammer Plates.

"AGFA"-METOL PYRO FORMULA.

No. 1.

Pure Water	28	ozs.
"Agfa"-Metol	70	grs.
Sulphite Soda, Anhydrous	5	ozs.
"Agfa"-Pyro	1	oz.

Dissolve the above; then add 15 grains Oxalic Acid, dissolved in ¼ ounce water.

No. 2.

Pure Water	28	ozs.
Carbonate Soda (Pure Dry)	3	ozs.

Tray Development.

To develop take 1 oz. of No. 1, 1 oz. of No. 2, 12 to 14 ozs. water.

In winter use less water to develop and in summer use more water; temperature 50 degrees, and add a few drops of a 10% solution of bromide potassium.

To regulate the color of the negatives, use more or less sulphite in No. 1.

This developer will not stain or poison the hands and acts raipdly.

Tank Development.

To develop take 2 ozs. of No. 1, 2 ozs. of No. 2, 120 ozs. of water.

Temperature 50 degrees, and add ½ ounce of a 10% solution of bromide potassium. Development 30 to 40 minutes.

"AGFA"-PYRO FORMULA.

Water	16	ozs.
Sulphite Soda (Crystals)	4	ozs.
Oxalic Acid	20	grs.
"Agfa"-Pyro	1	oz.

B.

Water	16	ozs.
Carbonate Soda (Crystals)	3	ozs.

To develop take 4 drams of A, 4 drams of B, 8 to 10 ozs. of water.

"AGFA"-PYRO ACETONE FORMULA.

Clear, clean and quick; for hot climates. The film does not soften during development. Washed negatives dry quickly.

No. 1.

Water	23¼	ozs.
Sulphite Soda (Anhydrous)	8	ozs.

Hydrometer test, 75 degrees.

No. 2.

Water	24	ozs.
Oxalic Acid	15	grs.
"Agfa"-Pyro	1	oz.

For use take 5 ozs. water, 1 oz. No. 1, ½ oz. No. 2, 2 drams Acetone (Liquid).

Do not keep the plate out of the developer long while developing or streaks will result. Acid Chrome-Alum Fixing Bath is best.

"AGFA"-EIKONOGEN HYDROKINONE FORMULA.

As used on Hammer Plates by prominent photographers. Very fine.

No. 1.

Pure Water	64	ozs.
"Agfa"-Eikonogen	1	oz.
"Agfa"-Hydrokinone	⅛	oz.
Sulphite of Soda (Crystals)	2½	ozs.

No. 2.

Pure Water	64	ozs.
Carbonate of Potash (Dry)	2½	ozs.

To develop take 2 ozs. of No. 1 and 1 oz. of No. 2.

Add old developer (solution previously used) in sufficient quantity to produce best results.

"AGFA"-ORTOL FORMULA.

No. 1.

"Agfa"-Ortol	160	grs.
Water to make	16	ozs.

No. 2.

Carbonate Soda (C. P.)	240	grs.
Sulphite Soda (Anhydrous)	120	grs.
Water	16	ozs.

For use take 1 oz. No. 1, 1 oz. of No. 2, and 6 ozs. of water.

If less water is used, it will give denser negatives; more water will give softer negatives.

"AGFA"-METOL-PYRO FORMULA.

No. 1.

Water	27	ozs.
"Agfa"-Pyro	1	oz.
"Agfa"-Metol	60	grs.

No. 2.

Carbonate Soda.....testing 40 deg.

No. 3.

Sulphite Soda.....testing 70 to 80 deg.

For use take 1 oz. of No. 1, 1 oz. of No. 2, 1 oz. of No. 3 and 8 to 12 ozs. water.

"AGFA"-METOL-PYRO FORMULA.

No. 1.

Sulphite of Soda Hydrometer.....testing 80 deg.

No. 2.

Carbonate of Soda Hydrometer.....testing 40 deg.

No. 3.

Water	12	ozs.
"Agfa"-Pyro	¾	oz.
"Agfa"-Metol	¼	oz.
Sulphite of Soda	60	grs.
Citric Acid	40	grs.

To develop take No. 1, ½ oz.; No. 2, ½ oz.; No. 3, 2 drams.; water, 6 to 8 ozs.

"AGFA"-PYRO FORMULA WITH CARBONATE OF POTASH.

No. 1.

Pure Water	32	ozs.
Sodium Sulphite (Anhydrous)	4	ozs.
Carbonate of Potash (C. P.)	1	oz.

No. 2.

Pure Water	24	ozs.
Oxalic Acid (dissolved first)	15	grs.
"Agfa"-Pyro	1	oz.

To develop take 1 oz. of No. 1, ½ oz. of No. 2 and 6 to 8 ozs. of Pure Water.

When the plate is fully developed and you find the high lights too thin, use less water in the developer; if too dense use more water.

"AGFA"-RODINAL FORMULA.

For Tray Development use 1 ounce in 20 to 30 ounces water; for Tank Development use 1 ounce in 80 to 100 water.

"AGFA"-GLYCIN FORMULA.

No. 1.

"Agfa"-Glycin	123	grs.
Sulphite Soda	370	grs.
Water (hot, 200 deg.)	7	ozs.
Let cool, then add—		
Carbonate Potassium	46	grs.

No. 2.

Carbonate Potassium	616	grs.
Water	14	ozs.

To develop take 1 oz. of No. 1, 1 oz. of No. 2 and 3 ozs of water.

FORMULAE FOR LANTERN SLIDE PLATES.

"AGFA"-HYDROKINONE.

No. 1.

Water (boiled or distilled)	20 ozs.
"Agfa"-Hydrokinone	150 grs.
Metabisulphite of Potash	10 grs.
Bromide of Potassium	50 grs.

No. 2.

Water (boiled or distilled)	20 ozs.
Sulphite of Soda (dry)	2 ozs.
Caustic Soda	100 grs.

For use take equal parts of No. 1 and No. 2.

"AGFA"-EIKONOGEN-HYDROKINONE.

No. 1.

Water (pure and hot)	16 ozs.
"Agfa"-Eikonogen	110 grs.
"Agfa"-Hydrokinone	70 grs.
Sulphite Soda (dry)	1¼ ozs.

No. 2.

Water (pure)	16 ozs.
Carbonate Potassium	1¼ ozs.

Allow solutions to cool before using.

For use take 3 ozs. of No. 1 and 1 oz. of No. 2, adding a few drops of 10% Bromide of Potassium solution. This will develop about five plates; then add some fresh developer in same proportion as before.

Ilford Plates.

"AGFA"-PYRO SODA FORMULA.

Stock Solution.

Water	5½	ozs.
Potassium Metabisulphite	70	grs.
"Agfa"-Pyro	1	oz.

Solution No. 1.

Stock Solution	2	ozs.
Water to make up to	20	ozs.

Solution No. 2.

Sodium Carbonate (Cryst)	2	ozs.
Sodium Sulphite (Cryst)	2	ozs.
Potassium Bromide	20	grs.
Water to make up to	20	ozs.

For use take equal quantities of solution No. 1 and No. 2.

"AGFA"-HYDROKINONE FORMULA.

Solution No. 1.

"Agfa"-Hydrokinone	180	grs.
Sodium Sulphite	2	ozs.
Water to make up to	20	ozs.

Solution No. 2.

Potassium Carbonate	1½	ozs.
Potassium Bromide	30	grs.
Water to make up to	20	ozs.

For use mix equal parts of 1 and 2.

"AGFA"-METOL HYDROKINONE FORMULA.

Solution No. 1.

"Agfa"-Metol	60	grs.
"Agfa"-Hydrokinone	90	grs.
Potassium Metabisulphite	90	grs.
Water to make up to	20	ozs.

Solution No. 2.

Sodium Carbonate (Cryst)	2	ozs.
Sodium Sulphite (Cryst)	2	ozs.
Potassium Bromide	20	grs.
Water to make up to	20	ozs.

For use mix equal parts 1 and 1.

"AGFA"-AMIDOL FORMULA.

"Agfa"-Amidol	175	grs.
Potassium Bromide	50	grs.
Sodium Sulphite (Cryst)	4	ozs.
Water to make up to	20	ozs.

For use mix with 2 to 3 times volume of water.

Lumiere Plates.

"AGFA"-METOL FORMULA.

Temperature 65 to 70 degrees.....Factor 25

Solution A.

Water (Distilled)	16	ozs.
Sodium Sulphite (Dry)	1	oz.
Agfa"-Metol	120	grs.

Solution B.

Water (Distilled)	16	ozs.
Carbonate Potassium	2	ozs.

For use take 4 ozs. solution A, 1 oz. solution B and 5 ozs. distilled water.

"AGFA"-RODINAL FORMULA.

Factor 30.

"Agfa"-Rodinal	¼	oz.
Water	10	ozs.

"AGFA"-GLYCIN FORMULA.

Temperature 65 to 70 degrees.....Factor 8

Solution A.

Water (Distilled)	16	ozs.
Sodium Sulphite (Dry)	½	oz.
"Agfa"-Glycin	160	grs.

Dissolve Glycin in hot water.

Solution B.

Water (Distilled)	24	ozs.
Carbonate Potassium	3	ozs.

For use, take 2 ozs. solution A, 3 ozs. solution B.

"AGFA"-PYRO.

Solution A.

Water (Distilled)	16	ozs.
Oxalic Acid	15	grs.
"Agfa"-Pyro	1	oz.

This solution keeps better if Sodium Bisulphite 80 grs. be used instead of Oxalic Acid.

Solution B.

Water	16	ozs.
Sodium Sulphite (Anhyd)	2	ozs.

Hydrometer Test 60.

Solution C.

Water	12	ozs.
Sodium Carbonate	1	oz.

Hydrometer Test 40.

Solution D.

Water	10	ozs.
Potassium Bromide	1	oz.

All our "Agfa"-Pyro formulae for tank development are adapted to a temperature of 65 degrees and 30 minutes' duration of development.

For each degree above or below 65 add to or substract from the time of development one minute. The temperature should never exceed, otherwise fog and yellow stain are liable to appear. Use a reversible tank and reverse same three to five times during development.

It is essential to assure a complete mixing of the chemicals before developing; also to rinse the plates thoroughly before fixing.

Mix for immediate use

Solution A	1	oz.
Solution B	1	oz.
Solution C	1	oz.
Water	7	ozs.

The more water the less contrast.

In cold weather use less water (5 to 6).

In hot weather use more water (8 to 10).

For negatives to be printed on developing paper use 8 to 9 ozs. of water.

When the negatives are found too yellow, use 1½ ozs. of solution B. If too brown use less.

FOR THIRTY MINUTES' TANK DEVELOPMENT.

Solution A	2	ozs.
Solution B	2	ozs.
Solution C	1½	ozs.
Solution D	2	drams.
Water	64	ozs.

For Sigma Plates increase the quantity of each A, B and C by ½ oz.

"AGFA"-PYRO ACETONE FORMULA.

Mix for immediate use

Solution A	1	oz.
Solution B	2	ozs.
Acetone	3	drams.
Water	8	ozs.

Factor 8.

This developer works without danger of frilling and gives brilliant negatives. It does not stain.

FOR THIRTY MINUTES' TANK DEVELOPMENT.

Solution A	2	ozs.
Solution B	4	ozs.
Acetone	½	oz.
Solution D	2	drams.
Water	64	ozs.

FOR SIGMA PLATES THIRTY MINUTES' TANK DEVELOPMENT.

Solution A	2½	ozs.
Solution B	4	ozs.
Acetone	5	drams.
Solution D	2	drams.
Water	64	ozs.

Seed Plates.

"AGFA"-PYRO FORMULA.

A.

Pure Water	16	ozs.
"Agfa"-Pyro	1	oz.
Oxalic Acid	10	grs.

B.

Pure Water	16	ozs.
Sulphite of Soda (Anhyd)	2	ozs.

C.

Pure Water	16	ozs.
Carbonate of Soda (Anyhd)	2	ozs.

Use A, 1 oz.; B, 1 oz.; C, 1 oz.; Pure Water, 7 ozs.

In very cold dark-rooms use 5 ozs. of water. In warm weather use 10 ozs. of water. For double-coated plates use 10 ozs. of water.

One-half oz. of B will give a *warmer tone* to the negative. The best printers have a warm brownish-black color. If negatives are too yellow or the shadows show the slightest stain, not due to discolored fixing bath, use 1½ ozs. of B.

Sulphite of Soda in solution does not keep well. Solulutions over one month old should not be expected to be full strength if not made with pure water and kept in well-stoppered bottles.

"AGFA"-EIKONOGEN-HYDROKINONE FORMULA.

A.

Pure Water	48	ozs.
Sulphite of Soda	2	ozs.
"Agfa"-Eikonogen	240	grs.
"Agfa"-Hydrokinone	60	grs.

B.

Pure Water	16	ozs.
Carbonate of Soda	2	ozs.

Use A, 3 ozs.; B, 1 oz.
For double-coated plates add 4 ozs. of Pure Water.
Use more Water in hot weather.

NOTE.—If more concentrated developer is desired in order to secure more contrast, the water in Solution A may be reduced to 32 ozs.

Use boiling water in making up this developer. In cold weather a little glycerine could also be added to prevent precipitation.

"AGFA"-METOL-HYDROKINONE FORMULA.

A.

Pure Water	64	ozs.
"Agfa"-Metol	120	grs.
"Agfa"-Hydrokinone	120	grs.
Sulphite of Soda	2	ozs.

B.

Pure Water	16	ozs.
Carbonate of Soda	2	ozs.

Use A, 4 ozs.; B, 1 oz.; Pure Water, 4 ozs.

Dissolve in the order given. "Agfa"-Metol should always be dissolved in water before the Sulphite is added, or before it is mixed with Sulphite solution, otherwise it may precipitate. If crystal sodas are used add 15 grs. of Bromide of Potassium to 16 ozs. of B solution.

"AGFA"-ORTOL FORMULA.

A.

Pure Water	24	ozs.
Potassium Metabisulphite	90	grs.
"Agfa"-Ortol	180	grs.

B.

Pure Water	24	ozs.
Sulphite of Soda	1	oz.
Carbonate of Soda	1	oz.

Use equal parts of A and B.

"AGFA"-PYRO-METOL FORMULA.

A.

"Agfa"-Pyro	1	oz.
"Agfa"-Metol	60	grs.
Water	22½	oz.

B.

Sulphite of Soda.....Test 60.

C.

Carbonate of Soda .....Test 50.

To develop take Water, 8 to 10 ozs.; A, 1 oz.; B, 1 oz.; C, 1 oz.

This developer gives softness and detail.

"AGFA"-PYRO FORMULA FOR SEED TROPICAL PLATES.

A.

Pure Water	16	ozs.
"Agfa"-Pyro	1	oz.
Oxalic Acid	10	grs.

B.

Pure Water	16	ozs.
Sulphite of Soda	2	ozs.

C.

Pure Water	16	ozs.
Carbonate of Soda	3	ozs.

Use A, 1 oz.; B, 1 oz.; C, 1 oz.; Pure Water, 7 ozs.

Developer made up according to the above formula is intended for use at a temperature of about 70 degrees. If development is carried on at 85 degrees or 90 degrees the developer must be diluted one-half by adding water, using 14 ozs. instead of 7 ozs.

Sodas in crystals may be substituted for Seed's Sodas in this formula by using twice the weight here given.

Fix in regular Acid Fixing Bath.

TANK DEVELOPER FORMULAE.

The following formulae are splendidly adapted for use with the Plate Tank and will afford the printing quality required by the majority of the profession.

The temperature of the developer should not exceed 70 degrees Fahr. to avoid frilling. In our experience 65 degrees Fahr. will afford the most satisfactory results.

"AGFA"-PYRO TANK FORMULA.

Stock Solution A.

Water	16	ozs.
"Agfa"-Pyro	1	oz.
Oxalic Acid	10	grs.

Stock Solution B.

Water	16	ozs.
Sulphite of Soda	3	ozs.

Stock Solution C.

Water	16	ozs.
Carbonate of Soda	1	oz.

To develop, use A, 1 oz.; B, 1 oz.; C, 1 oz.; Water, 61 ozs.

NOTE.—If crystal sodas are used take about three times the quantity of Carbonate and double the quantity of Sulphite.

Temperature, 60 degrees, develop 35 minutes
Temperature, 65 degrees, develop 30 minutes.
Temperature, 70 degrees, develop 25 minutes.

"AGFA"-GLYCIN TANK FORMULA.

Stock Solution.

Hot Water (about 200 deg.)	60	ozs.
Carbonate of Soda	2	ozs.
"Agfa"-Glycin	½	oz.
Sulphite of Soda	½	oz.

Dissolve in order given.

To develop, use Stock Solution, 6 ozs.; Water, 58 ozs.

Temperature, 60 degrees, develop 30 minutes.
Temperature, 65 degrees, develop 25 minutes.
Temperature, 70 degrees, develop 20 minutes.

FORMULAE FOR LANTERN SLIDE, TRANSPARENCY AND PROCESS PLATES—YELLOW LABEL.

"AGFA"-METOL-HYDRO FORMULA.

A.

Water	16	ozs.
"Agfa"-Metol	30	grs.
"Agfa"-Hydrokinone	30	grs.
Sulphite of Soda	130	grs.

B.

Water	16	ozs.
Potassium Bromide	15	grs.
Sodium Carbonate	130	grs.

If the crystallized Sulphite and Carbonate are used take twice as much of each as the formula calls for. To develop, take equal parts of A and B. Developer should be about 70 degrees Fahr. and can be used repeatedly, but should be discarded as soon as discolored, as it will then stain the film.

"AGFA"-HYDROKINONE FORMULA FOR WARM TONES.

A.

Water	16	ozs.
"Agfa"-Hydrokinone	50	grs.
Sulphite of Soda	20	grs.
Potassium Bromide	5	grs.
Citric Acid	5	grs.

B.

Water	16	ozs.
Carbonate of Soda (Dry)	½	oz.
Caustic Soda	30	grs.

For use take equal parts of each. For still warmer tones use more of B.

To make a lantern slide by contact from a medium dense negative, the plate is placed in a printing frame over the negative, and if a 16 c. p. electric lamp is used, the exposure should be about 5 seconds at a distance of 2 feet from the light. With

the "Agfa"-Metol-Hydro developer the image will appear in about 10 seconds, and development will be complete in from 30 to 40 seconds according to the density desired.

If the "Agfa"-Hydro developer is used, expose somewhat longer than for the "Agfa"-Metol-Hydro. Temperature of developer should be from 70 to 75 degrees Fahr.

Always develop to a good density, as plates developed with "Agfa"-Hydrokinone fix out somewhat. Rinse and fix.

RED LABEL.
BLACK AND BROWN TONES.

DEVELOPER FOR BLACK TONES.

No. 1.

Pure Water	24	ozs.
Sulphite of Soda	3	ozs.
"Agfa"-Hydrokinone	150	grs.

No. 2.

Pure Water	16	ozs.
Carbonate of Potassium	2	ozs.
Bromide Potassium	15	grs.

To develop, take 3 ozs. of No. 1 and 2 ozs. of No. 2.

DEVELOPER FOR WARM TONES.

No. 1.

Pure Water	16	ozs.
"Agfa"-Hydrokinone	50	grs.
Sulphite of Soda	50	grs.
Bromide Potassium	24	grs.
Citric Acid	6	grs.

No. 2.

Pure Water	16	ozs.
Potassium Carbonate	480	grs.

To develop take equal parts. For still warmer tones the amount of sulphite may be reduced.

Standard Dry Plates.

"AGFA"-PYRO FORMULA.

Stock Solution A.

Water	16	ozs.
Oxalic Acid	10	grs.
"Agfa"-Pyro	1	oz.

Stock Solution B.

Water	16	ozs.
Eastman Sulphite Soda	2	ozs.

(Hydrometer test 60.)

Stock Solution C.

Water	16	ozs.
Eastman Carbonate Soda	1	oz.

(Hydrometer test 30.)

To Develop Standard Extra, Imperial Portrait or Polychrome Plates.

Use A, 1 oz.; B, 1 oz.; C, 1 oz.; water 6 ozs.

To Develop Orthonon Plates.

Use A, 1 oz.; B, 1 oz.; C, 1 oz.; Water, 12 ozs.

NOTES.

When making stock solution "A" first dissolve the Oxalic Acid in water, then add the "Agfa"-Pyro.

If other brands of desiccated Carbonate of Soda are used a greater quantity will be required. If crystal sodas are used take three times the quantity of carbonate and double the quantity of sulphite.

ORTHONON PLATES.

These plates should be handled only in a deep ruby light; never use a yellow or greenish-yellow light.

The usual dark-room method of development of the Orthonon is the same as with the ordinary plate, except that more water is added, making the process of development much

slower. Diluting the developer is necessary so that the action will not be too severe on the upper film before the developer has had time to penetrate through to the under one. It is necessary that both films should develop simultaneously.

Carbonate of Soda has a decided action as regards the density of the negative. An increased amount will increase the density. If the Carbonate of Soda be added to the developer in excessive quantities it will neutralize the action of the preservative (Sulphite Soda) and have a tendency to produce yellow negatives.

If developers are compounded according to the hydrometer, test the instrument after purchasing, as the scale is sometimes inaccurate. A correct hydrometer should test zero in pure water at a temperature of 70.

"AGFA"-HYDRO-METOL FORMULA.

Stock Solution.

Water	16	ozs.
"Agfa"-Metol	30	grs.
Sodium Sulphite	½	oz.
"Agfa"-Hydrokinone	30	grs.
Sodium Carbonate	¼	oz.

To develop, use 1 part Stock Solution to 7 parts water.

"AGFA"-RODINAL-HYDROKINONE FORMULA.

No. 1 Solution.

Water	20	ozs.
"Agfa"-Hydrokinone	2	drams.
Sodium Sulphite	1	oz.
Citric Acid	5	grs.
Potassium Bromide	1	dram.

No. 2 Solution.

Water	20	ozs.
Potassium Carbonate	2	ozs.
"Agfa"-Rodinal	1	oz.

For soft negatives (portraits, etc.) take equal parts No. 1, No. 2 and water. For brilliant negatives take equal parts No.

1 and No. 2, no water. For detail, increase the quantity of B. For density, increase the quantity of A.

"AGFA"--PYRO FORMULA FOR TANK DEVELOPMENT.

Solution No. 1.

Water	16	ozs.
Oxalic Acid	10	grs.
"Agfa"-Pyro	1	oz.

Solution No. 2.

Water	16	ozs.
Sodium Sulphite (Anhyd)	2	ozs.

Solution No. 3.

Water	16	ozs.
Sodium Carbonate (Anhyd)	2	ozs.

For use take 1 oz. each solution Nos. 1, 2 and 3 and 35 ozs. of water. Time, 20 minutes. Temperature, 70 degrees.

"AGFA"-RODINAL FOR TANK DEVELOPMENT.

"Agfa"-Rodinal	1	oz.
Water	40	ozs.
Time	20	min.
Temperature	65	deg.

Vulcan Dry Plates.

"AGFA"PYRO SODA FORMULA.

Stock Solution.

Water	7½	ozs.
Oxalic Acid	8	grs.
"Agfa"-Pyro	1	oz.

Soution No. 1.

Water	18	ozs.
Stock Solution	2	ozs.

Solution No. 2.

Water	20	ozs.
Sodium Sulphite (Anhyd)	½	oz.
Sodium Carbonate (Anhyd)	½	oz.

For use take equal parts solution Nos. 1 and 2.

"AGFA"-METOL-HYDROKINONE FORMULA.

Soution No. 1.

Water	20	ozs.
"Agfa"-Metol	25	grs.
"Agfa"-Hydrokinone	50	grs.
Sodium Sulphite (Anhyd)	1	oz.

Solution No. 2.

Water	20	ozs.
Sodium Carbonate (Anhyd)	½	oz.
Potassium Bromide	20	grs.

For use take equal parts solution Nos. 1 and 2.

For extremely short exposures the Bromide may be omitted.

For soft negatives, such as portraits or interiors, dilute the mixed developer with an equal quantity of water.

For 15-minute tank development, either of the above developers can be used by omitting the Bromide and mixing as follows:

Water	10	ozs.
Mixed Developer	2	ozs.
Temperature	65	deg.
Time	15	min.

OR

Water	10	ozs.
Mixed Developer	1	oz.
Temperature	65	deg.
Time	30	min.

"AGFA"-RODINAL FOR TANK DEVELOPMENT.

"Agfa"-Rodinal	1	oz.
Water	40	ozs.
Time	20	min.
Temperature	65	deg.

"AGFA"-GLYCIN FOR TANK DEVELOPMENT.

Water	35	ozs.
"Agfa"-Glycin	120	grs.
Sodium Sulphite (Anhyd)	360	grs.
Sodium Carbonate (Anhyd)	360	grs.

For use take one part of this solution to four parts of water. Time, 20 minutes. Temperature, 65 degrees.

"AGFA"-ORTOL FOR TANK DEVELOPMENT.

Water	20	ozs.
"Agfa"-Ortol	10	grs.
Potassium Metabisulphite	5	grs.
Sodium Sulphite	65	grs.
Sodium Carbonate	65	grs.
Time	30	min.
Temperature	65	deg.

Wellington Plates.

"AGFA"-PYRO AMMONIA FORMULA.

Solution No. 1.

Water	10	ozs.
"Agfa" Pyrogallic Acid	1	oz.
Citric Acid	40	grs.
Sodium Sulphite (Cryst)	2	ozs.

Solution No. 2.

Water	10	ozs.
Ammonia (880)	1	ozs.

Solution No. 3.

Water	10	ozs.
Ammonium Bromide	1	oz.

For use 10 minims of No. 1, 10 minims of No. 2 and 5 minims of No. 3 are taken and diluted with water to make 1 ounce.

"AGFA"-PYRO SODA FORMULA.

Solution No. 1.

Water	10	ozs.
"Agfa"-Pyrogallic Acid	1	oz.
Citric Acid	40	grs.
Sodium Sulphite (Cryst)	2	ozs.

Solution No. 2.

Water	80	ozs.
Sodium Sulphite (Cryst)	8	ozs.
Sodium Carbonate (Cryst)	8	ozs.

To use, 1 oz. of No. 2, 1 dram of No. 1 and 1 oz. of water are taken.

"AGFA"-METOL HYDROKINONE FORMULA.

Water	80	ozs.
"Agfa"-Metol	½	oz.
Sodium Sulphite (Cryst)	4	ozs.
"Agfa"-Hydrokinone	½	oz.
Sodium Carbonate (Cryst)	4	ozs.

For use, the strong solution is diluted with its own bulk of water.

FORMULAE FOR PROFESSIONAL USE.

For the convenience of the Professional Photographer, who generally prefers to mix and use his developers in equal quantities, we give the following formulae, which are practically identical with those previously described, with the exception that the bulk has been altered accordingly.

"AGFA"-PYRO AMMONIA FORMULA.

Solution No. 1.

Water	10	ozs.
"Agfa"-Pyrogallic Acid	1	oz.
Citric Acid	40	grs.
Sodium Sulphite (Cryst)	2	ozs.

Solution No. 2.

Water	10	ozs.
Ammonia Bromide	½	oz.
Ammonia (880)	1	oz.

For use, 1 dram of No. 1, 1 dram of No.2 and 6 ozs. of water are taken.

"AGFA"-PYRO SODA FORMULA.

Solution No. 1.

Water	80	ozs.
"Agfa"-Pyrogallic Acid	1	oz.
Citric Acid	40	grs.
Sodium Sulphite (Cryst)	2	ozs.

Solution No. 2.

Water	80	ozs.
Sodium Sulphite (Cryst)	8	ozs.
Sodium Carbonate (Cryst)	8	ozs.

For studio work the most suitable developer is made by taking 2 ozs. of No. 1, 2 ozs. of No. 2 and 2 ozs. of water.

Formulae for Developing Papers

Argo Developing Papers.

'AGFA"-METOL HYDROKINONE FORMULA.

Water	16	ozs.
"Agfa"-Metol	20	grs.
"Agfa"-Hydrokinone	30	grs.
Sodium Sulphite (Anhyd)	120	grs.
Sodium Carbonate	240	grs.
Potassium Bromide 10 per cent	25	drops.

"AGFA"-AMIDOL FORMULA.

Water	16	ozs.
"Agfa"-Amidol	40	grs.
Sodium Sulphite (Anhyd)	120	grs.
Potassium Bromide, 10 per cent	25	drops.

"AGFA"-METOL-ACETATE FORMULA.

Water	16	ozs.
"Agfa"-Metol	15	grs.
"Agfa"-Hydrokinone	20	grs.
Sodium Sulphite (Anhyd)	160	grs.
Sodium Acetate	260	grs.

"AGFA"-METOL HYDRO ANTI-FRICTION FORMULA.

Water	16	ozs.
"Agfa"-Metol	24	grs.
"Agfa"-Hydrokinone	80	grs.
Argo Soda	480	grs.

"AGFA"-RODINAL FORMULA.

Rodinal	1	oz.
Water	15-20	ozs.

Potassium Bromide 10 per cent. 3 drops per ounce of solution

Artura Papers.

"AGFA"-METOL HYDROKINONE FORMULA.

Water	20	ozs.
"Agfa"-Metol	14	grs.
Sulphite of Soda (Dry)	½	oz.
"Agfa"-Hydrokinone	60	grs.
Carbonate of Soda (Dry)	½	oz.

When ready to develop add one drop of a *saturated solution* of Bromide of Potash to each two ounces of developer.

"AGFA"-AMIDOL FORMULA.

Water	8	ozs.
Sulphite of Soda (Dry)	80	grs.
"Agfa"-Amidol	20	grs.

When ready to develop add one drop of a *saturated solution* of Bromide of Potash to each two ounces of developer.

"AGFA"-RODINAL FORMULA.

Water	20	ozs.
"Agfa"-Rodinal	1	oz.

When ready to develop add one drop of a *saturated solution* of Bromide of Potash to each four ounces of developer.

"AGFA"-ORTOL-HYDROKINONE FORMULA.

Water	20	ozs.
"Agfa"-Ortol	15	grs.
Sulphite of Soda (Dry)	½	oz.
"Agfa"-Hydrokinone	45	grs.
Carbonate of Soda (Dry)	½	oz.

When ready to develop add one drop of a *saturated solution* of Bromide of Potash to each ounce of developer.

"AGFA"-EIKONOGEN-HYDROKINONE FORMULA.

No. 1.

Water	48	ozs.
Sulphite of Soda (Dry)	2	ozs.
"Agfa"-Eikonogen	240	grs.
"Agfa"-Hydrokinone	60	grs.

No. 2.

Water	16	ozs.
Carbonate of Soda (Dry)	2	ozs.

For use take three parts of No. 1 and one part of No. 2.

When ready to develop add one drop of a *saturated solution* of Bromide of Potash to each four ounces of developer.

Note that these developer formulas call for the use of a *saturated solution* of Bromide of Potash *instead of the* 10 *per cent solution.*

The foregoing developers are given with special reference to Artura Iris, which is the most widely used brand of Artura papers.

They are, however, suitable for all other brands of Artura papers, excepting in the case of the "Agfa"-Metol-Hydrokinone developer, where we would recommend the use of 20 ounces of water in place of 40 when used for other brands than Iris.

At least enough Bromide of Potash should be used to insure clear whites. *Increasing the amount of Bromide will increase the amount of olive tone in the prints. This applies to all developing agents.*

With "Agfa"-Eikonogen Hydrokinone developer, increasing the amount of Bromide will increase the contrast of the print.

With the other developers, increasing the amount of Bromide will not affect the contrast of the print.

Astro Developing Papers.

"AGFA"-METOL HYDROKINONE FORMULA.

Water (Warm)	20	ozs.
"Agfa"-Metol	25	grs.
"Agfa"-Hydrokinone	120	grs.
Sodium Sulphite (Anhyd)	1	oz.
Sodium Carbonate (Anhyd)	1¾	ozs.

Allow to stand 24 hours before using; if used too fresh it works flat.

In working use: Developer, 4 ounces; water, 6 ounces; Potassium Bromide, 10 per cent., 8 to 10 drops.

To much Bromide or exhausted developer will cause greenish or brownish blacks.

"AGFA"-RODINAL FORMULA.

Rodinal	1	oz.
Water	15-20	ozs.

Potassium Bromide 10 per cent. 3 drops per oz. of solution.

Azo Developing Papers.

"AGFA"-METOL HYDROKINONE FORMULA.

Water	10	ozs.
"Agfa"-Metol	7	grs.
"Agfa"-Hydrokinone	30	grs.
Sodium Sulphite	110	grs.
Sodium Carbonate	200	grs.
Potassium Bromide, 10 per cent	40	drops.

"AGFA"-RODINAL HYDROKINONE FORMULA.

Solution A.

Water	20	ozs.
"Agfa"-Hydrokinone	2	drams.
Citric Acid	5	grs.
Sodium Sulphite	1	oz.
Potassium Bromide	1	dram.

Solution B.

Water	20	ozs.
"Agfa"-Rodinal	1	oz.
Potassium Carbonate	2	ozs.

For soft effects take equal parts A, B and water.
For strong effects take equal parts A and B.

Barnet Developing Papers.

"AGFA"-METOL HYDROKINONE FORMULA.

Water	80	ozs.
"Agfa"-Metol	200	grs.
Sodium Sulphite	6	ozs.
"Agfa"-Hydrokinone	150	grs.
Potassium Carbonate	2	ozs.
Potassium Bromide	50	grs.

For soft prints dilute the above with an equal amount of water.

Cyko Developing Papers.

"AGFA"-METOL HYDROKINONE FORMULA.

Water (Distilled)	32	ozs.
"Agfa"-Metol	15	grs.
Sodium Sulphite (Powdered)	1	oz.
"Agfa"-Hydrokinone	60	grs.
Sodium Carbonate (Granular)	¾	oz.
Potassium Bromide	4	grs.

"AGFA"-METOL HYDROKINONE FOR PROFESSIONAL USE.

Water (Warm)	1½	gals.
"Agfa"-Metol	½	oz.
Sodium Sulphite (Anhyd)	16	ozs.
"Agfa"-Hydrokinone	2	ozs.
Sodium Carbonate (Anhyd)	12	ozs.
Potassium Bromide	45	grs.

Dissolve each chemical thoroughly in order named. This stock solution will keep indefinitely in full bottles, tightly stoppered. For use, take one part Stock Solution to two parts water.

All glossy papers are subject to abrasion or friction marks. The developer prepared as per formula above can be rendered non-abrasive by adding 6 grains Potassium Iodide to each ounce of Stock Solution. The Iodide has a tendency to reduce the contrast of the print.

NOTE.—This formula will give blue-black tones. If warm black tones are desired, add ½ oz. of Potassium Bromide to the Stock Solution.

"AGFA"-ORTOL HYDROKINONE FORMULA.

Those who object to Metol may use the following formula:

Warm Water (Soft or Distilled)	1½	gals.
"Agfa"-Ortol	1	oz.
Sodium Sulphite (Anhyd)	16	ozs.
"Agfa"-Hydrokinone	1½	ozs.
Sodium Carbonate (Anhyd)	12	ozs.
Potassium Bromide	45	grs.

Eastman's Permanent Bromide Papers.

"AGFA"-METOL HYDRO FORMULA.

Stock Solution.

Dissolve chemicals in order named, stirring constantly:

Hot Water	100	ozs.
"Agfa"-Metol	½	oz.
"Agfa"-Hydrokinone	2	ozs.
Sulphite of Soda (Desiccated)	7½	ozs.
Carbonate of Soda (Desiccated)	12½	ozs.
Bromide of Potassium (Cryst)	120	grs.

In cold weather, immediately after dissolving chemicals, add 13 ounces of wood alcohol to the above Stock Solution to prevent precipitation.

The above formula should be prepared with desiccated soda, preferably Eastman's; if crystals are used, double the quantity of both Sulphite and Carbonate of Soda.

This concentrated developer will keep indefinitely in full bottles well stoppered.

TO DEVELOP.

Take in a suitable tray:

Concentrated Solution	1	oz.
Water	6	ozs.

This amount is sufficient to develop six 8x10 prints, or their equivalent.

"AGFA"-AMIDOL FORMULA.

Concentrated Solution.

The concentrated stock solution is prepared by dissolving in succession

Water	12	ozs.
Sulphite Soda (Desiccated)	½	oz.
"Agfa"-Amidol	½	oz.

Enough of this stock solution should be prepared at one time for only one day's use.

TO DEVELOP.

Take in a suitable tray:

Concentrated Stock Solution	1½	ozs.
Bromide Potassium, 10 per cent Solution	8	drops.
Water	6	ozs.

Use developer at a temperature of about 70 degrees Fahr. After exposure, soak the paper in water until limp and brush lightly over the surface, while wet, with a tuft of cotton and flow developer over the print.

The time of development should not be less than one minute. Prolonged development will give yellow high-lights and stains.

When the shadows are sufficiently black, pour off the developer and rinse the print thoroughly with pure water. Increasing the amount of Bromide Potassium given in our formulae is sometimes necessary to prevent grayish high-lights.

Ilford Bromide and Gaslight Papers.

"AGFA"-METOL HYDROKINONE FORMULA.

Solution No. 1.

Water	20	ozs.
"Agfa"-Metol	50	grs.
"Agfa"-Hydrokinone	25	grs.
Sodium Sulphite	1	oz.

Solution No. 2.

Water	20	ozs.
Sodium Carbonate (Cryst)	1	oz.
Potassium Bromide	30	grs.

For use mix equal parts No. 1 and No. 2.

"AGFA"-AMIDOL FORMULA.

Water	10	ozs.
"Agfa"-Amidol	25	grs.
Sodium Sulphite	½	oz.

Potassium Bromide as required. For Bromide and Bromona Papers add 4 drops Potassium Bromide 10% solution to each ounce of developer; for Gaslight Papers add 1 drop to each 2 ounces.

"AGFA"-METOL HYDRO FORMULA FOR GASLIGHT PAPERS.

Water	10	ozs.
"Agfa"-Metol	5	grs.
Sodium Sulphite	½	oz.
"Agfa"-Hydrokinone	20	grs.
Sodium Carbonate (Cryst)	½	oz.
Potassium Bromide, 10 per cent. Solution	10	drops.

Karbo Developing Papers.

"AGFA"-METOL HYDROKINONE FORMULA.

Water	40	ozs.
"Agfa"-Metol	30	grs.
"Agfa"-Hydrokinone	120	grs.
Sodium Sulphite (Dried)	1	oz.
Sodium Carbonate (Dried)	1	oz.
Potassium Bromide, 10 per cent. Solution	¾	oz.

Use this developer full strength for contrasty papers and post-cards, and reduce it with an equal quantity of water for portrait papers, in which softer effect and warmer tone are desired.

It is sometimes desirable, in the above formula, to add a larger quantity of Hydrokinone, which gives a stronger print showing more contrast.

Kruxo Developing Papers.

"AGFA"-METOL HYDROKINONE FORMULA.

Water	32	ozs.
"Agfa"-Metol	16	grs.
Sodium Sulphite (Dried)	300	grs.
"Agfa"-Hydrokinone	48	grs.
Sodium Carbonate (Dried)	½	oz.

To this add one drop of saturated solution of Bromide of Potassium to each ounce of developer.

SEPIA TONES.

When Sepia tones are desired we would recommend the following formula. A normal exposure with this developer will give a warm black tone. To obtain Sepia color all that is necessary to do is to increase the exposure to five times normal exposure:

Water	40	ozs.
"Agfa"-Eikonogen	20	grs.
Sodium Sulphite (Dried)	300	grs.
"Agfa" Hydrokinone	30	grs.
Sodium Carbonate (Dried)	300	grs.

To this add one drop or two of saturated solution of Potassium Bromide to each ounce of developer. Fix in the regular Acid-Hypo fixing bath and wash in the usual way.

Metalotype Developing Papers.

"AGFA"-METOL HYDROKINONE FORMULA.

Water	16	ozs.
"Agfa"-Metol	20	grs.
Sodium Sulphite (Anhyd)	120	grs.
"Agfa"-Hydrokinone	30	grs.
Sodium Carbonate (Anhyd)	240	grs.
Potassium Bromide, 10 per cent. Solution	25	drops.

"AGFA"-AMIDOL FORMULA.

Water	16	ozs.
"Agfa"-Amidol	40	grs.
Sodium Sulphite	240	grs.
Potassium Bromide, 10 per cent. Solution	5-10	drops.

Monox Bromide Papers.

"AGFA"-AMIDOL FORMULA.

Water	24	ozs.
"Agfa"-Amidol	60	grs.
Sodium Sulphite (Cryst)	1	oz.

To every 8 ounces of above developer add 10 drops of a 10% solution of Potassium Bromide. For very strong negatives Potassium Bromide should be omitted, and the developer weakened by increasing the amount of water. For soft, weak negatives the quantity of Potassium Bromide may be doubled.

"AGFA"-METOL HYDROKINONE FORMULA.

Water	30	ozs.
"Agfa"-Metol	20	grs.
"Agfa"-Hydrokinone	90	grs.
Sodium Sulphite (Cryst)	1½	ozs.
Sodium Carbonate (Cryst)	2½	ozs.
Potassium Bromide, 10 per cent. Solution	1	dram.

Nepera Developing Papers.

"AGFA"-METOL HYDRO FORMULA.

Hot Water	100	ozs.
"Agfa"-Metol	½	oz.
"Agfa"-Hydrokinone	1½	ozs.
Sodium Sulphite (Desiccated)	7½	ozs.
Sodium Carbonate (Desiccated)	12½	ozs.
Potassium Bromide (Cryst)	120	grs.

In cold weather, immediately after dissolving chemicals, add 13 ounces of wood alcohol to the above stock solution to prevent precipitation.

The above may be rendered non-abrasion by the addition of 10 grs. of Commercial Iodide of Potassium to each ounce of stock solution.

"AGFA"-ORTOL HYDRO FORMULA.

Hot Water	100	ozs.
"Agfa"-Ortol	½	oz.
"Agfa"-Hydrokinone	1½	ozs.
Sodium Sulphite (Desiccated)	7½	ozs.
Sodium Carbonate (Desiccated)	12½	ozs.
Potassium Bromide (Cryst)	38	grs.

The above may be rendered non-abrasion by the addition of 5 grs. of Commercial Iodide of Potassium to each ounce of stock solution.

P. M. C. Bromide Papers.

"AGFA"-METOL HYDRO FORMULA.

Water	48	ozs.
"Agfa"-Metol	½	dram.
Sodium Sulphite (Anhyd)	10	drams.
"Agfa"-Hydrokinone	2	drams.
Potassium Bromide	1	dram.
Sodium Carbonate	20	drams.

To Develop Use.

Stock Solution	1½	ozs.
Potassium Bromide, 10 per cent. Solution	8	drops.
Water	6	ozs.

For very strong negatives the Potassium Bromide should be omitted and the developer weakened by increasing the amount of water. For soft, weak negatives the quantity of Potassium Bromide may be doubled.

Use developer at a temperature of about 70 degrees Fahr. After exposure soak the paper in clear water until limp, brush lightly over the surface while wet with a tuft of cotton and then flow developer over the print.

Velox Developing Papers.

"AGFA"-METOL HYDRO FORMULA.

Water	10	ozs.
"Agfa"-Metol	7	grs.
"Agfa"-Hydrokinone	30	grs.
Sodium Sulphite (Anhyd)	110	grs.
Sodium Carbonate (Anhyd)	200	grs.
Potassium Bromide, 10 per cent. Solution	40	drops.

This solution will keep indefinitely if placed in bottles filled to the neck and tightly corked.

It should be used full strength for "Regular," but can be diluted with equal parts of water when "Special" Velox is developed.

It is important that the temperature of the developing solution should be 70 degrees Fahr. In summer, if found necessary to cool the developer, do not place ice in the solution, as it will dilute it. Place the tray containing the developer into one of larger size, packing ice around it.

The above may be rendered non-abrasion by addition of 10 grs. of Commercial Iodide of Potassium to each ounce of stock solution.

Wellington Bromide Papers.

"AGFA"-AMIDOL FORMULA.

Water	16	ozs.
Sodium Sulphite	650	grs.
"Agfa"-Amidol	50	grs.
Potassium Bromide	10	grs.

Some people keep a stock solution of Sodium Sulphite, and take some of this when wanted and add the Amidol to it. Long experience shows that this will not do, as Amidol when used with stale Sulphite solution develops very slowly, and there is a great loss of brilliancy in the prints. The developer should, therefore, be mixed up as directed and used within three days of mixing.

"AGFA"-METOL HYDROKINONE FORMULA.

Water	16	ozs.
"Agfa"-Metol	50	grs.
Sodium Sulphite	500	grs.
"Agfa"-Hydrokinone	15	grs.
Potassium Carbonate	100	grs.
Potassium Bromide	10	grs.

The Metol must be dissolved in water first, and then the other ingredients added in the order named. This developer keeps very well in properly corked bottles.

Whatever developer is used, the print becomes flatter and more of a brownish or greenish color the more Bromide there is present in the developer. A weak or highly strained developer with a full exposure wields a softer and grayer result. Vigorous images, with good, rich blacks, can only be obtained by giving a short but sufficient exposure, and developing with a strong but slightly restrained developer, such as those given.

Wellington Gaslight Papers.

"AGFA"-AMIDOL FORMULA.

The ingredients should be dissolved in the order named, the Sulphite being dissolved before the "Agfa"-Amidol is added.

Water	8	ozs.
Sodium Sulphite	500	grs.
"Agfa"-Amidol	50	grs.
Potassium Bromide	2	grs.

This developer, which gives brilliant blue-black tones, will only keep good for three days. After that time it should be discarded, and fresh made up.

"AGFA"-METOL-HYDROKINONE FORMULA.

The ingredients should be dissolved in the order named, the water should be cold, and one should be dissolved before adding the next.

Water	8	ozs.
"Agfa"-Metol	10	grs.
Sodium Sulphite	350	grs.
Sodium Carbonate	350	grs.
"Agfa"-Hydrokinone	30	grs.
Potassium Bromide	3	grs.

This developer keeps indefinitely in well-stoppered bottles.

The Making Up of Development Solutions

If distilled water only were used in making solutions of developer, half the troubles of development would be avoided. If river water is taken it should be boiled, cooled and filtered before mixing, as it generally contains much vegetable and other organic matter. Well water that is free from iron and sulphur, and not too alkaline, may be used without boiling. Melted ice is good, but should be filtered.

The developer should be made up with reliable chemicals to an established formula strictly according to instructions. When a convenient way of making up the solution has been fixed upon, these particular weights and measures should be used thereafter. This procedure should be so much a habit, and the confidence in the materials used (this includes the water) should be so based upon past experience or in the guarantee of reliable people, that the developer should be the last place to look for trouble. A great many troubles laid at the door of the developer are the results of mistakes in exposure and lighting. The worker should be sure that his lighting ought to give him the desired contrasts and that his exposures are sufficient and not too great, before blaming the developer.

Miscellaneous Formulae

NEGATIVE VARNISH.

Gum Sandarac	1	oz.
Gum Shellac	2	ozs.
Alcohol or Methylated Spirits	20	ozs.

When dissolved, decant and filter.

The negative should be slightly warmed before the varnish is applied.

RETOUCHING VARNISH.

Alcohol	60 parts.
Sandarac	10 parts.
Camphor	1 part.
Castor Oil	2 parts.
Venice Turpentine	1 part.

DEAD BLACK VARNISH.

for blackening the inside of camera, tube, dark slides, etc.

Alcohol	8	ozs.
Lampblack	2	ozs.
Shellac	1	oz.

HOW TO BLACKEN DIAPHRAGMS, ETC.

Nitric Acid	4	ozs.
Copper Wire	¼	oz.

When dissolved add 1¼ ozs. of water.

The diaphragms, etc., must be cleaned and heated and then immersed in the acid bath. Take out and brush all the green off, until the article shows black.

CLEARING BATH FOR PYRO STAINS.

Water	16	ozs.
Iron Sulphate	3	ozs.
Sulphuric Acid	¼	oz.
Alum	1	oz.

Pyro stains on fingers may be removed by rubbing with a large crystal of Citric Acid directly after development, before the fingers have been dried.

HOW TO REMOVE SILVER STAIN FROM NEGATIVES.

Water	1	oz.
Iodine	10	grs.
Potassium Iodide	40	grs.

When the Iodine is dissolved add while stirring a few drops of a strong solution of hypo, until the solution becomes colorless. Apply to the spot with a tuft of cotton, rubbing *gently*. Rinse well and dry.

HARDENING SOLUTION.

Water	30	ozs.
Formalin	1	oz.

Immersing the negative for a few minutes in this solution will render the gelatine perfectly insoluble, so that the negative can be dried by artificial heat.

TEST FOR PRESENCE OF HYPO.

Potassium Permanganate	2	grs.
Potassium Carbonate	20	grs.
Distilled Water	40	ozs.

This forms a rose-colored solution. To test for presence of hypo in prints or negatives after final washing, allow negatives to drip into a small quantity of this solution; if no change occurs no hypo is present; if the solution turns olive the prints or negatives require further washing.

"PER CENT." SOLUTIONS.

In each fluid ounce of a

1 per cent. Solution there is	4.37	grs.
2 per cent. Solution there is	8.74	grs.
3 per cent Solution there is	13.11	grs.
4 per cent. Solution there is	17.48	grs.
5 per cent Solution there is	21.85	grs.
6 per cent Solution there is	26.22	grs.

7 per cent. Solution there is	30.59	grs.
8 per cent. Solution there is	34.96	grs.
9 per cent Solution there is	39.33	grs.
10 per cent. Solution there is	43.70	grs.
15 per cent. Solution there is	65.55	grs.
20 per cent. Solution there is	86.40	grs.
25 per cent. Solution there is	108.25	grs.
30 per cent Solution there is	131.10	grs.
35 per cent. Solution there is	152.95	grs.
40 per cent. Solution there is	174.80	grs.
45 per cent. Solution there is	196.65	grs.
50 per cent. Solution there is	218.50	grs.

BRILLIANT FINISH FOR BROMIDES.

Pure White Wax	1	oz.
Dammar Varnish	200	mms.
Spirits of Turpentine	1	oz.

Rub a little on print and polish with a stiff brush.

Weights and Measures

According to Existing Standards

UNITED STATES WEIGHTS AND MEASURES.

FLUID.

Gallon.		Pints.		Ounces.		Drachms.		Mimims.		Cubic Centimetres.
1	=	8	=	128	=	1,024	=	61,440	=	3,785.435
		1	=	16	=	128	=	7,680	=	473.179
				1	=	8	=	480	=	29.574
						1	=	60	=	3.697

Sixteen ounces, or a pint, is sometimes called a fluid pound.

TROY WEIGHT.

Pound.		Ounces.		Pennyweights.		Grains.		Grams.
1	=	12	=	240	=	5,760	=	373.24
		1	=	20	=	480	=	31.10
				1	=	24	=	1.56

APOTHECARIES' WEIGHT.

Pound.		Ounces.		Drachms.		Scruples.		Grains.		Grams.
1	=	12	=	96	=	228	=	5,760	=	373.24
		1	=	8	=	24	=	480	=	31.10
				1	=	3	=	60	=	3.89
						1	=	20	=	1.30
								1	=	.06

The pound, ounce and grain are the same as in Troy weight.

AVOIRDUPOIS WEIGHT.

Pound		Ounces.		Drachms.		Grains (Troy)		Grams.
1	=	16	=	256	=	7,000	=	453.60
		1	=	16	=	437.5	=	28.35
				1	=	27.34	=	1.77

ENGLISH WEIGHTS AND MEASURES.

APOTHECARIES' WEIGHT.

20 Grains	=	1 Pound	=	20 Grains
3 Scruples	=	1 Scruple	=	60 Grains
8 Drachms	=	1 Drachm	=	480 Grains
12 Ounces	=	1 Ounce	=	5760 Grains

FLUID MEASURE.

60 Minims	=	1 Fluid Drachm
8 Drachms	=	1 Fluid Ounce
20 Ounces	=	1 Pint
8 Pints	=	1 Gallon

The above weights are usually adopted in formulas.

All Chemicals are usually sold by

AVOIRDUPOIS WEIGHT.

27 11/32	Grains	=	1 Drachm	=	27 11/32	Grains
16	Drachms	=	1 Ounce	=	437½	Grains
16	Ounces	=	1 Pound	=	7000	Grains

Precious Metals are usually sold by

TROY WEIGHT.

24 Grains	=	1 Pennyweight	=	24 Grains
20 Pennyweights	=	1 Ounce	=	480 Grains
12 Ounces	=	1 Pound	=	5760 Grains

NOTE.—An ounce of metallic silver contains 480 grains, but an ounce of Nitrate of Silver contains only 437½ grains.

UNITED STATES FLUID MEASURE.

Gal.	Pints.	Ounces.	Drachms.	Mins.	Cub. In.	Grains.	Cub. C. M.
1 =	8 =	128 =	1,024 =	61,440 =	231. =	58,328.886 =	3,785.44
	1 =	16 =	128 =	7,680 =	28.875 =	7.291.1107 =	473.18
		1 =	8 =	480 =	1.8047 =	455.6944 =	29.57
			1 =	60 =	0.2256 =	56.9618 =	3.70

IMPERIAL BRITISH FLUID MEASURE.

Gal.	Pints.	Ounces.	Drachms.	Mins.	Cub. In.	Grains.	Cub. C. M.
1 =	8 =	160 =	1,280 =	76,800 =	277.27384 =	70,000 =	4,543.732
	1 =	20 =	160 =	9,600 =	34.65923 =	8,750 =	567,966
		1 =	8 =	480 =	1.73296 =	473.5 =	28.398
			1 =	60 =	0.21662 =	54.69 =	3.550

HANDY EMERGENCY WEIGHTS.

In an emergency, coins may be used as weights. The weights given in the following table are near enough for all ordinary purposes:

Dime	40 grs.
Cent	50 grs.
Nickel	80 grs.
One-quarter Dollar	100 grs.
One-half Dollar	200 grs.
One Dollar	400 grs.

By simple addition and subtraction a great many different weights can be made with these coins. For instance, to obtain a weight of 10 grains, place a cent on one side of the scales and a dime on the other, and then add enough of the chemical to balance it.

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Success in Photography

Depends very largely on the paper you use. Kruxo is the one paper that will give you the best prints possible to secure from any negative, whether it be normal, thin and weak or strong and contrasty. Kruxo has every good quality to be found in any printing-out paper and many desirable qualities peculiar to itself. Kruxo is the only paper on every grade of which it is possible to secure sepia tones in first development. Sepias—as easy to make as black and white prints if you use—

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OUR FREE BOOKLET

Tells HOW photographic chemicals act; HOW to modify developer formulas to obtain special effects; HOW to obtain sepia tones in first development; HOW to print from wet negatives; HOW to choose the right paper for each negative.

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