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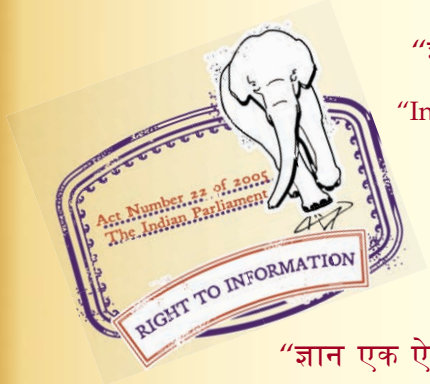

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CODE OF PRACTICE FOR THE PROCESSING OF MICROTRANSPARENCIES (MICROFILMS AND MICROFICHE) (SILVER HALIDE)

(First Revision)

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CODE OF PRACTICE FOR THE PROCESSING OF MICROTRANSPARENCIES (MICROFILMS AND MICROFICHE) (SILVER HALIDE)

(First Revision)

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(*Continued on page* 8)

Indian Standard

CODE OF PRACTICE FOR THE PROCESSING OF MICROTRANSPARENCIES (MICROFILMS AND MICROFICHE) (SILVER HALIDE)

(First Revision)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 11 January 1985, after the draft finalized by the Documentation Sectional Committee had been approved by the Executive Committee.

0.2 Microfilms are being increasingly used in archives, libraries, documentation and information centres, laboratories and various departments of the government, trade and industry in India. The useful life of micro-images depends upon the physical and chemical stability of the film base, photosensitive material and its processing. Only safety base films are suitable for medium term and archival storage. Black and white silver halide images, if properly processed, are stable and permanent.

0.2.1 Though colour photographic, diazo and vesicular films have been successfully stored, under suitable conditions for 25-30 years, these are, however, not considered of archival permanence.

0.3 This code was originally published in 1966. The present revision takes into consideration developments in techniques and practices in reprographics.

0.4 In the preparation of this code, considerable assistance has been derived from ISO/R 421-1965 'Method for indicating the stability of the images of processed black-and-white films, plates and papers, issued by the International Organization for Standardization.

NOTE — The qualitative methods of test prescribed in this standard for residual thiosulphate and silver compounds contents and for light stability are equivalent to the test methods given in this International Standard.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated,

expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This code covers the processing of microfilms (silver halide) intended for medium term storage (25-30 years) and specifies requirements (*see* 7) for microfilms intended for long term storage (permanent/ archival value).

2. PROCESSING CHEMICALS AND WATER

2.1 The chemicals used shall be of photographic grade and shall conform to the relevant Indian Standards.

2.2 Water for preparing solutions for processing and washing of films shall be free from suspended and dissolved impurities.

NOTE — Potable water is normally satisfactory.

3. DEVELOPING

3.1 The microfilms, after exposure, shall be processed in accordance with the recommendations of the manufacturer.

4. WASHING

4.1 Washing shall ensure that the residual hypo content is low enough to satisfy the test specified in Appendix A.

5. DRYING

5.1 The microfilms shall be air-dried in an atmosphere free of dust and smoke, as also gases, vapours and fumes having deleterious effect on the film.

5.2 Use of chemicals and direct heat for rapid drying shall be avoided. However, drying in a current of warm air is permissible.

6. GENERAL CONSIDERATIONS

6.1 The processed film shall be free from scratches, smudges, watermarks, finger-prints, stains, spots, pin-holes, tears, reticulation and any other visual defects.

* Rules for rounding off numerical values (*revised*).

6.2 The film shall not be subjected to any post-processing treatment, which is likely to affect the stability of the processed film, such as toning, intensification and reduction.

7. ADDITIONAL REQUIREMENTS FOR MICROFILMS FOR LONG TERM USE (PERMANENT VALUE)

7.1 The residual hypo content of the microfilms after complete processing shall be not more than 8 mg of anhydrous sodium thiosulphate/m^2 when tested in accordance with IS : 6212-1971*.

NOTE 1 — This test shall be conducted within 24 hours of processing of the microfilm.

NOTE 2 — The 'methylene blue method', specified in ISO 417-1977 Photography — Determination of thiosulphate and other residual chemicals in processed photographic films, plates and papers — Methylene blue photometric method and silver sulphide densitometric method may also be used. This method is more reproducible and can be conducted any time after the processing of the microfilm.

7.1.1 When the comparative test (*see* Appendix B) is used for ascertaining the effect of residual thiosulphate, the material shall be reported satisfactorily stable for archival purposes, if any changes occurring in image colour or density are comparable to the changes in the standard sample.

7.2 The microfilms, after complete processing, shall be tested for residual silver compounds in accordance with the test given in Appendix C. Any change in tint of the processed film shall be not more than that of the standard sample.

7.3 The microfilm, after complete processing, when subjected to light stability test as described in Appendix D, shall show no more changes in colour than the standard sample.

7.4 The microfilm shall be stored in accordance with the requirements of IS : 3130 - 1985†.

8. STANDARD SAMPLE

8.1 A strip of microfilm of the same type as under test, exposed and developed for the same period and fixed twice in two fresh fixing baths consisting of 250 g of hypo in one litre of water, shall form the stardard sample. The standard sample, after fixing, shall be washed in running water for one hour and then air-dried.

*Method for the determination of residual thiosulphate in processed black and white photographic films and plates.

†Code of practice for handling and storage of microtransparencies (microfilm and microfiche) (silver halide) (*second revision*).

8.1.1 The residual hypo content of the standard sample may be evaluated according to the method prescribed in 7.1 and shall not be more than 8 mg anhydrous sodium thiosulphate/m^2.

APPENDIX A
(*Clause* 4.1)

QUALITATIVE TEST FOR HYPO ELIMINATION IN FILMS

A-1. PROCEDURE

A-1.1 After washing, cut off a clear portion of non-image area of the film and immerse it into a small quantity of test solution prepared as follows. The chemicals used shall be of photographic grade and shall conform to the relevant Indian Standards:

Water	750 ml
Glacial acetic acid	35 ml
Silver nitrate	7·5 g

Make up the solution to 1 000 ml by adding more water. After immersion for three minutes, well washed films should show very little or no discoloration.

A-1.1.1 The test solution should be stored in a well-stoppered brown bottle away from strong light.

APPENDIX B
(*Clause* 7.1.1)

TESTS FOR EFFECT OF THIOSULPHATE AND OTHER RESIDUAL CHEMICALS

B-1. PROCEDURE

B-1.1 The test specimen, along with the standard sample (*see* **8**) perforated on one side and supported on a glass rod, is suspended in a closed glass vessel. The sample shall not touch either the glass walls or the other suspended samples. The atmosphere in the vessel is maintained at 37·8°C ± 0·3°C and 94 ± 4 percent relative humidity. Any change in image colour or density, after 30 days' incubation, shall be comparable to that of the standard sample.

APPENDIX C
(*Clause* 7.2)

TEST FOR RESIDUAL SILVER COMPOUNDS

C-1. PROCEDURE

C-1.1 Apply a drop each of freshly prepared 0·2 percent solution of sodium sulphide to a clear area of the image side of:

a) the processed film under test, and

b) standard sample as described in **8**.

C-1.2 Wash away or blot up the reagent areas of test and the standard samples for any change in tint.

C-1.3 The spot-treated area of the processed film shall show no more than just a perceptible tint which shall be comparable to the standard sample.

APPENDIX D
(*Clause* 7.3)

TEST FOR LIGHT STABILITY

D-1. PROCEDURE

D-1.1 A representative sample of the processed microfilm together with a standard sample for comparison as described in **8** shall be exposed to actinic rays (with respect to silver compounds) such as, provided in a colour Fadeometer or other exposure apparatus of similar ultraviolet distribution, for 36 hours. Any change in colour (hue or density) in the test specimen shall not be more than that in the standard sample.

(*Continued from page* 2)

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