

INTERNATIONAL STANDARD

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Photography — Determination of the curl of photographic film and paper

*Photographie — Détermination de l'incurvation des films et papiers
photographiques*



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Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 4330 was prepared by Technical Committee ISO/TC 42, *Photography*.

This third edition cancels and replaces the second edition (ISO 4330:1987), of which it constitutes a technical revision. It has been modified to include photographic paper and provides a method of measuring the degree of cupping.

Annex A of this International Standard is for information only.

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International Organization for Standardization
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Introduction

Curl is a basic property of photographic film and paper which can influence acceptability in many applications. High curl can lead to problems in printing, projection and handling.

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Photography — Determination of the curl of photographic film and paper

1 Scope

This International Standard specifies methods for determining and expressing quantitatively the curl characteristics of unprocessed and processed photographic film and paper in sheet, roll, or strip forms.

It specifies three measuring methods: method A involves the determination of curl when the specimen is held in a vertical position, methods B and C with the specimen in a horizontal position. Values for the three methods are not comparable because of the differences in specimen configuration and size.

These methods are not intended for use in determining the curl characteristics of photographic materials during processing or drying.

2 Definitions

For the purposes of this International Standard, the following definitions apply.

2.1 curl: Departure from physical flatness and characterized with respect to curl direction (L, T, D or C), curl sign (+ or –) and curl value. This flatness defect is evident by a tendency of film or paper to coil into a cylindrical shape.

2.2 curl direction: Means of identifying by letter L, T, D or C the direction of curl about a specific axis of a specimen corresponding to that of the sample from which it is taken.

L represents “lengthwise curl” about the axis perpendicular to the length or machine direction of the specimen for rolls or to the longer specimen dimension for sheets. An alternative approach when the machine direction is not known is to reference the curl direction to a film notch, if present.

T represents “transverse curl” about the axis parallel to the length or machine direction of the specimen.

D represents “diagonal curl” about the diagonal of the specimen.

C represents “cupping” when all four corners of the specimen are raised and bent towards the centre of the specimen.

See figure 1.

2.3 curl sign: Mathematical sign, + or –, used to indicate the direction of curl which, if toward the emulsion (sensitized) side (emulsion-in) is + or, if toward the base (emulsion-out), is –. The sign is always plus for materials sensitized on both surfaces.