

ICS 13.030.50; 85.060

**Papier, Pappe und Faserstoff –
Recycling –
Bestimmung von klebenden und nicht klebenden Verunreinigungen in
Altpapier-Halbstoffen und darauf basierenden Papieren mittels
Nahinfrarot-Messverfahren;
Text Englisch**

Paper, board and pulps –
Recycling –
Determination of stickies and non-tacky contaminants in recycled pulps and papers applying
near-infrared measurement;
Text in English

Papier, carton et pâtes –
Recyclage –
Détermination de stickies et de contaminants non-collants dans les pâtes et papiers recyclés
par mesurage dans l'infrarouge proche;
Texte en anglais

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Das vorliegende Dokument wurde nach den Verfahrensregeln einer PAS erstellt.

Gesamtumfang 14 Seiten

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Foreword

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This document has been developed and adopted by the initiator(s) and authors named below:

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A draft of this DIN SPEC (PAS) has not been published.

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For the international documents cited in this document, reference is made below to the equivalent German documents:

ISO 216	see	DIN EN ISO 216
ISO 534	see	DIN EN ISO 534
ISO 536	see	DIN EN ISO 536
ISO 638	see	DIN EN ISO 638
ISO 4119	see	DIN EN ISO 4119
ISO 5263-2	see	DIN EN ISO 5263-2
ISO 5269-1	see	DIN EN ISO 5269-1
ISO 5269-2	see	DIN EN ISO 5269-2
ISO 5270	see	DIN EN ISO 5270

Introduction

Tacky particles, commonly named stickies, are a major issue in paper recycling since they can affect the processes as well as the quality of the recycled products. Therefore, a variety of test methods have been developed over decades. Existing laboratory test procedures for sticky contaminants in pulps made from paper for recycling or in recycled papers require an elaborate sample preparation to increase the concentration of these sticky contaminants by screening the pulp through a slotted plate and analysing the rejects. With the test procedure and equipment based on this DIN SPEC, the content of sticky contaminants can be determined at a laboratory handsheet or at the paper by means of near-infrared (NIR) measurement.

The approach of the measurement specified in this DIN SPEC is different to the established test methods since the amount and the chemical composition of polymeric substances are determined by applying NIR measurements. The content of these substances, which are typical constituents of adhesives are assigned as stickies. This is a further major difference to the existing methods, which typically analyse the sticky behaviour, but not the chemical composition. The results determined applying the method specified in this DIN SPEC correlate very well with established sticky measurement techniques, e.g. ISO 15360-2 [4] or INGEDE Method 4 [5]. The measurement procedure according to this DIN SPEC also enables to simultaneously analyse polymeric substances without tacky behaviour, typically named “plastics” in other methods.

1 Scope

This document specifies a method for the determination of stickies and non-tacky contaminants from a handsheet or from a sheet of paper applying near-infrared measurement. This document is applicable to recycled pulps and papers.

Sampling of pulp and paper as well as the preparation of handsheets are not part of this document.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 216, *Writing paper and certain classes of printed matter — Trimmed sizes — A and B series, and indication of machine direction*

ISO 534, *Paper and board — Determination of thickness, density and specific volume*

ISO 536, *Paper and board — Determination of grammage*

ISO 4119, *Pulps — Determination of stock concentration*

ISO 5263-2, *Pulps — Laboratory wet disintegration — Part 2: Disintegration of mechanical pulps at 20 °C*

ISO 5269-1, *Pulps — Preparation of laboratory sheets for physical testing — Part 1: Conventional sheet-former method*

ISO 5269-2, *Pulps — Preparation of laboratory sheets for physical testing — Part 2: Rapid-Köthen method*

ISO 5270, *Pulps — Laboratory sheets — Determination of physical properties*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

DIN and DKE maintain terminological databases for use in standardization at the following addresses:

- DIN-TERMinologieportal: available at <https://www.din.de/go/din-term>
- DKE-IEV: available at <http://www.dke.de/DKE-IEV>

3.1

stickies

diverse group of materials that are retained on a laboratory screen of given slit aperture (100 µm or 150 µm), and which adhere to objects which they touch

Note 1 to entry: Stickies can adhere to objects at ambient conditions or they can adopt adhesive characteristics when subjected to elevated temperature, elevated pressure or change of pH.

Note 2 to entry: The following is a non-exhaustive list of stickies: products derived from residues of materials such as inks, tars, hot melts, waxes and multivalent metal ion soaps or different types of pressure-sensitive adhesives (tapes).

Note 3 to entry: A stickie particle can be a composite of adhesive material together with non-adhesive plastic fragments and cellulosic fibres.

Note 4 to entry: Stickies according to DIN SPEC 6745 are polymeric substances, which are usually found in adhesives.

[SOURCE: ISO 15360-2:2015, term 3.1, modified — Note 4 to entry added]

3.2

non-tacky contaminant

polymeric substance which is usually not found in adhesives, excluding cellulosic materials and inorganic substances

Note 1 to entry: ISO 15360-2 defines these substances as “plastics”.