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Aschaffenburg, 31 May 2022

From: Be-pf/ci
Authorized by: Behrendt

REPORT

Order No.: 16384/22 **Page 1 of 3 pages**

Client: Hangzhou Todaytec Digital Co., Ltd.
600 Kangxin Road, Hangzhou,
Qianjiang Economy Development Zone
Linping Hangzhou, 311106
China

Date of order: 9 December 2021

Receipt of sample material: 24 January 2022

Origin of sample material: From the client

Purpose: Analysis of a thermal transfer ribbon for its compliance with the demands on food contact materials

(Höfert)
Officially certified
and authorized food
chemist

(Behrendt)
Officially certified
and authorized food
chemist

The present report exclusively refers to the samples mentioned. It meets the requirements of the DIN EN ISO/IEC 17025:2018 for simplified test reports. Additional information and statistical data on the results are available upon request.

DAkkS
Deutsche
Akkreditierungsstelle
D-PL-14160-01-01
D-PL-14160-01-02

Geschäftsführer: Dr. Ralph Derra . Handelsregister Aschaffenburg HRB 3329
Die Veröffentlichung von Ergebnissen unserer Arbeiten und Gutachten sowie die Verwendung für Werbezwecke bedürfen – auch auszugsweise – unserer schriftlichen Genehmigung. Erfüllungsort und Gerichtsstand Aschaffenburg.

Sample Material

For analysis the following sample material was in hand:

TDM660, 33mm x 200m, INK INSIDE

Carrying out of the Tests

Examination period: 31 January 2022 to 22 February 2022

1. Determination of the Specific Migration into Tenax® *

The determination was performed as a single-fold determination according to the series of standards EN 1186:2002-07, in connection with the prEN 1186-2:2020-05, the prEN 1186-3:2020-05 as well as the EN 13130-1:2004-08. If required, the CEN/TS 14234:2003-01 as well as CEN/TS 14235:2003-01 were considered.

The test simulants as well as the contact conditions were chosen in accordance with the requirements of annex III and V of Regulation (EU) No 10/2011.

Conditions: 10 days at 40 °C

Test simulants: Tenax® (food simulant E)

Testing procedure: Between thermal layer and Tenax, a wrapping paper of approx. 20 g/m² was used.

Subsequently, the volatile components adsorbed onto Tenax were extracted.

1.1. Gas chromatographic Analysis

The determination was performed according to SOP 160.200 by means of GCMS after extraction with methyl *tert*-butylether.

a) Sum of the volatile components

The volatile components were summarized semi-quantitatively using deuterated nonadecane as internal standard.

Result: 1.6 mg/dm²

b) Screening

Further signals in the chromatogram were evaluated semi-quantitatively using deuterated nonadecane as internal standard; for their identification a commercially available mass spectra library was used.

Result:

Unidentifiably aromatic compounds (sum)		0.09	mg/dm²
Dicyclohexyl phthalate	[84-61-7]	1.4	mg/dm²

2. Determination of Volatile Organic Compounds (Headspace-GC/MS-Screening) *

The determination was performed according to SOP 160.200 by means of head space chromatography and mass spectrometric detection after a storage of 60 minutes at 80 °C. The air space above the sample material was examined for volatile components and was identified against a spectrum library and additionally according to the retention times. A semiquantitative estimation of the signals was performed against the internal standard trichlorotrifluoroethane.

Result:

Toluene	0.15	mg/m²

3. Determination of Polycyclic Aromatic Hydrocarbons (PAH)

The determination was performed according to SOP 162.200 by means of HPLC-fluorescence. The following compounds were considered:

Naphthalene	[91-20-3]	Benzo[a]anthracene	[56-55-3]
Acenaphthylene	[208-96-8]	Chrysene	[218-01-9]
Acenaphthene	[83-32-9]	Benzo[b]fluoranthene	[205-99-2]
Fluorene	[86-73-7]	Benzo[k]fluoranthene	[207-08-9]
Phenanthrene	[85-01-8]	Benzo[a]pyrene	[50-32-8]
Anthracene	[120-12-7]	Dibenzo[a,h]anthracene	[53-70-3]
Fluoranthene	[206-44-0]	Benzo[g,h,i]perylene	[191-24-2]
Pyrene	[129-00-0]	Indeno[1,2,3-c,d]pyrene	[193-39-5]

Limit of quantitation: Acenaphthylene and Indeno[1,2,3-c,d]pyrene 0.6 mg/kg each
all further substances pyrene 0.3 mg/kg each

Result:

None of the above-listed compounds were quantifiable.

The accreditation applies to the methods marked with * in the test report (Register no. D-PL-14160-01-01 and D-PL-14160-01-02).

End of report