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Aschaffenburg, 11 November 2011

From: Zarthe
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REPORT

Order No.: 4349/19 **Page 1 of 4 pages**

Client: iimak International Imaging Materials Europe bvba
Liesdonk 5B
2440 Geel / Belgium

Date of order: 12 September 2011

Receipt of sample material: 14 September 2011

Origin of sample material: From the client

Purpose: Analysis of thermal transfer ribbons for their compliance
with the demands on food contact materials


(Dr. Derra)


(Zarthe)
Officially certified
diplomaed food chemist

The present report refers exclusively to the samples as laid out therein. Information and statistical data on the results can be obtained on request.

Non-accredited determinations have not been validated at the date of the accreditation. Individual determinations were not intended for accreditation owing to their restricted field of application. In these cases, the necessary accuracy for the evaluation is ensured by the internal quality management system.

Sample Material

For analysis the following sample material was in hand:

Sample 1: Art.-Nr.: FMA030NS Netcolour Spot Silver
Sample 2: Art.-Nr.: FMA030NF Net Flex Black
Sample 3: Art.-Nr.: FMA030KW Netcolour Spot White

Carrying out of the Tests

Examination period: 17 October 2011 to 10 November 2011

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

The determination was performed 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.

Besides, it was tested for the listed solvents on the basis of the standard EN 13628-1 for the examination of flexible packaging materials as well as for volatile monomers. If not stated differently, the quantification was performed against the internal standard trichlorotrifluoroethane.

Result:

Sample 1:

Evaluation of direct quantified compounds:

Ethanol	not determinable	<	0.2	mg/m ²
Isopropanol	not determinable	<	0.2	mg/m ²
Hexane	not determinable	<	0.2	mg/m ²
Ethyl acetate	not determinable	<	0.2	mg/m ²
1-Ethoxy-2-propanol	not determinable	<	0.2	mg/m ²
Butyl acetate	not determinable	<	0.2	mg/m ²
Hexanal	not determinable	<	0.2	mg/m ²
Cyclohexanone	not determinable	<	0.2	mg/m ²
Benzene	not determinable	<	0.04	mg/m ²
Toluene			0.33	mg/m ²

Evaluation of the compounds quantified against the internal standard:

Octane	0.03	mg/m ²
Alkane	0.04	mg/m ²
Alkane	0.03	mg/m ²
Alkane	0.05	mg/m ²
m-/p-Xylene	0.06	mg/m ²
o-Xylene	0.03	mg/m ²

The following compounds were not determinable in the corresponding chromatograms:

Residual solvents:

Acetone	< 0.2	mg/m ²
2-Butanone	< 0.2	mg/m ²
1-Butanol	< 0.2	mg/m ²
Isobutanol	< 0.2	mg/m ²
Isopropyl acetate	< 0.2	mg/m ²
Methanol	< 0.2	mg/m ²
1-Methoxy-2-propanol	< 0.2	mg/m ²
Methyl acetate	< 0.2	mg/m ²
Methyl-tert-butylether	< 0.2	mg/m ²
1-Propanol	< 0.2	mg/m ²

Monomers:

Butyl acrylate	< 0.01	mg/dm ²
Ethyl acrylate	< 0.01	mg/dm ²
Ethylhexyl acrylate	< 0.01	mg/dm ²
Methyl acrylate	< 0.01	mg/dm ²
Butyl methacrylate	< 0.01	mg/dm ²
Isobutyl methacrylate	< 0.01	mg/dm ²
Methyl methacrylate	< 0.01	mg/dm ²
Styrene	< 0.01	mg/dm ²
alpha-Methylstyrene	< 0.01	mg/dm ²

Aromatics:

Ethylbenzene	< 0.04	mg/m ²
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Sample 2:

Evaluation of direct quantified compounds:

Ethanol	not determinable	< 0.2	mg/m ²
Isopropanol	not determinable	< 0.2	mg/m ²
Hexane	not determinable	< 0.2	mg/m ²
Ethyl acetate	not determinable	< 0.2	mg/m ²
1-Ethoxy-2-propanol	not determinable	< 0.2	mg/m ²
Butyl acetate	not determinable	< 0.2	mg/m ²
Hexanal	not determinable	< 0.2	mg/m ²
Cyclohexanone	not determinable	< 0.2	mg/m ²
Benzene	not determinable	< 0.04	mg/m ²
Toluene		0.84	mg/m ²

Evaluation of the compounds quantified against the internal standard:

2-Propenol	0.02	mg/m ²
1-Propanol	0.03	mg/m ²
2-Butanone	0.02	mg/m ²
1-Methoxy-2-propylacetate	0.02	mg/m ²
m-/p-Xylene	0.01	mg/m ²

The following compounds were not determinable in the corresponding chromatograms:

Residual solvents:

Acetone	< 0.2	mg/m ²
1-Butanol	< 0.2	mg/m ²
Isobutanol	< 0.2	mg/m ²
Isopropyl acetate	< 0.2	mg/m ²
Methanol	< 0.2	mg/m ²
1-Methoxy-2-propanol	< 0.2	mg/m ²
Methyl acetate	< 0.2	mg/m ²
Methyl-tert-butylether	< 0.2	mg/m ²

Monomers:

Butyl acrylate	< 0.01	mg/dm ²
Ethyl acrylate	< 0.01	mg/dm ²
Ethylhexyl acrylate	< 0.01	mg/dm ²
Methyl acrylate	< 0.01	mg/dm ²
Butyl methacrylate	< 0.01	mg/dm ²
Isobutyl methacrylate	< 0.01	mg/dm ²
Methyl methacrylate	< 0.01	mg/dm ²
Styrene	< 0.01	mg/dm ²
alpha-Methylstyrene	< 0.01	mg/dm ²

Aromatics:

Ethylbenzene	< 0.04	mg/m ²
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2. Determination of the Migration into Tenax (Modified Polyphenylene Oxide) *

The determination was carried out according to the methods for the "Examination of consumer goods" corresponding to the directives B 80.30, 1 to 3 (EG) of the Official Collection of Analytical Methods according to § 64 LFGB and according to the rules of the series of standards EN 1186, EN 13130 and CEN/TS 14234 „Materials and articles in contact with foodstuffs - Plastics“.

The migration was performed as a single-fold determination.

Conditions: 24 hours at 40 °C

Testing procedure: The storage of the sample in indirect contact with Tenax was conducted in a closed system with a distance of approximately 1 cm to the Tenax.

The volatile components adsorbed onto tenax were extracted with diethyl ether and summarized by means of gas chromatography and mass spectrometric detection using deuterated nonadecane (C₁₉) as an internal standard. For the identification of further signals in the chromatogram, a commercially available mass spectra library was used and, if not stated differently, the signals were also quantified against the internal standard.

Result:

Sample 3:

Sum of the volatile components: not detected < 0.1 mg/dm²

No further compounds could be detected.

The accreditation applies to the methods marked with * in the test report (Register no. D-PL-14160-01-00).

End of report