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From: Behrendt/Nickl  
hoe

## REPORT

**Order No.:** 5063/1 **Page 1 of 5 pages**

**Client:** Sika Services AG  
BU Contractors  
Tüffenwies 16  
8048 Zurich / Switzerland


**Date of order:** 1 July 2009

**Receipt of sample material:** 1 July 2009

**Origin of sample material:** From Sika Deutschland, Stuttgart, Germany

**Purpose:** Analysis of four flooring product grades for their compliance with the demands on food contact materials

  
(Dr. Derra)

  
(Nickl)  
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:	SR 20N PurCem
Sample 2:	SR 21N PurCem
Sample 3:	SR 31N PurCem
Sample 4:	SR 29N PurCem

## Carrying out of the Tests

Examination period: 17 July 2009 to 4 August 2009

### 1. Determination of the Overall Migration \*

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“.

If not stated differently, the results are given as average values of determinations in duplicate.

A Conditions: 2 hours at 40 °C

Test simulants: acetic acid 3 % (w/w)  
ethanol 10 % (v/v)

Testing procedure: total immersion

Results:

Sample 1:	acetic acid 3 % (w/w)	154 mg/dm <sup>2</sup>
	ethanol 10 % (v/v)	11 mg/dm <sup>2</sup>

B Conditions: 2 hours at 40 °C

Test simulants: Tenax® (modified polyphenylene oxide)

Testing procedure: one-sided contact (upper side)

The portion adsorbed onto tenax was determined gravimetrically after extraction with diethyl ether. The measurement result is the average value of a single determination.

Results:

Sample 1:	0.8	mg/dm <sup>2</sup>
Sample 2:	1.2	mg/dm <sup>2</sup>
Sample 3:	0.3	mg/dm <sup>2</sup>
Sample 4:	0.4	mg/dm <sup>2</sup>

## 2. Determination of the Specific Migration

The determination was performed in the same food simulants and after a storage period as indicated in point 1.

**Primary Aromatic Amines:** The migration solution was cleaned and concentrated on solid-phase columns. The determination was performed by means of HPLC and UV detection.

Result:

A Conditions with acetic acid 3 % (w/w):

Sample 1:

4-Aminoazobenzene	not determinable	< 0.0001	mg/dm <sup>2</sup>
o-Aminoazotoluene	not determinable	< 0.0001	mg/dm <sup>2</sup>
4-Aminodiphenyl	not determinable	< 0.0001	mg/dm <sup>2</sup>
2-Amino-4-nitrotoluene	not determinable	< 0.0001	mg/dm <sup>2</sup>
Aniline	not determinable	< 0.0001	mg/dm <sup>2</sup>
o-Anisidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
Benzidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
4-Chloroaniline	not determinable	< 0.0001	mg/dm <sup>2</sup>
4-Chloro-o-toluidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,4-Diaminoanisole	not determinable	< 0.0001	mg/dm <sup>2</sup>
4,4'-Diaminodiphenylmethane		0.0096	mg/dm <sup>2</sup>
3,3'-Dichlorobenzidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
3,3'-Dimethoxybenzidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
3,3'-Dimethyl-4,4'-diaminodiphenylmethane	not determinable	< 0.0001	mg/dm <sup>2</sup>
p-Cresidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
4,4'-Methylene-bis(2-chloroaniline)	not determinable	< 0.0001	mg/dm <sup>2</sup>
4,4'-Thiodianiline	not determinable	< 0.0001	mg/dm <sup>2</sup>
o-Toluidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,4-Toluylenediamine	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,6-Toluylenediamine	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,4,5-Trimethylaniline	not determinable	< 0.0001	mg/dm <sup>2</sup>
1,3-Phenylenediamine	not determinable	< 0.0003	mg/dm <sup>2</sup>
4,4'-Oxydianiline	not determinable	< 0.0001	mg/dm <sup>2</sup>
1,5-Diaminonaphthalene	not determinable	< 0.0001	mg/dm <sup>2</sup>
3,3'-Dimethylbenzidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
2-Naphthylamine	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,4-Dichloroaniline	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,4-Dimethylaniline	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,4'-Diaminodiphenylmethane		0.0050	mg/dm <sup>2</sup>
2,4,5-Trimethylaniline		0.0001	mg/dm <sup>2</sup>
Unknown <sup>1)</sup>		0.002	mg/dm <sup>2</sup>

<sup>1)</sup> The quantification was performed as aniline. A clear identification could not be carried out.

A Conditions with acetic acid 3 % (w/w):

Sample 2:

4-Aminoazobenzene	not determinable	< 0.0001	mg/dm <sup>2</sup>
o-Aminoazotoluene	not determinable	< 0.0001	mg/dm <sup>2</sup>
4-Aminodiphenyl	not determinable	< 0.0001	mg/dm <sup>2</sup>
2-Amino-4-nitrotoluene	not determinable	< 0.0001	mg/dm <sup>2</sup>
Aniline	not determinable	< 0.0001	mg/dm <sup>2</sup>
o-Anisidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
Benzidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
4-Chloroaniline	not determinable	< 0.0001	mg/dm <sup>2</sup>
4-Chloro-o-toluidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,4-Diaminoanisole	not determinable	< 0.0001	mg/dm <sup>2</sup>
4,4'-Diaminodiphenylmethane		0.020	mg/dm <sup>2</sup>
3,3'-Dichlorobenzidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
3,3'-Dimethoxybenzidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
3,3'-Dimethyl-4,4'-diaminodiphenylmethane	not determinable	< 0.0001	mg/dm <sup>2</sup>
p-Cresidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
4,4'-Methylene-bis(2-chloroaniline)	not determinable	< 0.0001	mg/dm <sup>2</sup>
4,4'-Thiodianiline	not determinable	< 0.0001	mg/dm <sup>2</sup>
o-Toluidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,4-Toluylenediamine	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,6-Toluylenediamine	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,4,5-Trimethylaniline	not determinable	< 0.0001	mg/dm <sup>2</sup>
1,3-Phenylenediamine	not determinable	< 0.0003	mg/dm <sup>2</sup>
4,4'-Oxydianiline	not determinable	< 0.0001	mg/dm <sup>2</sup>
1,5-Diaminonaphthalene	not determinable	< 0.0001	mg/dm <sup>2</sup>
3,3'-Dimethylbenzidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
2-Naphthylamine	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,4- Dichloroaniline	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,4- Dimethylaniline	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,4'-Diaminodiphenylmethane		0.0095	mg/dm <sup>2</sup>
2,4,5-Trimethylaniline		0.0003	mg/dm <sup>2</sup>
Unknown <sup>1)</sup>		0.0045	mg/dm <sup>2</sup>

A Conditions with acetic acid 3 % (w/w):

Sample 3:

4-Aminoazobenzene	not determinable	< 0.0001	mg/dm <sup>2</sup>
o-Aminoazotoluene	not determinable	< 0.0001	mg/dm <sup>2</sup>
4-Aminodiphenyl	not determinable	< 0.0001	mg/dm <sup>2</sup>
2-Amino-4-nitrotoluene	not determinable	< 0.0001	mg/dm <sup>2</sup>
Aniline	not determinable	< 0.0001	mg/dm <sup>2</sup>
o-Anisidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
Benzidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
4-Chloroaniline	not determinable	< 0.0001	mg/dm <sup>2</sup>
4-Chloro-o-toluidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,4-Diaminoanisole	not determinable	< 0.0001	mg/dm <sup>2</sup>
4,4'-Diaminodiphenylmethane		0.0065	mg/dm <sup>2</sup>
3,3'-Dichlorobenzidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
3,3'-Dimethoxybenzidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
3,3'-Dimethyl-4,4'-diaminodiphenylmethane	not determinable	< 0.0001	mg/dm <sup>2</sup>
p-Cresidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
4,4'-Methylene-bis(2-chloroaniline)	not determinable	< 0.0001	mg/dm <sup>2</sup>

4,4'-Thiodianiline	not determinable	< 0.0001	mg/dm <sup>2</sup>
o-Toluidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,4-Toluylenediamine	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,6-Toluylenediamine	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,4,5-Trimethylaniline	not determinable	< 0.0001	mg/dm <sup>2</sup>
1,3-Phenylenediamine	not determinable	< 0.0003	mg/dm <sup>2</sup>
4,4'-Oxydianiline	not determinable	< 0.0001	mg/dm <sup>2</sup>
1,5-Diaminonaphthalene	not determinable	< 0.0001	mg/dm <sup>2</sup>
3,3'-Dimethylbenzidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
2-Naphthylamine	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,4- Dichloroaniline	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,4- Dimethylaniline	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,4'-Diaminodiphenylmethane		0.0057	mg/dm <sup>2</sup>
2,4,5-Trimethylaniline		0.0001	mg/dm <sup>2</sup>
Unknown <sup>1)</sup>		0.0006	mg/dm <sup>2</sup>

A Conditions with acetic acid 3 % (w/w):

Sample 4:

4-Aminoazobenzene	not determinable	< 0.0001	mg/dm <sup>2</sup>
o-Aminoazotoluene	not determinable	< 0.0001	mg/dm <sup>2</sup>
4-Aminodiphenyl	not determinable	< 0.0001	mg/dm <sup>2</sup>
2-Amino-4-nitrotoluene	not determinable	< 0.0001	mg/dm <sup>2</sup>
Aniline	not determinable	< 0.0001	mg/dm <sup>2</sup>
o-Anisidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
Benzidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
4-Chloroaniline	not determinable	< 0.0001	mg/dm <sup>2</sup>
4-Chloro-o-toluidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,4-Diaminoanisole	not determinable	< 0.0001	mg/dm <sup>2</sup>
4,4'-Diaminodiphenylmethane		0.019	mg/dm <sup>2</sup>
3,3'-Dichlorobenzidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
3,3'-Dimethoxybenzidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
3,3'-Dimethyl-4,4'-diaminodiphenylmethane	not determinable	< 0.0001	mg/dm <sup>2</sup>
p-Cresidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
4,4'-Methylene-bis(2-chloroaniline)	not determinable	< 0.0001	mg/dm <sup>2</sup>
4,4'-Thiodianiline	not determinable	< 0.0001	mg/dm <sup>2</sup>
o-Toluidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,4-Toluylenediamine	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,6-Toluylenediamine	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,4,5-Trimethylaniline	not determinable	< 0.0001	mg/dm <sup>2</sup>
1,3-Phenylenediamine	not determinable	< 0.0003	mg/dm <sup>2</sup>
4,4'-Oxydianiline	not determinable	< 0.0001	mg/dm <sup>2</sup>
1,5-Diaminonaphthalene	not determinable	< 0.0001	mg/dm <sup>2</sup>
3,3'-Dimethylbenzidine	not determinable	< 0.0001	mg/dm <sup>2</sup>
2-Naphthylamine	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,4- Dichloroaniline	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,4- Dimethylaniline	not determinable	< 0.0001	mg/dm <sup>2</sup>
2,4'-Diaminodiphenylmethane		0.0069	mg/dm <sup>2</sup>
2,4,5-Trimethylaniline		0.0002	mg/dm <sup>2</sup>
Unknown <sup>1)</sup>		0.0029	mg/dm <sup>2</sup>