



INSTITUT NEHRING GmbH - Bismarckstr. 7 - 38102 Braunschweig

Optiplan GmbH
Am Johannisberg 13

D-08606 Oelsnitz

2003-06-26
page 1 of 5

Your ref.
13.03.2003

Our ref./document
STGM11-063 (4780800)

telephone
0531-23899-0

Translation of our test report stst09-063 of June 15, 2003

Examination of POLYDET Grip Star

You asked us to examine the product **POLYDET Grip Star** with respect to current food legislation.

According to your information the material is intended to be used for the manufacture of floors for cooling warehouses and cooling transport containers for foodstuff.

In order to carry out the examinations we received 6 test panels, DIN A4, which were produced according to your informations as follows:

According to your information the food contact side (rough side) is composed according to your information of UP resin based on o-phthalic acid, glass filament mat, organic peroxide, colour paste and quartz sand.

According to your information the material will be produced in continuously and cured at approx. 125-130 °C.

The test specimen were brought into contact with aqueous and nonaqueous solvents under test conditions which are suitable to simulate the influence of foodstuff.

The conditions for testing were applied in accordance to Council Directive of December 19, 1985 (85/572/EEC), Commission Directive of July 29, 1997 (97/48/EU) and the German adoption of the above mentioned requirements into ASU-method B 80.30 (1+2) (official collection of analytical methods according to § 35 LMBG).

According to Directive 97/48/EU Annex III and IV the overall migration into the alternative fat simulant isooctane was determined.

PROCEDURE OF THE EXAMINATIONS

1. Overall migration

The overall migration was determined as dry residue of the migrates. The organic components of the dry residue were determined as their chloroform soluble parts according to the announcement of the BfR Plastics Commission.

2. Analysis of the migrates

The migrates were analysed for o-phthalic acid by RP-HPLC and UV detection.

3. Analysis of the laminate

The laminate was analysed for peroxide on the surface according to the recommendation XII of the BfR Plastics Commission.

4. Determination of solvent retention

The material was analysed for residual solvent styrene by head space gaschromatography with mass specific detector. The quantification has been carried out using an external standard.

5. Colour release

According to the procedure described in Council of Europe Resolution AP (89) 1 the colour release has been tested with 3 % acetic acid and coconut fat for 5 h at 50 °C. White filter paper soaked with the test solutions has been checked for visible changes of the colour.

6. Sensoric evaluation

The test specimen were brought into contact with flavour sensitive test solutions. The contact was carried out at various time/temperature conditions and a surface/volume ratio of 1 cm² : 2 ml. The sensoric evaluation was carried out as triangle tests by a taste panel with particular experience. As blanks we used the solvents which had not been in contact with the material. The evaluation was carried out in accordance to DIN 10 955 (German Institute for Normalisation).

RESULTS OF THE EXAMINATIONS

1. Overall migration (swimming)

Simulants	t/T conditions	Dry residue of migrates mg/dm ²	chloroform soluble parts of dry residue mg/dm ²
dist. water	1 h 40 °C 10 d 40 °C	2,1	1,3
		14,2	10,1
3 % acetic acid	1 h 40 °C 10 d 40 °C	2,7	0,9
		19,9	8,1
10 % ethanol	1 h 40 °C 10 d 40 °C	3,3	1,1
		22,1	11,5
isooctane	2 d 20 °C	1,4	-

2. Analysis of the migration

t/T condition: 10 d 40 °C

	Simulants	Results
o-phthalic acid	3 % acetic acid	2,1 mg/dm ²

n.d. = not detectable

3. Analysis of the laminate

photometry

	Results
peroxide on the surface	n.d. (< 3,2 ppm active oxygen)

n.d. = not detectable

4. Solvent retention

Headspace GC/MS

	Incubation	Results
styrene	0,5 h 100 °C	1 mg/dm ²
styrene	0,5 h 40 °C	0,34 mg/dm ²

n.d. = not detectable

Document STGM11-063.DOC of 2003-06-26, page 4 of 5

5. Colour release

Test conditions	Results
3 % acetic acid 5 h 50 °C	no alteration of colour detectable
coconut fat 5 h 50 °C	no alteration of colour detectable

4. Sensoric evaluation

simulants t/T conditions	surface/volume ratio	appearance	odour	flavour
tap water 1 h 40 °C	1 cm ² : 2 ml 1 cm ² : 10 ml	0 0	0 0	1,0 0,7
tap water 10 d 40 °C	1 cm ² : 10 ml	0	2,3	2,3

0 = no deviation detectable
1 = deviation slightly detectable
2 = slight deviation
3 = considerable deviation
4 = strong deviation

EVALUATION

1. Overall migration

The dry residues of the migrates are low and well below the limit mentioned in Resolution AP (96) 5 of the Council of Europe. This applies to the overall migrates as well as to their chloroform soluble parts. They are also lower than the limits mentioned in CFR 21 § 175.300 of the US FDA Regulations concerning resinous coatings.

2. Analysis of the migrates

The analysis of the migrates showed no specific migration of o-phthalic acid which could give reason for concerns.

3. Analysis of the laminate

The laminate surface does not contain detectable residue of peroxide.

Document STGM11-063.DOC of 2003-06-26, page 5 of 5

4. Determination of solvent retention

Under test conditions of 0,5 h 40 °C styrene has been detected in low concentration which do not give any reasons for concerns.

5. Sensoric evaluation

The sensoric evaluation under long time contact conditions at room temperature showed deviations which could give reason for doubts concerning creation of off-odours or off-flavours in food. But there was no critical diffusion of colours and/or turbidity detectable.

Under short time contact conditions at room temperature the sensoric evaluation showed no deviation which could give reason for doubts concerning of oof-odours or off-flavours. Also there was no critical diffusion of colours and/or turbidity detectable.

According to the results of our evaluation the material **POLYDET Grip Star** complies under circumstances of destined and foreseeable use as floor panels for cooling warehouses and cooling containers under short time contact conditions at room temperature with requirements of § 31 (1) of the German Food and Commodities Law (LMBG). Under conditions of appropriate application and under circumstances of destined and expected use at short time contact at ambient temperature it does not add to food any particles and/or components which are harmful to human health, which alter odour or flavour of food.

At long time contact (≥ 24 hours) migration at a level which gives reason for concern has to be expected. According to the results of our evaluation the material **POLYDET Grip Star** is not suitable for long time food contact.

INSTITUT NEHRING GmbH

Dr. Ulrich Nehring

