

# Certificate

## Food regulatory evaluation of ViskoTeepak's printed Wienie-Pak® cellulose casing

Customer:	ViskoTeepak Belgium NV 3920 Lommel Belgium
Order No:	PA-1382-21
Samples:	printed sausage casings, cellulose based, with printing shades given in Table 1, with or without logo print
Total pages of certificate:	4
Date of certificate:	18.03.2022

ViskoTeepak's Wienie-Pak® casings are cellulose based casings. The casings shall be used at different processing and storage conditions including e.g. stuffing, reddening, drying smoking, cooking and ripening as described in detail in test reports PA/5311/20. The intended applications include the packaging of cheese, meat and sausage products (e.g. dry sausages).

Compliance of the cellulose casings with the regulatory safety requirements of Article 3 of the European Framework Regulation (EC) No 1935/2004 was investigated for representative or worst case samples (with respect to components of the colorants and their use levels). For this purpose, ViskoTeepak disclosed the formulation of the Wienie-Pak® casings to Fraunhofer IVV.

The casings are printed with a printing ink series, which has been confidentially disclosed to Fraunhofer IVV. Information on the printing ink series and the used shades can be found in the reports stated under Fraunhofer IVV order no. PA-1382-21. Additionally, a promoter and a thinner for the printing ink system is used. Components of the promoter, the thinner and the printing ink have been disclosed by the ink supplier.

Additionally, one confidential additive is used for the Wienie-Pak® logo print sample.

The following shades were covered by the evaluation (see Table 1).

Table 1: Printing ink shades of the investigated samples. If no sample material has been available and a theoretical evaluation has been possible, no sample number is given.

Printing ink shade	ViskoTeepak internal ink ID	Sample no. of the representative sample investigated
Yellow 1	Brno-SBI-Yellow 1	26 (PA-1382-21)
Yellow 2	Brno-SBI-Yellow 2	28 (PA-1382-21)
Orange	Brno-SBI-Orange	27 (PA-1382-21)
Red 1	Brno-SBI-Red 1	26, 27, 28 (PA-1382-21)
Black	Brno-SBI-Black	26, 30 (PA-1382-21)
White 1	Brno-SBI-White 1	-
White 2	Brno-SBI-White 2	-
Reflex blue	Brno-SBI-R-blue	-
Cyan	Brno-SBI-Cyan	-
Confidential additive 1	Brno-SBI-Additive 1	Contained in all investigated samples
Confidential additive 2	Brno-SBI-Additive 2	Contained in all investigated samples
Confidential LP additive	Brno-SBI-LP-Additive	1 (PA-2007-21)

Compliance of the printed Wienie-Pak® casings with regard to European and Swiss food regulatory requirements was investigated for representative or worst case samples (with respect to components of the printing ink and their use levels), based on the sample availability at the time of testing.

The sample materials to which this certificate relates to were investigated within Fraunhofer IVV order PA/5311/20, PA-1382-21 and PA-2007-21. In detail, the following parameters were evaluated:

- Investigation of the printed Wienie-Pak® sausage casings for the content of PAHs (Fraunhofer IVV test report PA-1382-21 part 1, dated 17.2.2022)
- Determination of the specific migration of confidential components from the printed Wienie-Pak® sausage casings (Fraunhofer IVV test report PA-1382-21 part 2, dated 14.03.2022)

- Determination of the specific migration of primary aromatic amines from the printed Wienie-Pak® sausage casings (Fraunhofer IVV test report PA-1382-21 part 3, dated 18.03.2022)
- Determination of the content of confidential components from the printed Wienie-Pak® sausage casings (Fraunhofer IVV test report PA-1382-21 part 4, dated 15.03.2022)
- Investigation of the printed Wienie-Pak® sausage casings for volatile, semi-volatile and non-volatile components by non-target screening analysis (Fraunhofer IVV test report PA-1382-21 part 5, dated 18.03.2022)
- Determination of the content of vinylidene chloride in a printed and additivated Wienie-Pak® sausage casings (Fraunhofer IVV test report PA-2007-21, dated 24.11.2021)
- Determination of colour release from Wienie-Pak® sausage casings (Fraunhofer IVV test report PA/5311/20, dated 17.03.2021)

Further substances have been evaluated prior to the analytical work by worst-case calculation, assuming a total transfer of the substances added.

Based on the disclosed formulations of the printing inks and based on the performed non-target screening analyses by Headspace GC-FID/MS on the casing itself and GC-FID/MS and LC-MS on the dichloromethane and 95% ethanol extracts of the casing no indication for the presence of undesired or critical substances related to the used printing inks was given. However, it should be noted that not all of these substances could be identified or that only a tentative identification proposal is available due to the low concentrations of these substances present in the extracts, which is a typical limitation of such non-target screening approaches (Fraunhofer IVV test report PA-1382-21, part 5). For the screening analyses representative samples (with respect to the composition of the printing ink series) were selected.

A specific migration analysis was performed for a confidential additive used in the promoter (Fraunhofer IVV test reports PA-1382-21 parts 2). Additionally the content of polycyclic aromatic hydrocarbons (PAHs) and several confidential additives originating from the printing ink in use was determined (Fraunhofer IVV test reports PA-1382-21 part 1 and 4) that are subject to specific migration limits (SML) according to the European Plastics Regulation (EU) No 10/2011 or that are currently not evaluated for the use in direct contact with foods, respectively.

Furthermore, representative samples were investigated for the migration of primary aromatic amines under worst-case migration conditions (Fraunhofer IVV test reports PA-1382-21, part 3). Additional to the primary aromatic amines listed in the Regulation (EC) No 1907/2006 on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH regulation), the focus was placed on amines, which could be derived from the pigment structure and were probable to be contained in the pigment.

Additionally, the color release of representative printed casings was determined (Fraunhofer IVV test report PA/5311/20). No color release could be observed.

In summary, based on the disclosed formulations, on the manufacturer's and pre-suppliers' regulatory statements of compliance and on the worst-case calculations using customer dosage information, as well as on the performed screening and migration analyses, it can be concluded that the migration of components originating from the investigated printed Wienie-Pak® casings, as listed above, complies with the requirements of Article 3 of the EU Framework Regulation (EC) No 1935/2004 and of Article 49 of the Swiss Regulation 817.023.21 "Lebensmittel- und Gebrauchsgegenständeverordnung" (LVG; dated 01.12.2020) for the intended use as packaging of processed meat products (e.g. ham, salami, bacon, sausages) and natural cheeses.

Fraunhofer Institute  
Process Engineering  
and Packaging

Freising, 18.03.2022

Dr. Diana Kemmer  
(Head Department Product Safety and Analytics)

Petra Schmid  
(Scientist)