

# TEST REPORT

## TÜV SÜD Industrie Service GmbH

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Report No.: **19-F1908-02**

Client: Filbec GmbH  
Mr. Gero Buchhorn  
Edisonstraße 22  
68309, Germany

Sample arrival: 2019-05-07

Internal sample ID: 20190519135 – 20190519138

Project: **Binder GUR 2122 (Celanese)**  
sintered test samples

Test specification: Regulation (EC) No 1935/2004 and German Food and Feed Code (LFGB)

Test period: 2019-05-07 – 2019-06-13

Date: 2019-06-13

Our reference:  
IS-USL-MUC/bs

Document:  
19-F1908-02\_GUR 2122.docx

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### Result:

**The aforementioned material under investigation corresponds, in all points as tested, to the requirements of Regulation (EC) No 1935/2004 and the German Food and Feed Code (LFGB), within the specified range of application.**

This statement is applicable as long as the foreseeable contact conditions have not been altered negatively in terms of the test conditions and the materials meet the qualities tested. The validity of this document expires in the event of changes to legal regulations, reformulation or changes in the manufacturing process or at the latest five years after the date of issue.

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The test results refer exclusively to the units under test.

(Dipl.-Ing. Gabriele Glomsda)  
Head of Department

(Benedikt Schaletzky, State-certified food chemist)  
Technical Expert





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## 1. Subject of the order

The powdery PE binder GUR 2122 (Celanese) shall be used for the production of filter blocks made from activated carbon by Filbec GmbH. In a sinter process the binder is pressed, in combination with activated carbon, to the corresponding blocks. Thus, the binder material should be tested and assessed as specified in Regulation (EC) No 1935/2004 and the German Food and Feed Code (LFGB) with regard to its suitability for the intended contact with water.

The material was therefore subjected to practical migration tests, and the simulants from the tests were assessed for the parameters overall migration and sensory qualities. In accordance with the intended usage, the specified migration conditions only considered contact with water.

## 2. Test samples

Due to its highly hydrophobic character the powdery PE binder is not wetted in contact with water and therefore cannot be immersed for testing. In order to conduct testing with a defined ratio of surface to volume, the client sintered the binder using a typical processing temperature and applying light pressure. This resulted in a sheet with a thickness of about 4 mm (Figure 1). For testing appropriate parts were cut from the sheet, two-sided penetration was accounted for calculating the surface of test samples.

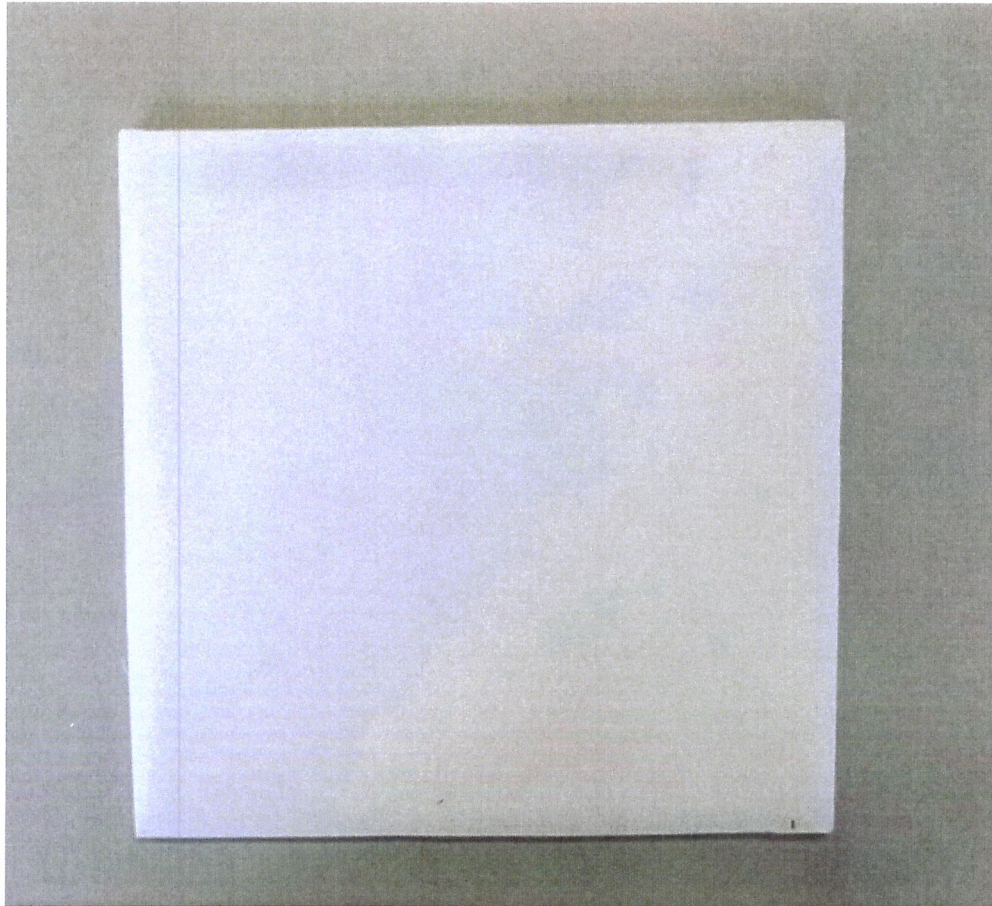


Figure 1: Sintered sheet made of GUR 2122



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### 3. Basis of test and assessment

- (1) Regulation (EC) No 1935/2004 of the European Parliament and of the Council of 2004-10-27 on materials and articles intended to come into contact with food and repealing Directives 80/590/EEC and 89/109/EEC.
- (2) Commission Regulation (EU) No 10/2011 of 2011-01-14 on plastic materials and articles intended to come into contact with food, including amendments.
- (3) German Food and Feed Code (LFGB), edition dated 2013-06-03 (BGBl. I S. 1426), as amended by Article 1 of the Act of 2019-04-24 (BGBl. I S. 498).
- (4) German Consumer Goods Ordinance, edition dated 1997-12-23 (BGBl. 1998 I S. 5), as amended by Article 2(1) of the Regulation of 2016-02-15 (BGBl. I S.198).
- (5) DIN EN 1186-3: 2002-07, Materials and articles in contact with foodstuffs – Plastics – Part 3: Test methods for overall migration into aqueous simulants by total immersion.
- (6) DIN EN ISO 4120: 2007-10, Sensory analysis – Methodology – Triangle test.
- (7) DIN 10955: 2004-06, Sensory analysis – Testing of packaging materials and packages for foodstuffs.

### 4. Documentary check

In terms of its composition, the tested material meets the requirements of the relevant guidelines for plastics intended to come into contact with food (Commission Regulation (EU) No 10/2011, including amendments). This was confirmed to us in the form of a corresponding Manufacturer's Declaration.

According to the confidential formula of the material no specific migration limits must be taken into account.

### 5. Performing the migration tests, and test conditions

In accordance with the intended usage the following simulants were chosen: The overall migration test was carried out with 20 % ethanol, tap water (drinking water quality) was used for determination of the sensory qualities.

The contact time and the test temperature were established according to Commission Regulation (EU) No 10/2011, related to the range of use of the material under test, and were fixed as 10 days at 40 °C for overall migration and 72 hours at 40 °C for sensory test.

The migration tests were conducted with a defined surface to volume ratio (s/v) of 1 dm<sup>2</sup> : 167 ml simulant. The overall migration was carried out a total of three times in succession. At the end of each migration period, the simulant was emptied out and replaced by fresh simulant.

The sensory test was carried out on the test water from the first test period.

### 6. Test results

#### 6.1 Overall migration

The overall migration of the material was determined gravimetrically, by vaporizing the migrates at 105 °C. The average value of two determinations was tabulated.

Table 1: Overall migration

Material	Overall migration				
	Unit	OML	1 <sup>st</sup> test period	2 <sup>nd</sup> test period	3 <sup>rd</sup> test period
GUR 2122	mg/dm <sup>2</sup>	10	1.8	< 1	<1

OML = Overall migration limit according to Commission Regulation (EU) No 10/2011  
 Conformance check for migration values in the 3rd test period.



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## 6.2 Sensory analysis

The test water from the first test period was assessed by sensory evaluation of the parameters odour and taste, in a triangle test against a comparison sample. The comparison sample was subjected to the same storage conditions, but without contact with the material.

**Table 2:** Sensory analysis

Material	Odour	Taste
GUR 2122	1	1

Assessment scale: 0 = no perceptible difference in odour or taste  
1 = just perceptible difference in odour or taste  
2 = slight difference in odour / weak difference in taste  
3 = marked difference in odour or taste  
4 = strong difference in odour or taste

## 7. Summary

The overall migration value determined in the third period, decisive for conformance testing, is below the value of 10 mg/dm<sup>2</sup> required by Commission Regulation (EU) No 10/2011.

With regard to the parameters odour and taste the observed deviations from the reference sample are within the tolerance range according to the LFGB requirements of  $\leq 2.5$  based on the assessment scale on this page.

## 8. Result

The tested material corresponds, in all points as tested, to the requirements of Regulation (EC) No 1935/2004 and the LFGB, within the specified range of application.