# PRODUCT INFORMATION SHEET

## *Dietary Fiber, soluble / insoluble Fiber and Inulin in Breakfast Cereals (Muesli with Fruits)*

*PT originated REFERENCE MATERIAL (RM)*

**Description of the RM**

| | |
|---|---|
| Name / Material of related PT | *DLA ptAU01 (2023) Dietary Fiber, soluble / insoluble Fiber and Inulin in Breakfast Cereals - Sample A* |
| Identifier / LOT | *RM 2023-AU01 A* |
| Expiry date | *August 2027* |
| Matrix | *Muesli with fruits* |
| Physical description | *Powder* |
| Packaging / weight | *Sealed foil pouche / 40 g* |
| Storage conditions | *room temperature, long term cooled 2 - 10°C (dry and dark)* |
| Name and address manufacturer | ***DLA - Proficiency Tests GmbH***<br>*Hauptstr. 80, 23845 Oering, Germany*<br>*Tel. ++49-(0)4532-9183358, Fax. ++49(0)4102-9944976*<br>*eMail. pt@dla-lvu.de, website. www.dla-lvu.de* |

**Composition of Material**

| **Ingredients** | **Amounts*** |
|---|---|
| Breakfast Cereals, Muesli with Fruits<br>Ingredients: Wholemeal oat flakes, cereal flours (rice, corn, millet, wheat, oats), sunflower oil, raw cane sugar, corn syrup, oiled raisins, puffed rice, rice extrudate (rice flour, barley malt flour, sea salt), buckwheat flour, freeze-dried fruits (strawberries, raspberries, blueberries, strawberries, blackberries), black currant, sour cherry), dried fruits (apricots, dates, plums, apples, bananas), rice flour, dried carrot juice concentrate, strawberry extract, sea salt, Ceylon cinnamon, vitamin B1<br>Nutrients** per 100 g: Fat 5,8 g, carbohydrates 70 g therof sugar 5,4 g, protein 11 g, salt 0,05 g<br><br>- thereof fiber (8,2 %) ** | 100 g/100 g<br><br><br><br><br><br><br><br><br><br><br><br>8,2 g/100 g ** |

* Contents according to gravimetric mixture
** Contents calculated according to labels

**Minimum Sample Size**
A minimum sample size of 5 g is recommended for sample preparation.

The homogeneity tests were performed with sample sizes of 5 g (Microtracer analysis)
The mixture homogeneity before bottling was examined 10fold by microtracer analysis. Homogeneity was sufficient with a probability of ≥ 25% (excellent mixture) and a HorRat value in the range of acceptance (0,3 to 1,3) (for more details see final report of PT).

The calculation of the repeatability standard deviations $S_r$ of the participants was also used as an indicator of homogeneity. The coefficient of variation ($CV_r$) for total dietary fiber without inulin (method 1) is approx. 3,5%. Thus, they were similar to the repeatability standard deviations of the corresponding official methods (e.g. ASU methods / EN ISO methods ASU L 00.00-18 / L 16.08-1 / L 17.03-1 and ASU L 00.00-94).

**Reference Values**
All reference values were derived from the related PT round (for more details see final report).

**Reference Values quantitative in g/100g**

| Parameter | Total Dietary Fiber without Inulin | Total Dietary Fiber with Inulin |
|---|---|---|
| | Methods: 1 | Methods: 2, 3 |
| Number of results | 7 | 5 |
| Number of outliers | 0 | 0 |
| ***Assigned Value (Xpt)*** | 8,62 | 9,45 |
| Robust standard deviation | 1,19 | 0,539 |
| Standard uncertainty | 0,563 | 0,302 |
| Target standard deviation $\sigma_{pt}$ | 1,01 | 1,49 |
| ***Target range*** | **6,61 – 10,6** | **6,47 – 12,4** |

Methods:
(1) enzymatic-gravimetric methods like ASU L 00.00-18 (ASU L 17.03-1) or AOAC 991.43 and AOAC 985.29, in which lower results of inulin can occur
(2) enzymatic-gravimetric methods combined with liquid chromatography like AOAC 2009.01, which include inulin
(3) Total Dietary Fiber, as Sum of Insoluble DF, High Molecular Weight Soluble DF, and Low Molecular Weight Soluble DF (AOAC 2017.16)

| Parameter | Insoluble Dietary Fiber | Soluble Dietary Fiber |
|---|---|---|
| | Methods: 1a, 2a, 3a | Methods: 1b, 2b |
| Number of results | 5 | 4 |
| Number of outliers | 0 | 0 |
| ***Assigned Value (Xpt)*** | **6,82** | **1,74** |
| Robust standard deviation | 0,233 | 0,442 |
| Standard uncertainty | 0,130 | 0,276 |
| Target standard deviation $\sigma_{pt}$ | 0,938 | 0,316 |
| ***Target range*** | **4,94 – 8,69** | **1,11 – 2,37** |

Methods:
(1) enzymatic-gravimetric methods like ASU L 00.00-18 (ASU L 17.03-1) or AOAC 991.43 and AOAC 985.29, in which lower results of inulin can occur
(1a + 1b) e.g. inulinase-reaction included
(2) enzymatic-gravimetric methods combined with liquid chromatography like AOAC 2009.01, which include inulin
(2a + 2b) e.g. without inulinase-reaction
(3) Total Dietary Fiber, as Sum of Insoluble DF, High Molecular Weight Soluble DF, and Low Molecular Weight Soluble DF (AOAC 2017.16)
(3a) Insoluble Dietary Fiber (Insoluble DF)

**Intended Use**
- for laboratory use only, no food!
- validation of analytical methods
- control sample for quality control charts
- test material for inter-laboratory comparisons
- no medical use

**Storage Instructions and Handling Information**
The material should be stored as stated on page 1. Before use of the material should be warmed up to room temperature. The content should be mixed thoroughly prior to subsampling (see minimum sample size above). The material should be weighed immediately after opening of the foil pouche/bottle and closed again afterwards in order to avoid uptake of moisture. Frequent freezing and thawing should be avoided as this can lead to changes in the properties of the material. The expiry date of this RM is based on the current knowledge and applies only for proper storage conditions in the originally closed foil pouche/bottle.

**Safety Precautions**
The usual laboratory safety precautions should be applied when working with the RM considering the type of ingredients, parameters and its concentration.

**Data Source**
The material was analyzed by 12 laboratories within the related proficiency test (PT). Different analytical methods have been used.

**Various**
The user must determine the suitability of this RM for its particular purpose. DLA makes no warranty of any kind, expressed or implied, other than its products meet all quality control standards set by DLA. We do not guarantee this product can be used for a special application.

**Date:** 5 August 2024

Dr. Matthias Besler-Scharf (PT-Coordinator)
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