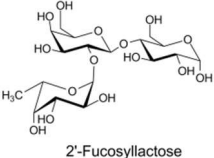


Certificate of Analysis

2'-Fucosyllactose Powder

1) Product description and composition

Synonyms	2'-FL 2'-fucosyl-D-lactose Fuc- α -1,2-Gal- β -1,4-Glc α -L-Fuc-(1- \rightarrow 2)- β -D-Gal-(1- \rightarrow 4)-D-Glc
Formula	C ₁₈ H ₃₂ O ₁₅
Chemical structure	 2'-Fucosyllactose
Molecular weight	488.44 g/mol
CAS No.	41263-94-9
Customer-specific information	

2) Analyses

Parameter	Specifications	Results	Method
Lot No. L-1001-1171900253104617			
Powder Appearance (Colour)	white to ivory-coloured	corresponds	visual
Powder Appearance (Form)	spray-dried powder	corresponds	visual
Solubility in water	min. 500 g/L (25 °C)	soluble	visual
Appearance in Solution	clear, colourless to slightly yellow	corresponds	visual
GMO detection	negative	negative	qPCR
2'-Fucosyllactose	≥ 90 % (%DM)	91.9 %	HPAEC-PAD
Lactose	≤ 5 % (Area)	1.7 %	HPAEC-PAD
3-Fucosyllactose	≤ 5 % (Area)	2.0 %	HPAEC-PAD
Difucosyllactose	≤ 5 % (Area)	2.0 %	HPAEC-PAD
Fucosyl-Galactose	≤ 3 % (Area)	1.6 %	HPAEC-PAD
Glucose	≤ 3 % (Area)	not detected	HPAEC-PAD
Galactose	≤ 3 % (Area)	not detected	HPAEC-PAD
Fucose	≤ 3 % (Area)	0.9 %	HPAEC-PAD

Parameter	Specifications	Results	Method
Water Content	≤ 9.0 %	6.2 %	Karl-Fischer titration
Protein content	≤ 100 µg/g	0.9 µg/g	Nanoquant (modified Bradford)
Total Ash	≤ 0.5 %	0.05 %	ASU L 06.00-4 (a)
Arsenic	≤ 0.2 mg/kg	0.07 mg/kg	ASU L 00.00-135 – ICP-MS (a)
Cadmium	≤ 0.1 mg/kg	< 0.02 mg/kg	ASU L 00.00-135 – ICP-MS (a)
Lead	≤ 0.02 mg/kg	< 0.02 mg/kg	ASU L 00.00-135 – ICP-MS (a)
Mercury	≤ 0.5 mg/kg	< 0.005 mg/kg	ASU L 00.00-135 – ICP-MS (a)
Aflatoxin M ₁	≤ 0.025 µg/kg	< 0.025 µg/kg	DIN EN ISO 14501

3) Microbiology

Parameter	Specifications	Results	Method
Standard Plate Count	≤ 10000 cfu/g	252 cfu/g	ISO 4833-2
Yeast and Mold	≤ 100 cfu/g	< 20 cfu/g	ISO 21527-2
Coliform	≤ 10 cfu/g	< 10 cfu/g	ISO 4832
<i>Enterobacteriaceae</i>	≤ 10 cfu/g	< 10 cfu/g	ISO 21528-2
<i>E. coli</i>	absent in 11 g	absent	ISO 7251
<i>Salmonella</i>	absent in 100 g	absent	ISO 6579
<i>Cronobacter sakazakii</i>	absent in 100 g	absent	ISO/TS 22964
<i>Staphylococcus aureus</i>	≤ 10 cfu/g	< 10 cfu/g	ISO 6888-1
Endotoxins	≤ 300 EU/g	8 EU/g	Ph. Eur. 2.6.14

Manufacturing location / date	Rheinbreitbach, Germany / 22.06.2017
Expiration date	Best before: 06/2019

Caution! Product is extremely hygroscopic! Please store dry and in an airtight container!
Achtung! Produkt ist extrem hygroskopisch! Bitte trocken und luftdicht verschlossen lagern!

Signature Quality Control Manager:

Rheinbreitbach, 07.07.2017,



Dr. Julia Parkot, Head of Quality Control