

Commission Implementing Regulation (EU) 2020/484 of 2 April 2020 authorising the placing on the market of lacto-*N*-tetraose as a novel food under Regulation (EU) 2015/2283 of the European Parliament and of the Council and amending Commission Implementing Regulation (EU) 2017/2470 (Text with EEA relevance)

COMMISSION IMPLEMENTING REGULATION (EU) 2020/484

of 2 April 2020

authorising the placing on the market of lacto-*N*-tetraose as a novel food under Regulation (EU) 2015/2283 of the European Parliament and of the Council and amending Commission Implementing Regulation (EU) 2017/2470

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) 2015/2283 of the European Parliament and of the Council of 25 November 2015 on novel foods, amending Regulation (EU) No 1169/2011 of the European Parliament and of the Council and repealing Regulation (EC) No 258/97 of the European Parliament and of the Council and Commission Regulation (EC) No 1852/2001<sup>(1)</sup>, and in particular Article 12 thereof,

Whereas:

- (1) Regulation (EU) 2015/2283 provides that only novel foods authorised and included in the Union list may be placed on the market within the Union.
- (2) Pursuant to Article 8 of Regulation (EU) 2015/2283 Commission Implementing Regulation (EU) 2017/2470<sup>(2)</sup> was adopted, which establishes a Union list of authorised novel foods.
- (3) On 16 July 2018, the company Glycom A/S ('the applicant') submitted a request to the Commission in accordance with Article 10(1) of Regulation (EU) 2015/2283 to place lacto-*N*-tetraose ('LNT'), obtained by microbial fermentation with a genetically modified strain of *Escherichia coli*, strain K12 DH1, on the Union market as a novel food. The applicant requested for LNT to be used in unflavoured pasteurised and unflavoured sterilised milk products, flavoured and unflavoured fermented milk based products including heat-treated products, cereal bars, flavoured drinks, infant formula and follow-on formula, processed cereal-based food, baby food for infants and young children, milk-based drinks and similar products intended for young children, foods for special medical purposes, and total diet replacement foods for weight control, as defined in Regulation (EU) No 609/2013 of the European Parliament and of the Council<sup>(3)</sup>, and in food supplements as defined in Directive 2002/46/EC of the European Parliament and of the Council<sup>(4)</sup> intended for the general population excluding infants. The applicant also proposed that food supplements containing LNT should not be used if breast milk

which naturally contains LNT and/or other foods with added LNT, are consumed the same day.

- (4) On 16 July 2018, the applicant also made a request to the Commission for the protection of proprietary data for a number of studies submitted in support of the application, namely, the proprietary analytical reports on the structure comparison via nuclear magnetic resonance ('NMR') of LNT produced by bacterial fermentation with LNT naturally present in human milk<sup>(5)</sup>, the detailed characterisation data on the production bacterial strains<sup>(6)</sup> and their certificates<sup>(7)</sup>, the specifications for the raw materials and processing aids<sup>(8)</sup>, the certificates of analyses of the various LNT batches<sup>(9)</sup>, the analytical methods and validation reports<sup>(10)</sup>, the LNT stability reports<sup>(11)</sup>, the detailed description of the production process<sup>(12)</sup>, the laboratory accreditation certificates<sup>(13)</sup>, the LNT intake assessment reports<sup>(14)</sup>, an *in vitro* mammalian cell micronucleus test with LNT<sup>(15)</sup> and its summary table of the statistically significant observations<sup>(16)</sup>, a second *in vitro* mammalian cell micronucleus test with LNT<sup>(17)</sup> and its summary table of the statistically significant observations<sup>(18)</sup>, two *in vitro* mammalian cell micronucleus tests with the related compound, lacto-*N*-neotetraose<sup>(19)</sup>, a bacterial reverse mutation test with LNT<sup>(20)</sup>, a 14-day oral toxicity study in the neonatal rat with LNT<sup>(21)</sup>, a 90-day oral toxicity study in the neonatal rat with LNT<sup>(22)</sup> and its summary table of the statistically significant observations, and a 90-day oral toxicity study in the neonatal rat with lacto-*N*-neotetraose<sup>(23)</sup>.
- (5) On 30 August 2018, the Commission requested the European Food Safety Authority ('the Authority') to carry out an assessment of LNT as a novel food in accordance with Article 10(3) of Regulation (EU) 2015/2283.
- (6) On 30 October 2019, the Authority adopted its scientific opinion 'Safety of lacto-*N*-tetraose (LNT) as a novel food pursuant to Regulation (EU) 2015/2283'<sup>(24)</sup> in accordance with the requirements of Article 11 of Regulation (EU) 2015/2283.
- (7) In its scientific opinion, the Authority concluded that LNT is safe under the proposed conditions of use for the proposed target populations. Therefore, that scientific opinion gives sufficient grounds to establish that LNT, when used in in unflavoured pasteurised and unflavoured sterilised milk products, flavoured and unflavoured fermented milk based products including heat-treated products, cereal bars, flavoured drinks, infant formula and follow-on formula, processed cereal-based food, baby food for infants and young children, milk-based drinks and similar products intended for young children, foods for special medical purposes, and total diet replacement foods for weight control, as defined in Regulation (EU) No 609/2013, and in food supplements as defined in Directive 2002/46/EC intended for the general population excluding infants, complies with the authorisation requirements of Article 12(1) of Regulation (EU) 2015/2283.
- (8) In its scientific opinion, the Authority considered that it could not have reached its conclusions on the safety of the LNT without the data from the proprietary analytical reports on the structure comparison via nuclear magnetic resonance ('NMR') of LNT produced by bacterial fermentation with LNT naturally present in human milk, the detailed characterisation data on the production bacterial strains and their certificates, the specifications for the raw materials and processing aids, the certificates of analyses

of the various LNT batches, the analytical methods and validation reports, the LNT stability reports, the detailed description of the production process, the laboratory accreditation certificates, the *in vitro* mammalian cell micronucleus test with LNT and its summary table of the statistically significant observations, a second *in vitro* mammalian cell micronucleus test with LNT and its summary table of the statistically significant observations, a bacterial reverse mutation test with LNT, a 14-day oral toxicity study in the neonatal rat with LNT, and a 90-day oral toxicity study in the neonatal rat with LNT and its summary table of the statistically significant observations.

- (9) Following the receipt of the Authority's scientific opinion, the Commission requested the applicant to further clarify the justification provided with regard to their the proprietary analytical reports on the structure comparison via NMR of LNT produced by bacterial fermentation with LNT naturally present in human milk, the report on the detailed characterisation data on the production bacterial strains and their certificates, the report on the specifications for the raw materials and processing aids, the certificates of analyses of the various LNT batches, the analytical methods and validation reports, the LNT stability reports, the detailed description of the production process, the laboratory accreditation certificates, the *in vitro* mammalian cell micronucleus test with LNT and its summary table of the statistically significant observations, a second *in vitro* mammalian cell micronucleus test with LNT and its summary table of the statistically significant observations, a bacterial reverse mutation test with LNT, a 14-day oral toxicity study in the neonatal rat with LNT, and a 90-day oral toxicity study in the neonatal rat with LNT and its summary table of the statistically significant observations as referred to in point (b) of Article 26(2) of Regulation (EU) 2015/2283.
- (10) The applicant declared that, at the time the application was made, they held proprietary and exclusive rights of reference to the studies under national law and that therefore third parties could not lawfully access or use these studies.
- (11) The Commission assessed all the information provided by the applicant and considered that the applicant has sufficiently substantiated the fulfilment of the requirements laid down in Article 26(2) of Regulation (EU) 2015/2283. Therefore, the data contained in the applicant's file which served as a basis for the Authority to establish the safety of the novel food and to reach its conclusions on the safety of LNT, and without which the novel food could not have been assessed by the Authority, should not be used by the Authority for the benefit of any subsequent applicant for a period of five years from the date of entry into force of this Regulation. Accordingly, the placing on the market within the Union of LNT should be restricted to the applicant for that period.
- (12) However, restricting the authorisation of LNT and of the reference to the data contained in the applicant's file for the sole use of the applicant, does not prevent other applicants from applying for an authorisation to place on the market the same novel food provided that their application is based on legally obtained information supporting such authorisation under Regulation (EU) 2015/2283.
- (13) In line with the conditions of use of food supplements containing LNT as proposed by the applicant and assessed by the Authority, it is necessary to inform consumers with an appropriate label that food supplements containing LNT should not be used if breast

---

**Changes to legislation:** There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2020/484. (See end of Document for details)

---

milk which naturally contains LNT and/or other foods with added LNT are consumed the same day.

- (14) The Annex to Regulation (EU) 2017/2470 should be therefore be amended accordingly.
- (15) The measures provided for in this Regulation are in accordance with the opinion of the Standing Committee on Plants, Animals, Food and Feed,

HAS ADOPTED THIS REGULATION:

*Article 1*

1 Lacto-N-tetraose as specified in the Annex to this Regulation shall be included in the Union list of authorised novel foods established in Implementing Regulation (EU) 2017/2470.

2 For a period of five years from the date of entry into force of this Regulation only the initial applicant:

Company: Glycom A/S;

Address: Kogle Allé 4, DK-2970 Hørsholm, Denmark,

is authorised to place on the market within the Union the novel food referred to in paragraph 1, unless a subsequent applicant obtains authorisation for the novel food without reference to the data protected pursuant to Article 2 of this Regulation or with the agreement of the applicant.

3 The entry in the Union list referred to in paragraph 1 shall include the conditions of use and labelling requirements laid down in the Annex.

*Article 2*

The data contained in the application file on the basis of which lacto-N-tetraose has been assessed by the Authority, claimed by the applicant as fulfilling the requirements laid down in Article 26(2) of Regulation (EU) 2015/2283, shall not be used for the benefit of any subsequent applicant for a period of five years from the date of entry into force of this Regulation without the agreement of the applicant.

*Article 3*

The Annex to Implementing Regulation (EU) 2017/2470 is amended in accordance with the Annex to this Regulation.

*Article 4*

This Regulation shall enter into force on the twentieth day following that of its publication in *the Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

**Changes to legislation:** There are currently no known outstanding effects for the  
Commission Implementing Regulation (EU) 2020/484. (See end of Document for details)

---

Done at Brussels, 2 April 2020.

*For the Commission*

*The President*

Ursula VON DER LEYEN

**Changes to legislation:** There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2020/484. (See end of Document for details)

## ANNEX

The Annex to Implementing Regulation (EU) 2017/2470 is amended as follows:

- (1) in Table 1 (Authorised novel foods), the following entry is inserted in alphabetical order:

Authorised novel food	Conditions under which the novel food may be used		Additional specific labelling requirements	Other requirements	Data Protection
‘Lacto- <i>N</i> -tetraose (“LNT”) (microbial source)	<i>Specified food category</i>	<i>Maximum levels</i>	The designation of the novel food on the labelling of the foodstuffs containing it shall be “lacto- <i>N</i> -tetraose”. The labelling of food supplements containing lacto- <i>N</i> -tetraose shall bear a statement that they should not be used if breast milk or other foods containing added lacto- <i>N</i> -tetraose are consumed the same day.		Authorised on 23.4.2020. This inclusion is based on proprietary scientific evidence and scientific data protected in accordance with Article 26 of Regulation (EU) 2015/2283. Applicant: Glycom A/S, Kogle Allé 4, DK-2970 Hørsholm, Denmark. During the period of data protection, the novel food lacto- <i>N</i> -tetraose is authorised for placing on the market within the Union only by Glycom A/S, unless a
	Unflavoured pasteurised and unflavoured sterilised (including UHT) milk products	1,0 g/l			
	Unflavoured fermented milk-based products	1,0 g/l (beverages) 10 g/kg (products other than beverages)			
	Flavoured fermented milk-based products including heat-treated products	1,0 g/l (beverages) 10 g/kg (products other than beverages)			
	Beverages (flavoured drinks)	1,0 g/l			
	Cereal bars	10 g/kg			
	Infant formula as defined under Regulation (EU) No 609/2013	0,8 g/l in the final product ready for use, marketed as such or reconstituted as instructed			

**Changes to legislation:** There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2020/484. (See end of Document for details)

	by the manufacturer			
Follow-on formula as defined under Regulation (EU) No 609/2013	0,6 g/l in the final product ready for use, marketed as such or reconstituted as instructed by the manufacturer			subsequent applicant obtains authorisation for the novel food without reference to the proprietary scientific evidence or scientific data
Processed cereal-based food, baby food for infants and young children as defined under Regulation (EU) No 609/2013	0,6 g/l (beverages) in the final product ready for use, marketed as such or reconstituted as instructed by the manufacturer 5 g/kg for products other than beverages			protected in accordance with Article 26 of Regulation (EU) 2015/2283 or with the agreement of Glycom A/S. End date of the data protection: 23.4.2025.’
Milk based drinks and similar products intended for young children	0,6 g/l (beverages) in the final product ready for use, marketed as such or reconstituted as instructed by the manufacturer 5 g/kg for products other than beverages			
Total diet replacement foods for weight control as defined	2,0 g/l (beverages) 20 g/kg (products other than beverages)			

**Changes to legislation:** There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2020/484. (See end of Document for details)

under Regulation (EU) No 609/2013				
Food for special medical purposes as defined under Regulation (EU) No 609/2013	In accordance with the particular nutritional requirements of the persons for whom the products are intended			
Food Supplements as defined in Directive 2002/46/EC, excluding infants	2,0 g/day for young children, children, adolescents, and adults			

(2) in Table 2 (Specifications), the following entry is inserted in alphabetical order:

Authorised Novel Food	Specification
'Lacto- <i>N</i> -tetraose ("LNT") (microbial source)	<p><b>Definition:</b> Chemical formula: C<sub>26</sub>H<sub>45</sub>O<sub>21</sub> Chemical name: β-D-Galactopyranosyl-(1→3)-2-acetamido-2-deoxy-β-D-glucopyranosyl-(1→3)-β-D-galactopyranosyl-(1→4)-D-glucopyranose Molecular mass: 707,63 Da CAS No 14116-68-8</p> <p><b>Description:</b> Lacto-<i>N</i>-tetraose is a purified, white to off-white amorphous powder that is produced by a microbial process.</p> <p><b>Source:</b> Genetically modified strain of <i>Escherichia coli</i> strain K-12 DH1</p> <p><b>Characteristics/Composition:</b> Appearance: White to off-white powder Sum of lacto-<i>N</i>-tetraose, D-Lactose and lacto-<i>N</i>-tetraose II (% of dry matter): ≥ 90,0 % (w/w) Lacto-<i>N</i>-tetraose (% of dry matter): ≥ 70,0 % (w/w) D-Lactose: ≤ 12,0 % (w/w)</p>

CFU: Colony Forming Units; EU: Endotoxin Units.'



---

**Changes to legislation:** There are currently no known outstanding effects for the  
Commission Implementing Regulation (EU) 2020/484. (See end of Document for details)

---

Lacto-*N*-tetraose II:  $\leq 10,0$  % (w/w)  
*Para*-lacto-*N*-hexaose-2:  $\leq 3,5$  % (w/w)  
Lacto-*N*-tetraose fructose isomer:  $\leq 1,0$   
% (w/w)  
Sum of other carbohydrates:  $\leq 5,0$  % (w/  
w)  
Moisture:  $\leq 6,0$  % (w/w)  
Ash, sulfated:  $\leq 0,5$  % (w/w)  
pH (20 °C, 5 % solution): 4,0–6,0  
Residual protein:  $\leq 0,01$  % (w/w)  
**Microbiological criteria:**  
Aerobic mesophilic bacteria total plate  
count:  $\leq 1\ 000$  CFU/g  
*Enterobacteriaceae*:  $\leq 10$  CFU/g  
*Salmonella* sp.: Negative/25 g  
Yeast:  $\leq 100$  CFU/g  
Mould:  $\leq 100$  CFU/g  
Residual endotoxins:  $\leq 10$  EU/mg

---

CFU: Colony Forming Units; EU: Endotoxin Units.

---

---

**Changes to legislation:** There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2020/484. (See end of Document for details)

---

- (1) [OJ L 327, 11.12.2015, p. 1.](#)
- (2) Commission Implementing Regulation (EU) 2017/2470 of 20 December 2017 establishing the Union list of novel foods in accordance with Regulation (EU) 2015/2283 of the European Parliament and of the Council on novel foods ([OJ L 351, 30.12.2017, p. 72.](#))
- (3) Regulation (EU) No 609/2013 of the European Parliament and of the Council of 12 June 2013 on food intended for infants and young children, food for special medical purposes, and total diet replacement for weight control and repealing Council Directive 92/52/EEC, Commission Directives 96/8/EC, 1999/21/EC, 2006/125/EC and 2006/141/EC, Directive 2009/39/EC of the European Parliament and of the Council and Commission Regulations (EC) No 41/2009 and (EC) No 953/2009 ([OJ L 181, 29.6.2013, p. 35.](#))
- (4) Directive 2002/46/EC of the European Parliament and of the Council of 10 June 2002 on the approximation of the laws of the Member States relating to food supplements ([OJ L 183, 12.7.2002, p. 51.](#))
- (5) Glycom 2018 (unpublished).
- (6) Glycom 2018 (unpublished).
- (7) Glycom/DSMZ 2018 (unpublished).
- (8) Glycom 2018 (unpublished).
- (9) Glycom 2018 (unpublished).
- (10) Glycom 2018 (unpublished).
- (11) Glycom 2018 (unpublished).
- (12) Glycom 2018 (unpublished).
- (13) Glycom 2018 (unpublished).
- (14) Glycom 2018 (unpublished).
- (15) Gilby 2018 (unpublished).
- (16) Gilby 2018 (unpublished).
- (17) Gilby 2019 (unpublished).
- (18) Gilby 2019 (unpublished).
- (19) Verbaan 2015 (unpublished), Verbaan 2016 (unpublished).
- (20) Šoltéssová, 2018 (unpublished).
- (21) Stannard 2018a (unpublished).
- (22) Stannard 2018b (unpublished).
- (23) Penard 2016 (unpublished).
- (24) EFSA Panel on Nutrition, Novel Foods and Food Allergens, Scientific Opinion on the safety of lacto-N-tetraose (LNT) as a novel food pursuant to Regulation (EU) 2015/2283. *EFSA Journal* 2019;17(12):5907, 27 pp. <https://doi.org/10.2903/j.efsa.2019.5907>.

**Changes to legislation:**

There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2020/484.