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PUBLIC VERSION

In the published version of this decision, some information has been omitted pursuant to Article 17(2) of Council Regulation (EC) No 139/2004 concerning non-disclosure of business secrets and other confidential information. The omissions are shown thus […]. Where possible the information omitted has been replaced by ranges of figures or a general description.

Novozymes A/S
Krogshøjvej 36
DK-2880 Bagsværd
Denmark

Chr. Hansen Holding A/S
Bøge Alle 10-12
DK-2970 Hørsholm
Denmark

Subject: **Case M.11043 – NOVOZYMES / CHR. HANSEN HOLDING**
Commission decision pursuant to Article 6(1)(b) in conjunction with Article 6(2) of Council Regulation No 139/2004[1] and Article 57 of the Agreement on the European Economic Area[2]

Dear Sir or Madam,

(1) On 20 October 2023, the European Commission received notification of a proposed concentration pursuant to Article 4 of the Merger Regulation (EC) No 139/2004, by which Novozymes A/S ("**Novozymes**") acquires within the meaning of Article 3(1)(b) of the Merger Regulation sole control of the whole of Chr. Hansen Holding A/S ("**Chr. Hansen**" and together the "**Parties**" and the "**Transaction**").[3]

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1 OJ L 24, 29.1.2004, p. 1 (the '**Merger Regulation**'). With effect from 1 December 2009, the Treaty on the Functioning of the European Union ('**TFEU**') has introduced certain changes, such as the replacement of '**Community**' by '**Union**' and '**common market**' by '**internal market**'. The terminology of the TFEU will be used throughout this decision.

2 OJ L 1, 3.1.1994, p. 3 (the '**EEA Agreement**').

3 Publication in the Official Journal of the European Union, OJ C, C/2023/599, 31.10.2023.

1. THE PARTIES

(2) Novozymes is a global biotechnology company headquartered in Bagsvaerd, Denmark. Novozymes provides biological solutions for industrial and consumer use. It is a manufacturer of industrial enzymes and microorganisms including probiotics and biologicals for plant health. It is Nasdaq listed with Novo Holdings A/S (the "**Novo Holdings**") as the majority and controlling shareholder with 29.7% of the shares and 74.4% of the voting rights.[4]

(3) Chr. Hansen is a global bioscience company headquartered in Hørsholm, Denmark. The company develops natural ingredient solutions for the food, nutritional, pharmaceutical and agricultural industries for a variety of foods, beverages, dietary supplements, animal feed and crop protection products. The Novo Holdings is also currently the largest shareholder of Chr. Hansen, with a non-controlling share of 21.98%.

(4) Novo Holdings is the holding company of the Novo group consisting of Novozymes, Novo Nordisk A/S and NNIT A/S. Novo Holdings is wholly owned by the Novo Nordisk Foundation. No undertaking controls the Novo Nordisk Foundation. The Novo Nordisk Foundation is a Danish commercial foundation aimed at supporting scientific, humanitarian and social causes.

2. THE CONCENTRATION

(5) On 12 December 2022, the Parties entered into an agreement by which the Parties will merge, with Novozymes as the surviving entity.

(6) The Transaction constitutes a merger pursuant to Article 3(1)(a) of the Merger Regulation. Following the Transaction, the Novo Group will hold in aggregate 22% of the total share capital and 61% of the total voting rights of the combined group and therefore be the controlling shareholder.

3. UNION DIMENSION

(7) The Parties' combined aggregate worldwide turnover is more than EUR 5,000 million (in 2022, the Novo Group: EUR [amount] million and Chr. Hansen[5]: EUR [amount] million). Each of the Parties has an EU wide turnover in excess of EUR 250 million (in 2022, Novo Group: EUR [amount] million and Chr. Hansen[6]: EUR [amount] million), and they do not achieve more than two-thirds of their aggregate EU-wide turnover within one and the same Member State. The Transaction therefore has an EU dimension within the meaning of Article 1(2) of the Merger Regulation.

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4 As of 31 December 2022, Novo Holdings A/S had 25.6% of the shares and 72.7% of the voting rights. See: novoholdings.dk/novo-group.

5 Turnover figures are provided based on Chr. Hansen's last audited financial statements (FY2021/22), i.e., for the period 1 September 2021 to 31 August 2022.

6 Turnover figures are provided based on Chr. Hansen's last audited financial statements (FY2021/22), i.e., for the period 1 September 2021 to 31 August 2022.

4. RELEVANT MARKETS

(8) The Parties' activities overlap horizontally in the supply of enzymes and more specifically in the dairy enzyme segment. There are also verticals links between the Parties activities in relation to the manufacturing and distribution of enzymes. In addition, the Transaction entails potential conglomerate links between the Parties' activities in cultures and enzymes used in the production of dairy products.[7]

4.1. Enzymes

(9) Enzymes are biological catalysts that regulate the rate at which chemical reactions proceed in living organisms. They can be used as ingredients and as processing aids in a variety of applications.

(10) The Parties' activities overlap in dairy enzymes (enzymes used in the manufacture of dairy products such as milk, cheese, yogurt etc.) and more specifically lactase.

4.1.1. The manufacture and distribution of enzymes

4.1.1.1. The Commission's decisional practice

(11) In its *IFF/Nutrition & Biosciences* decision[8] (the "**IFF Decision**"), the Commission considered a distinction between industrial enzymes (i.e., enzymes produced by a microorganism) and speciality enzymes markets[9] (i.e., enzymes which are naturally extracted) but ultimately left open the exact scope of product market definition.[10] It did not consider a distinction between the manufacture of enzymes and the distribution of enzymes.

4.1.1.2. The Parties' views

(12) Since the Parties are each primarily active at different levels of the value chain, the Parties propose to segment the market between the enzymes manufacturing market and the enzymes distribution market.

4.1.1.3. The Commission's assessment

(13) While there are suppliers of enzymes that are active both in the manufacture and distribution of enzymes, the market investigation indicated that there are also specialised distributors which carry a wide variety of enzymes[11] and sometimes other ingredients.[12] One distributor explained:

"*Distributors do not get involved in the manufacturing of the product/ingredients nor with the IP. Their role is twofold:*

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7 The Transaction gives rise to other *de minimis* overlaps regarding the following product categories: probiotics ingredients for human and animal health as well as biologicals for plant health (biostimulants and biopesticides). The Parties' combined market shares on these markets is far below 20% and increments are very limited resulting in no affected markets. It can therefore be reasonably excluded that the Transaction may entail an impact on competition in the supply of these products.

8 Case M.9827 - *International Flavors & Fragrances / Nutrition & Biosciences*.

9 Case M.9827 - *IFF Decision*, para. 149.

10 Case M.9827 - *IFF Decision*, para. 150.

11 eRFI to competitors and distributors, question F.1.

12 Such as probiotics, cultures and others (eRFI to competitors and distributors, question A.1).

- *On one hand, distributors provide logistics and supply chain capability that manufacturers do not have (i.e. a high number of warehouses, various modes of transport etc.).*

- *On the other hand, distributors provide sales and marketing capability. They have a wide range of products they offer to customers, as well as a large sales force and technical force to reach customers that manufactures cannot reach themselves*."[13]

(14) Given the existence of these distributors who can be seen as distinct from manufacturers of enzymes, the Commission has examined the markets for the manufacture and distribution of enzymes separately.

4.1.2. The enzymes manufacturing market

4.1.2.1. Relevant Product Market

4.1.2.1.1. The Parties' views

(15) The Parties acknowledge the distinction introduced by the Commission in the IFF Decision between industrial enzymes and speciality enzymes.[14] The Parties' activities only overlap with regard to industrial enzymes, in particular the food and beverage segment and the sub-segments identified below.

(16) The Parties submit that it is not necessary to decide on a precise market definition for the purposes of the Transaction, given that competition concerns do not arise on any plausible product market definition.[15]

4.1.2.1.1.1. Food & beverage enzymes

(17) With respect to potential segmentations within industrial enzymes by end-application,[16] the Parties note that there is generally limited or no demand side substitutability between food & beverage enzymes and other industrial enzymes, or between sub-segments of food & beverage enzymes.[17]

(18) However, the Parties submit that there is supply side substitution between some, if not all, food & beverage enzymes and other industrial enzymes used in non-food applications (e.g. lactase, protease and lipase).[18] Similarly, the Parties submit that there is also supply side substitution within different segments of food & beverage enzymes,[19] including for dairy enzymes.[20]

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13 Minutes of a call with a distributor of 1 June 2023, para. 10.
14 Form CO. para. 297.
15 Form CO. para. 899.
16 The Parties used as framework a potential sub-segmentation of the industrial enzymes segment (i.e. enzymes produced by a microorganism) by end-use that covers: 'industrial', 'food and beverage', 'home' and 'personal care', and 'animal nutrition' (Form CO. para. 890).
17 Form CO. para. 894.
18 Form CO. para. 895.
19 The Parties used as framework a potential sub segmentation of the food & beverages enzymes segment into subsegments for 'bakery', 'dairy', 'brewing', 'carbohydrate processing', 'fish processing', 'meat' and 'culinary processing' (Form CO. para. 891).
20 Form CO. para. 896.

4.1.2.1.1.2. Dairy enzymes

(19) The Parties identify dairy enzymes as a sub-segment of food and beverage enzymes. They consider that within dairy enzymes,[21] there is supply side substitution at the manufacturing level for most enzymes, but not necessarily all.[22]

(20) Indeed, the Parties consider that once a manufacturer has the capabilities and know-how to manufacture one dairy enzyme as well as the required food permits, they can easily switch from production of one dairy enzyme to another.[23] As evidence, the Parties point to the fact that several manufacturers have a wide portfolio and propose several types of dairy enzymes.[24]

4.1.2.1.1.3. Lactase

(21) The Parties identify 9 different types of dairy enzymes: (i) lactase; (ii) coagulants; (iii) proteases; (iv) catalases; (v) lipases; (vi) lysozyme; (vii) phospholipase; (viii) lactose oxidase; and (ix) transglutaminase.[25]

(22) As noted above in section 4.1.2.1.1, the Parties do not consider it necessary to segment the dairy enzymes segment[26] by specific enzyme type because of supply side substitution.

(23) Lactose is a form of sugar naturally present in milk and as such in other dairy products derived from milk (e.g., yogurt, ice cream, cheese, butter, butter spreads, sour cream, etc.). Lactase enzymes are naturally found in mammals, yeasts, fungi, and bacteria, and are needed by the human body to digest (i.e. break down) lactose.[27] Lactase catalyses the breakdown of lactose into the simple sugars glucose and galactose which can be digested by the human body. As such, lactase is used to produce lactose-free/lactose-reduced dairy products.[28,29,30] In addition, lactase can be added as a food ingredient to reduce the need for added sugars as the simple sugars produced are sweeter than lactose.

(24) Lactase, and enzymes in general, can be produced by way of a process called submerged fermentation where microorganisms (bacteria, fungi or yeast) are placed in a large, closed vessel containing a fermentation medium and a high concentration of oxygen. The enzymes are produced by the microorganisms via

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21 Within a segment for dairy enzymes, the Parties identify the following types of enzymes: (i) lactase; (ii) coagulants; (iii) proteases; (iv) catalases; (v) lipases; (vi) lysozyme; (vii) phospholipase; (viii) lactose oxidase; and (ix) transglutaminase (Form CO. para. 631).

22 Form CO. para. 896.

23 Form CO. para. 898.

24 Form CO. para. 898.

25 Form CO. para. 631.

26 Form CO. para. 903.

27 Form CO. para. 637.

28 Form CO. para. 631.

29 Lactase can also be used as a dietary supplement/over-the-counter pharmaceuticals ("**DS/OTC**"). Save for possible differences in formulation or encapsulation to allow it to operate in the stomach's acidic environment, the same lactase enzyme can be used in dairy production and as a DS/OTC. Since both Parties are not actively selling lactase for DS/OTC, this segmentation is not considered further.

30 Further references to food and beverages lactase ("**F&B lactase**") refer to lactase used in the food and beverages industry as opposed to DS/OTC.

fermentation. Following this fermentation, the enzymes are purified from the fermentation medium and processed.[31]

(25) The microorganisms used for enzyme manufacturing in "classic" biotechnology are microorganisms that produce the enzyme in nature. It is also possible using genetic modification to insert the gene that codes for the desired enzyme into a production host that has been optimised for industrial production of the enzyme (known as "GM", "GMM" or "GMO" - in the following primarily referred to as "**GM**", with entirely naturally occurring microorganisms as "**non-GM**". The references to GM produced and non-GM produced lactase mean that the lactase is produced with GM or non-GM production hosts).[32]

(26) The Parties submit that lactase should not be further segmented by **production technology** i.e. using genetic modification technology or not for the following reasons. *First*, from the demand side, GM and non-GM produced lactases can be used interchangeably except for customers wishing to put organic claims on their end products. The Parties submit that the proportion of lactase that goes into organic dairy production accounts for less than 10% of lactase sold both at a global and at EEA scale, meaning that more than 90% of customers can use non-GM and GM produced lactase interchangeably.[33] *Second*, customers can switch relatively quickly (under 6 months) and without incurring significant costs.[34] *Third*, from a supply side substitutability perspective, the Parties submit that the production equipment is the same and that, accordingly, should the manufacturer have the required approval and proper cleaning procedures are observed, it is possible to relatively quickly switch production between GM and non-GM produced lactases.[35] *Fourth*, the Parties submit that the average prices of GM and non-GM produced lactase are comparable.[36]

(27) The Parties consider that there is no basis for distinguishing between different **end-uses** of lactase within dairy applications for the following reasons. *First*, lactase is relevant for all product types containing milk (lactose). *Second*, the same lactase enzymes are used in all dairy applications. *Third*, all manufacturers and distributors can sell into all sub-segments.[37] *Fourth*, lactase products generally perform the same function i.e. mainly removing/reducing lactose.[38]

(28) Additionally, the Parties also do not believe that lactase should be further segmented based on enzymatic activity depending on **pH level** or **temperature**. Regarding pH level, the Parties submit that differences between lactase products in activity depending on pH level will mainly have an impact in the production of fermented milk products (yogurt, kefir etc.) as other dairy products will generally not reach pH levels where the different pH performance profiles of different lactase products would have any impact on the usability of the lactase.[39] They also mention that the pH performance can be compensated by dosage and that every

31 Form CO. para. 623 to 625.
32 Form CO. para. 626.
33 Form CO. para. 943 to 945.
34 Form CO. para. 946.
35 Form CO. para. 949.
36 Form CO. para. 960.
37 Form CO. para. 922.
38 Form CO. para. 924.
39 Form CO. para. 1045.

lactase has different pH profiles.[40] Regarding segmentation by temperature, the Parties submit that dairy production generally takes place at two temperature ranges; either cooled (below 10°C) or at fermentation temperature (33-43°C, typically around 42°C)[41] and that all lactases work both at cooled temperatures and at fermentation temperatures.[42]

4.1.2.1.2. The Commission's assessment

(29) The Commission investigated whether there is a market for the manufacturing of lactase distinct from other dairy enzymes and whether such market could be further segmented between: (i) production technology i.e. GM and non-GM produced lactase; and (ii) by end use, i.e. milk, fermented milk products and others. Since the various end products are produced in different temperature and pH environments, the Commission's assessment of the end-product analysis overlaps with its analysis of the activity level at different pH and temperature levels.

4.1.2.1.2.1. Lactase

(30) The outcome of the market investigation suggests that there is a separate product market for the manufacture of lactase distinct from other dairy enzymes. The market investigation strongly supports that there is no demand side substitutability between lactase and other enzymes as the large majority of responding customers[43] and of competitors[44] consider that it is not possible to substitute lactase with another enzyme. As explained by a respondent: "*enzymatic activities are highly specific and unique to a substrate. Lactases specifically convert Lactose to Galactose and Glucose, on this basis the same enzymatic process could not be achieved using an alternative enzyme*".[45]

(31) That is supported by a number of elements indicating limited supply side substitutability. In order to produce lactase, a manufacturer needs to have the relevant technology (a lactase enzyme and production host), the manufacturing capacities, distribution network and regulatory approvals required to manufacture and commercialise the product.

(32) As a result, a majority of responding competitors and distributors consider it would take more than 2 years for a company already active in the manufacture of food and beverage enzymes to start producing and commercially supplying GM produced lactase[46] and an investment "*between 10-50 million EUR if the company also has to build infrastructure and team; less than 10 million EUR if the company already has such resources"*.[47] In all likelihood, given the similarities in the manufacturing process, similar investments would be necessary to start producing and commercially supplying non-GM produced lactase.[48]

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40 Form CO. para. 1047.
41 Form CO. para. 1048.
42 Form CO. para. 1050.
43 eRFI to customers, question B.5.
44 eRFI to competitors and distributors, question B.5.
45 eRFI to competitors and distributors, question B.6.
46 eRFI to competitors and distributors, question E.1.
47 eRFI to competitors and distributors, question E.4 echoed by responding competitors and distributors at question E.3.
48 As explained by the Parties "*The overall manufacturing process, comprising fermentation, downstream processing (recovery of lactase from the fermentation broth), and formulation of the end-*

(33) As a result, the Parties' argument on supply side substitution are only applicable to players that already have all the relevant technology, infrastructure, and approvals.

(34) Given the above, the Commission considers that there is a separate market for the manufacture of lactase.

4.1.2.1.2.2. Lactase sub segmentation: Production technology

(35) The Commission investigated a possible sub-segmentation of the lactase market between GM and non-GM produced lactase.

(36) The Commission notes that GM produced lactase is relatively recent. The first GM produced lactase was launched by DSM in 2014. The Parties introduced Saphera® and NOLA® Fit in 2016 which were the first lactases openly marketed as GM produced. Since then, GM produced lactase has grown representing 20-30% of all lactase sales in the EEA and globally.

(37) Regarding demand side substitution, a large majority of responding competitors[49] and of responding customers[50] consider that, besides customers who need a certain certification/claim on their product (e.g. organic, VLOG…), customers can use both. As explained by a respondent: "*lactases produced from both GM and non-GM production organisms provide the same process functionality. Selection is most frequently driven by regulatory requirements to comply with organic certification, or company policy related to the use of GM derived ingredients/process aids*".[51][52]

(38) Accordingly, there are two types of lactase customers:

(a) Customers bound to use non-GM produced lactase because they need a certain certification;[53] for these customers, the Commission considers that there could be a market for non-GM produced lactase only. As the Parties do not overlap for non-GM produced lactase, this potential market is not considered further.

(b) Customers that can use both GM produced and non-GM produced lactase interchangeably.

(39) The Commission's investigation revealed that while this second group of customers can technically use either non-GM or GM produced lactase, there are indications that non-GM places a limited competitive constraint on GM.

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product, is essentially the same for GM and non-GM lactases" (Form CO, para. 678). Consequently, the Commission has no reason to believe respondents would modify their answers if they were asked instead about the time and investment needed for a company already active in the manufacture of food and beverage enzymes to start producing and commercially supplying non-GM produced lactase.

49 eRFI to competitors and distributors, question B.7.

50 eRFI to customers, question B.7.

51 eRFI to competitors and distributors, question B.8.

52 This is in line with the Parties' views and Article 11 of Regulation (EU) 2018/848 which states that "*GMOs, products produced from GMOs, and products produced by GMOs shall not be used in food, feed, processing aids […] in organic production*".

53 To estimate the share of the market those customers represent, the Parties explain that less than 10% of the lactase sold globally and in the EEA goes into organic production (Form CO. para. 673 and 674). Another manufacturer estimates that customers bound to use non-GM produced lactase represent 25% of the market (Minutes of a call with a manufacturer, 10 October 2023, para. 12).

(40) *First*, the market investigation indicated a material price difference between GM and non-GM produced lactase. A majority of responding competitors and distributors consider that non-GM produced lactase is more expensive than GM produced lactase in the EEA[54] and at global level.[55] The market investigation was inconclusive regarding the level of price difference. Some respondents consider that non-GM produced lactase is significantly more expensive than GM produced lactase with a price difference above 20%.[56] This is supported by the fact that variable costs are lower for GM produced lactase than non-GM produced lactase.[57] One lactase manufacturer explained that: "*GM produced lactase is up to two times cheaper to produce than non-GM produced lactase*".[58] Others explain that there is no appreciable price difference between non-GM produced lactase and GM produced lactase.[59]

(41) *Second*, the Commission observes switching from non-GM to GM produced lactase but little to no switching from GM to non-GM produced lactase.

(42) This is reflected in the Parties' switching data. Between 2020 and 2022, Novozymes customers amounting to [percentage] of its sales of non-GM produced lactase in 2020 switched to buying GM produced lactase from Novozymes[60] while [number] of Novozymes' customers who purchased GM produced lactase in 2020 switched to Novozymes' GM produced lactase.[61] A similar pattern exists for Chr. Hansen customers. The analysis finds switching in both directions although the switching from non-GM to GM produced lactase is higher; in particular, the analysis finds that [percentage] of Chr. Hansen customers in 2020 who were buying non-GM produced lactase have fully or partially switched to buying GM produced lactase in 2022. The analysis also finds that [percentage] of Chr. Hansen customers who were buying the GM product in 2020 have fully or partially switched to buying non-GM in 2022.[62]

(43) A number of market participants also consider, to varying degrees, that the market is generally switching towards GM produced lactase. One manufacturer notes there is a: "*clear move to GM produced lactase. This is a global trend where non-GM lactases are being replaced by GM ones, where possible*"[63] which leads it to "*firmly believe that GM produced lactase will become more dominant in the market*".[64] On the other hand, one manufacturer notes that: "*some customers would prefer to only buy one type of lactase rather than multiple different types and would therefore purchase just a non-GM lactase as it can be used for both organic/non-GM labelled products as well as non-organic applications*".[65]

54 eRFI to competitors and distributors, question B.9.
55 eRFI to competitors and distributors, question B.11.
56 eRFI to competitors and distributors, question B.9.
57 Form CO. para. 960.
58 Minutes of a call with a manufacturer on 10 October 2023, para. 9.
59 eRFI to competitors and distributors, question B.9.
60 Form CO. para. 1014.
61 Form CO. para. 1018.
62 Form CO. para. 1023.
63 Minutes of a call with a manufacturer on 10 October 2023, para. 16.
64 Minutes of a call with a manufacturer on 10 October 2023, para. 16.
65 Minutes of a call with a manufacturer on 25 September 2023, para. 8.

(44) This move to GM produced lactase is [information about the Parties' sales strategy].[66,6768]

(45) *Third*, supply side switching is only possible for players that have already the capabilities to manufacture GM and non-GM produced lactase. The Commission notes the Parties' argument that the same equipment is used for the production of GM and non-GM produced lactase meaning that it is possible to relatively quickly switch production between GM and non-GM produced lactases.[69] However, for a manufacturer to be able to switch between batches of GM and non-GM produced lactase, it must already have developed and have access to the production technology and know-how to produce both. At the moment, out of the 6 lactase manufacturers worldwide, only DSM manufactures both GM produced and non-GM produced lactase. Moreover, developing such capacities seem to be complex and time consuming. For instance, once Chr. Hansen decided to develop its own GM produced lactase in [date], it needed close to [time period] to develop a lactase enzyme and a production host.[70]

(46) Given these indications that there could be a separate market for GM produced lactase, the Commission has undertaken its assessment on the narrowest possible basis, that is lactase produced using GM technology.

4.1.2.1.2.3. Lactase sub segmentation: end product and activity level

(47) The Commission investigated a further segmentation of lactase by end product and activity level at different temperature and pH levels.

(48) The activity level of lactase is measured by its hydrolysis rate (the rate at which lactose molecules are converted into galactose and glucose). The hydrolysis rate is affected by temperature and pH levels[71] and individual lactase products have different performance profiles and are used in different production environments (with varying temperature and pH levels).[72]

(49) Within the dairy industry, lactase is used in a variety of end products: milk, fermented milk products (yogurt, kefir, etc), cheese, infant formula, sports nutrition, ice-cream, dulce de leche, and dietary supplements/over-the-counter pharmaceuticals.[73] The main use today accounting for more than 90% of all lactase sales, is in the production of lactose-reduced and lactose-free milk.[74] Since the

66 Between 2020 and 2022, Chr. Hansen had a gross margin between [percentage] and [percentage] on the sale of Ha-Lactase™ (non-GM produced lactase) and between [percentage] and [percentage] on the sale of NOLA® Fit (GM produced lactase). (Form CO. table 74 and 75).

67 Between 2020 and 2022, Novozymes had a gross margin between [percentage] and [percentage] on the sale of Lactozym® Pure (non-GM produced lactase) and between [percentage] and [percentage] on the sale of Saphera® (GM produced lactase). (Form CO. table 78 and 79).

68 For Novozymes see Form CO. para. 868. For Chr. Hansen see Form CO. para. 709.

69 Form CO. para. 681.

70 Form CO. annex 7.G.a.

71 It is also affected by the Km (Michaelis constant) which refers to the substrate concentration at which the reaction rate is 50% of the Vmax (the maximum rate of the enzymatic reaction, when all the enzyme's active sites are saturated with substrate). In other words, a measure of how efficient the enzyme is at carrying out its function at a lower substrate (here: lactose) concentration (Form CO. para. 726 and footnote 342 of the Form CO).

72 Form CO. para. 742

73 Form CO. para. 923.

74 Form CO. para. 923.

various end products are produced in different temperature and pH environments,[75] the end-product analysis overlaps with the analysis of the activity level at different pH and temperature levels.

(50) Regarding further sub-segmentation by end product and in different production environments, a majority of responding competitors and distributors consider that lactases are less efficient for certain end products and/or production environment but that can be compensated by increasing the amount used.[76] On the other hand the majority of responding customers consider that certain lactases are only suitable for certain uses.[77] As explained by a respondent: "*each enzyme has a specific working range. Beyond that range, performance varies*".[78] A customer adds that: "*despite their differences, you can compensate a low level of activity of a certain lactase by increasing the quantity used. However, using a higher quantity can impact the taste and texture of the product as well as the overall price*".[79]

(51) This is supported by submissions of the Parties on the activity profile of various lactases at different temperatures and pH levels that show that the activity level indeed varies between lactases, with some performing better than others at a given temperature or pH. However, as confirmed by the Parties, that can be compensated by increasing the dosage of lactase used.[80]

(52) On this basis, the Commission considers that, with regard to end use, this is a market of heterogeneous products for which it is not appropriate to segment the market for lactase according to end use or performance level in different pH or temperature levels.

4.1.2.2. Relevant Geographic Market

4.1.2.2.1. The Commission's decisional practice

(53) In its IFF Decision, the Commission left open the geographic market definition with regard to enzymes, considering that the Transaction would not raise serious doubts as to its compatibility with the internal market under any plausible geographic market definition.[81]

4.1.2.2.2. The Parties' views

(54) The Parties consider that in respect of the manufacture of food & beverage enzymes and dairy enzymes, including lactase, the relevant geographic market is global or at least EEA-wide in scope.[82]

75 Form CO. para. 743 to 746.
76 eRFI to competitors and distributors, question B.13.
77 eRFI to customers, question B.13.
78 eRFI to customers, question B.14.
79 Minutes of a call with a customer of 6 June 2023, para. 20.
80 Form CO. para. 748.
81 Case M.9827 – *IFF Decision*, para. 153.
82 Form CO. para. 1053.

(55) In support of their submission, the Parties explain that:

(i) The main suppliers of dairy enzymes are global players with the same products sold across the globe – and often under the same brand;[83]

(ii) The main customers purchase dairy enzymes globally;[84]

(iii) There are no significant barriers to cross-border trade of dairy enzymes across regions and continents. The Parties mention low transport costs in relation to the total cost of production[85] as well as low import duties.[86] They also submit that there are no trade barriers except for product registration requirements in relevant regions and countries. With regards to the regulatory framework, the Parties mention that in all major jurisdictions, regulatory approvals are generally linked to the molecule and therefore, at the commercialization/distribution level, no new regulatory approval is needed. However, the Parties submit that the EU/EEA legal framework[87] applies to all products marketed and sold within the EU/EEA irrespective of whether these products are manufactured and sold within the EU/EEA or imported into and sold on the EU/EEA market. Thus, the Parties are not aware of any relevant regulatory framework applicable in the EU/EEA only related to products imported from third countries;[88]

(iv) Many players have to ship their products globally;[89]

(v) Novozymes and Chr. Hansen's pricing towards end-customers follow [information on pricing];[90] and

(vi) The structure of supply and demand of dairy enzymes and of competition between the relevant suppliers are global in scope.[91]

(56) However, ultimately, the Parties consider that the exact geographic market can be left open as competition concerns do not arise on any plausible geographic market.[92]

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83 Form CO. para. 1054.

84 Form CO. para. 1055.

85 For instance, according to the Parties, lactase transport costs are typically less than [percentage] of the total production cost, and depending on INCO-terms, are around EUR [number]/kg for intercontinental transport (Form CO. para. 1057).

86 For instance, according to the Parties, there are no import duties on imports of lactase to the US from Europe, as well as no import duties to the EU from Japan or from Japan to Europe, the US or India. Form CO. para. 1057.

87 Regulation (EU) 1331/2008 (common approval procedure for enzymes), Regulation (EU) 1332/2008 (food enzymes), Regulation (EU) 1333/2008 (additives), Regulation (EU) 1334/2008 (flavourings), Regulation (EU) 1169/2011 (labelling requirement for food enzymes), EU Directive 2001/18/(EC) and EU Directive 2009/41/(EC) on products containing or derived from GM organisms, Regulation (EU) 1829/2003 (authorization of genetically modified food and feed) and Regulation (EU) 1830/2003 (traceability and labelling of genetically modified organisms) which are nevertheless currently being considered by the EEA Joint Committee.

88 Form CO. para. 1056 to 1069.

89 Form CO. para. 1070.

90 Form CO. para. 1071.

91 Form CO. para. 1072.

92 Form CO. para. 1074.

4.1.2.2.3. The Commission's assessment

(57) The results of the market investigation were inconclusive with regard to whether the conditions of competition vary between the EEA and the rest of the world.[93,94]

(58) On the one hand, elements of the market investigation suggest it is a global market. A majority of responding competitors and distributors consider that there are no import duties of quotas[95] and no transport costs.[96]

(59) This is in line with comments made by some market participants during pre-notification. One manufacturer explained that "*lactase can be manufactured globally*"[97] and that "*there are no major hurdles when shipping lactase globally*".[98] This is echoed by a distributor stating that "*these are global markets*"[99] as well as a customer explaining that manufacturers "*compete in the global market*".[100]

(60) On the other hand, a majority of responding competitors and distributors note that patents[101] and regulations can be barriers to entry in the EEA.[102]

(61) The commercialisation of enzymes in the EEA is covered by Regulation (EC) No 1332/2008 and Regulation (EC) No 1331/2008 (sometimes referred to by market participants as the Food Improvement Agent Package ("**FIAP**")). The FIAP creates a harmonized regulatory system for food enzymes across the European Union. Regulation 1332/2008 establishes that a "community list" of food & beverage enzymes will be adopted in the future. Once published, only enzymes appearing on this list can be used in foods in the EEA. The FIAP states that, to be added to the community list, an application must be made to the Commission and the European Food Safety Authority.

(62) The Community list has however not been issued and the Parties do not expect it to be published before 2027.[103] Therefore, there is currently no EEA-wide regulation preventing the sale of enzymes in the EEA. In any event, as explained by a

93 A majority of customers responded "don't know" on whether conditions of competition between the EEA and the rest of the world vary: material price difference for lactase, instances in the past when the price of lactase in the EEA and the rest of the world evolved in a different way, difference in the quality of lactase between the EEA and the rest of the world, if a local presence in the EEA is required to supply lactase to customers located there, or other ways in which conditions of competition vary between the EEA and the rest of the world (eRFI to customers, question C.2.).

94 A majority of manufacturers and distributors responded "don't know" on whether conditions of competition between the EEA and the rest of the world vary: material price difference for lactase, instances in the past when the price of lactase in the EEA and the rest of the world evolved in a different way, difference in the quality of lactase between the EEA and the rest of the world, if a local presence in the EEA is required to supply lactase to customers located there, or other ways in which conditions of competition vary between the EEA and the rest of the world (eRFI to competitors and distributors, question C.2.).

95 eRFI to competitors and distributors, question C.1.

96 eRFI to competitors and distributors, question C.1.

97 Minutes of a call with a manufacturer, 25 September 2023, para. 9.

98 Minutes of a call with a manufacturer, 25 September 2023, para. 11.

99 Minutes of a call with a distributor, 12 May 2023, para. 18.

100 Minutes of a call with a customer, 6 June 2023, para. 10.

101 eRFI to competitors and distributors, question C.1.

102 eRFI to competitors and distributors, question C.1.

103 Form CO. para. 692.

manufacturer: "*all EU/US producers players tend to comply with EU standards, which are the most stringent*"[104] in order to be able to operate globally.

(63) In conclusion, for the purposes of this decision and in light of the above, the Commission considers that the geographic market for the manufacture of lactase can be considered to be at least EEA-wide.

4.1.3. The enzymes distribution market

4.1.3.1. Relevant Product market

4.1.3.1.1. The Commission's decisional practice

(64) The Commission has not previously considered the market definition for the distribution of enzymes.

4.1.3.1.2. The Parties' views

(65) The Parties submit that their observations presented in section 4.1.2.1.1[105] regarding the market for the manufacture of enzymes also apply to the distribution market i.e. that due to supply side substitution there is no need to segment the market for enzymes by end use or individual enzyme.[106]

(66) Specifically with respect to the distribution of dairy enzymes, the Parties submit that entry or expansion mainly require basic enzyme expertise and specific dairy enzymes knowledge as well as commercial relationships with (potential) customers.[107] Thus, distributors of dairy enzymes would be able to switch, within a short period of time, without the need of product-specific know-how or investment in capacity or R&D, from one dairy enzyme to another.[108]

4.1.3.1.3. The Commission's assessment

(67) The market investigation revealed that a majority of responding competitors, distributors and customers consider that enzyme distributors are active across a range of enzymes,[109] either dairy enzymes or across a wider range of food and beverage enzymes.[110] Only a minority of respondents consider that distributors are specialized in a specific enzyme, such as lactase.[111] As explained by a respondent: "*usually distributors don't specialize in just one enzyme. They will always try to have multiple options, since their focus is to reach a wide range of clients. Sometimes they will specialize in a field, like Dairy or Bread because the application of an enzyme can sometimes require very specific knowledge of the process*".[112]

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104 Minutes of a call with a manufacturer, 26 April 2023, para. 8.

105 Limited or no demand side substitutability between food & beverage enzymes and other industrial enzymes, and across food & beverage sub-segments. But existing supply side substitutability between some, if not all, food & beverage enzymes, and other industrial enzymes, within food and beverage enzymes as well as within dairy enzymes.

106 Form CO. para. 897.

107 Form CO. para. 900.

108 Form CO. para. 900.

109 eRFI to competitors and distributors, question F.1 and eRFI to customers, question E.1.

110 eRFI to customers, question E.1.

111 eRFI to competitors and distributors, question F.1 and eRFI to customers, question E.1.

112 eRFI to competitors and distributors, question F.2.

(68) That is further developed by a distributor that explains that the role of distributors is not only to provide services in logistics, supply chain, sales, marketing but also extends to technical support to end-customers.[113]As a result, that distributor has "*technical experts ready to assist customers with product formulation, application, and testing*"[114], and "*technical teams can be sent for 12-18 months in the customer's laboratory to help them formulate their product*".[115]

(69) Nevertheless, there is greater supply side substitutability in the enzymes distribution market than in the lactase manufacturing market. Entry or expansion in the enzymes distribution market does not require the same type of investments in R&D and equipment to start manufacturing enzymes and described above in section 4.1.2. For instance, an existing expertise in dairy enzymes[116] and commercial relationships[117] is an asset to start distributing another dairy enzyme. However, as pointed out by the Parties, what matters most is general enzyme knowledge and an existing commercial network: "*generally for distributors with a commercial network and basic enzyme expertise the costs of entry would be limited"*.[118] Therefore, the barriers to entry for an established enzyme distributor to start distributing another enzyme, are limited.

(70) These factors indicate that there is potentially a market for the distribution of either food and beverage enzymes or potentially a narrower sub-segment of the distribution of dairy enzymes.

(71) Nevertheless, as observed above in section 4.1.2.1.2, the market investigation confirmed that, because of lactase's specific role in breaking down lactose into glucose and galactose, there is no demand side substitutability between lactase and other enzymes.

(72) In any event, for the purposes of this decision, the question of whether the product market definition should be limited to the distribution of GM produced lactase, non-GM produced lactase, food & beverages lactase[119] ("**F&B lactase**"), or should be defined as wider and encompassing all dairy enzymes or all food & beverage enzymes can be left open, as the Transaction would not raise serious doubts as to its compatibility with the internal market under any of these plausible product market definitions.

4.1.3.2. Relevant Geographic market

4.1.3.2.1. The Commission's decisional practice

(73) The Commission has not previously considered the market definition for the distribution of enzymes.

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113 Minutes of a call with a distributor of 1 June 2023, para. 10 and 13.
114 Minutes of a call with a distributor of 1 June 2023, para. 13.
115 Minutes of a call with a distributor of 1 June 2023, para. 13.
116 Form CO, para. 2113.
117 Form CO. para. 2113.
118 Form CO. para. 2118.
119 F&B lactase are GM and non-GM produced lactase used in the food and beverages industry as opposed to in the DS/OTC industry.

4.1.3.2.2. The Parties' views

(74) The Parties consider that, similarly to the manufacturing level, the relevant geographic market is global or at least EEA-wide in scope.[120]

(75) The Parties mention existing regional aspects with regard to distribution, but they submit that the main distributors are active on a global scale at the distribution level.[121]

(76) Additionally, the Parties submit that there are no significant barriers to cross-border trade of dairy enzymes across regions and continents (i.e. low transport costs, low and/or no import duties) except for product registration in relevant countries/regions. In particular, the Parties submit that the regulatory framework for food & beverage enzymes within the EU/EEA does not raise cross border trade barriers.[122]

(77) Ultimately, the Parties submit that the exact geographic market can be left open as there are no competition concerns under any geographic market.[123]

4.1.3.2.3. The Commission's assessment

(78) The market investigation revealed that a majority of responding competitors, distributors and customers consider that enzyme distributors are active across the world.[124] One respondent explains: "*whilst some distributors may purchase and resell locally, companies such as Novozymes and Chr. Hansen that produce lactase will distribute either directly or via partners globally*".[125] Customers also explained that there is a global market for enzymes.[126] One customer explained it requires: "*its suppliers to be able to supply enzymes to the company globally, to ensure security of supply (so they must have extensive storage and distribution arrangements) and to be able to provide global technical support*".[127] This is also echoed by comments made by distributors that explain that "*these are global markets*".[128]

(79) Additionally, as explained in section 4.1.2.2 above, the market investigation revealed that there are no significant barriers to entry in the EEA.

(80) Nevertheless, as noted by the Parties, "*distributors comprise a plethora of players, ranging from smaller, local distributors to large multinational distributors*"[129] which advocates for narrower national markets.

120 Form CO. para. 1053.
121 Form CO. para. 1054.
122 Form CO. para. 1058.
123 Form CO. para. 1074.
124 eRFI to competitors and distributors, question F.1 and eRFI to customers, question E.1.
125 eRFI to competitors and distributors, question F.4.
126 Minutes of a call with a customer of 6 June 2023, para. 10.
127 Minutes of a call with a customer of 22 May 2023, para. 5.
128 Minutes of a call with a distributor of 12 May 2023, para. 18.
129 Form CO. para. 656.

(81) In light of the above, for the purposes of this decision, the exact scope of the geographic definition with respect to the distribution of enzymes can be left open as to whether it is national, EEA or wider, as the Transaction does not raise serious doubts as to its compatibility with the internal market under any plausible geographic market definition.

4.2. Cultures

(82) Cultures are living microorganisms, such as bacteria, yeast or mould used in food and beverage manufacturing, animal and plant health, and animal feed. They provide a beneficial impact or specific function when used in a production process or included in a final product.[130]

4.2.1. Relevant Product Market

4.2.1.1. The Commission's decisional practice

(83) In the *PAI / Chr. Hansen* decision,[131] the Commission considered a market of cultures for food production but ultimately left the product market definition open.[132]

(84) In the IFF Decision[133] and in its *Firmenich International/Koninklijke DSM* decision,[134] the Commission considered a possible further segmentation of the market for the manufacture and supply of cultures based on end-application i.e. dairy cultures, cultures for meat, and cultures for plant-based food but ultimately left the market definition open.[135]

(85) In its precedents, the Commission considered a market for the manufacture and supply of cultures and did not consider a segmentation between manufacturing and distribution activities.[136]

4.2.1.2. The Parties' views

(86) The Parties explain that Chr. Hansen is active in the manufacture and commercialisation/distribution of food cultures used in dairy, fermented beverages, meat, and plant-based foods.[137]

(87) The Parties submit that the segment for the manufacture and supply of dairy cultures should not be further segmented. Indeed, the Parties consider that there is a high degree of supply side substitution between the different types of dairy cultures. As an example, the Parties submit that similar types of bacterial strains are used for different types of dairy culture applications. With respects to supply side substitutability, the Parties submit that manufacturers/suppliers have broad

130 Case M. 9827 - *IFF Decision*, para. 8.
131 Case M. 3845 – *PAI / Chr. Hansen.*
132 Case M. 3845 – *PAI / Chr. Hansen* para. 10 to 12.
133 Case M. 9827 – *IFF Decision.*
134 Case M. 10841 - *Firmenich International/Koninklijke DSM*.
135 Case M. 9827 – *IFF Decision*, para. 33.
136 Case M. 10841 - *Firmenich International/Koninklijke DSM* para 34. Case M. 9827 – *IFF Decision*, para. 32.
137 Form CO. para. 1886.

portfolios of dairy cultures and that manufacturers of dairy products multisource the same dairy culture solutions from several suppliers.[138]

(88) Additionally, the Parties explain that the technology and equipment used to produce dairy cultures can typically be used to produce the full range of dairy cultures within a short period of time and without incurring significant additional costs.[139]

(89) The Parties submit that, for the purposes of assessing the Transaction, the exact scope of the product market definition can be left open.[140]

4.2.1.3. The Commission's assessment

(90) Nothing on the Commission's file contradict its previous findings that there could be a market for cultures for food production, and that it could be segmented based on end-application i.e. dairy cultures, cultures for meat, and cultures for plant-based food. Additionally, no information was provided in favour or against a segmentation between manufacturing and distribution activities.

(91) For the purposes of the decision, the Commission considers that the exact scope of the product market definition can be left open between a market for all cultures or segmented according to end application, and with regard to manufacture and distribution of various dairy cultures, as the Transaction does not raise serious doubts as to its compatibility with the internal market under any plausible product market definition. The assessment in the conglomerate section 5.4, addresses the narrowest plausible product pairs.

4.2.2. Relevant Geographic Market

4.2.2.1. The Commission's decisional practice

(92) In previous decisions, the Commission considered that the geographic market for cultures was either EEA-wide or global but ultimately left the exact geographic market definition open.[141]

4.2.2.2. The Parties' views

(93) According to the Parties, manufacturers of dairy cultures operate globally. Customers source and switch between suppliers from different countries located across the EEA and the rest of the world. The Parties add that transportation costs are low. However, the Parties acknowledge that there are some differences across regions as well as import duties for certain cross-border trade. The Parties also mention limited legal/trade/regulatory barriers to cross-border trade.[142] Consequently, Parties submit that a hypothetical sub-segment for dairy cultures should be defined as global or at least EEA-wide[143] and that the market definition can ultimately be left open. [144]

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138 Form CO. para. 1895 to 1898.
139 Form CO. para. 1898.
140 Form CO. para. 1893.
141 Case M.9827– *IFF Decision*, Case M.10841 - *Firmenich International/Koninklijke DSM.*
142 Form CO. para. 1899.
143 Form CO. para. 1899.
144 Form CO. para. 1900.

4.2.2.3. The Commission's assessment

(94) Nothing on the Commission's file contradict its previous findings that the relevant market could be either EEA-wide of global.

(95) For the purposes of the decision, the Commission considers that the exact scope of the geographic market definition can be left open as the Transaction does not raise serious doubts as to its compatibility with the internal market under any plausible geographic market definition.

5. COMPETITIVE ASSESSMENT

5.1. Analytical Framework

(96) Article 2 of the Merger Regulation requires the Commission to examine whether notified concentrations are compatible with the internal market, by assessing whether they would significantly impede effective competition in the internal market or in a substantial part of it, in particular, as a result of the creation or strengthening of a dominant position or the removal of a significant competitive constraint. In addition, Article 57(1) of the EEA Agreement requires the Commission to examine whether notified concentrations are compatible with the functioning of the EEA Agreement, by assessing whether they would create or strengthen a dominant position as a result of which effective competition would be significantly impeded within the EEA territory or a substantial part of it.

(97) In this framework, "competition" is understood to mean product and price competition (actual or potential), as well as innovation competition, where the Commission assesses in particular potential horizontal non-coordinated effects. The Commission considers that a concentration may not only affect competition in existing markets, but also competition in innovation and new product markets. This may be the case when a concentration concerns entities currently developing new products or technologies which may one day replace existing ones or which are being developed for a new intended use and will therefore not replace existing products but create a completely new demand.[145]

(98) Horizontal effects arise when the parties to a concentration are actual or potential competitors in one or more of the relevant markets concerned. The Commission appraises horizontal effects in accordance with the guidance set out in the Horizontal Merger Guidelines. [146]

(99) Non-horizontal effects arise when the parties to a concentration operate in different levels of the supply chain in certain relevant markets (vertical effects) or when the Parties operate in closely related markets (conglomerate effects). The Commission appraises non-horizontal effects in accordance with the guidance set out in the Non-Horizontal Merger Guidelines.[147] Both the Horizontal and Non-Horizontal Merger Guidelines distinguish between non-coordinated and coordinated effects.

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145 Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings ("Horizontal Merger Guidelines"), OJ C 31, 05.02,2014. para. 38.

146 Horizontal Merger Guidelines.

147 Guidelines on the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings ("Non-Horizontal Merger Guidelines") (2008/C 265/07).

(100) In horizontal mergers, non-coordinated effects may significantly impede effective competition by eliminating the competitive constraint imposed by each merger party on the other, as a result of which the merged entity would have increased market power, without resorting to coordinated behaviour. In that regard, the Horizontal Merger Guidelines consider not only the direct loss of competition between the merging firms, but also the reduction in competitive pressure on non-merging firms in the same market that could be brought about by the merger.[148]

(101) The Horizontal Merger Guidelines list a number of factors which may influence whether or not significant non-coordinated effects are likely to result from a merger, such as the large market shares of the merging firms, the fact that the merging firms are close competitors, the limited possibilities for customers to switch suppliers or the fact that the merger would eliminate an important competitive force.[149] Furthermore, in accordance with the Horizontal Merger Guidelines, a merger with a potential competitor can also have horizontal anti-competitive effects where the potential competitor constrains the behaviour of firms active in the market.[150] Not all these factors need to be present for significant non-coordinated effects to be likely. The list of factors is also not an exhaustive list.

(102) In non-horizontal mergers, non-coordinated affects may arise when the concentration gives rise to foreclosure. In vertical mergers, foreclosure can take the form of input foreclosure, where the merger is likely to raise costs of downstream rivals by restricting their access to an important input; and/or of customer foreclosure, where the merger is likely to foreclose upstream rivals by restricting their access to a sufficient customer base.[151]

(103) In addition, the Non-Horizontal Merger Guidelines also state that a concentration may entail conglomerate effects. Conglomerate effects may arise in a concentration where the undertakings involved are active on closely related markets and may also lead to the foreclosure of rivals, by allowing the merged entity to leverage a strong market position from one market to another by means of tying, bundling or other exclusionary practice.[152]

(104) In accordance with the above legal framework, the Commission has carried out its assessment of whether the Transaction would impede effective competition within the internal market with regard to:

(a) Horizontal non-coordinated effects in the markets for the manufacture and distribution of lactase;

(b) Vertical non-coordinated effects between the upstream market for manufacture of lactase and the downstream market for the distribution of lactase;

(c) Conglomerate effects between different dairy enzyme markets and between dairy enzymes and dairy cultures; and

(d) the impact on innovation.

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148 Horizontal Merger Guidelines, para. 24.
149 Horizontal Merger Guidelines, para. 26.
150 Horizontal Merger Guidelines, para. 59.
151 Non-Horizontal Merger Guidelines, para. 30.
152 Non-Horizontal Merger Guidelines, para. 93.

5.2. Horizontal non-coordinated effects

(105) The Transaction results in: (i) a significant impact on the market for the manufacture of GM produced lactase where Novozymes has a market share larger than 30% and Chr. Hansen is a potential competitor; and (ii) horizontally affected markets for the distribution of lactase[153] and the wider market of the distribution of dairy enzymes where both Parties are active.

5.2.1. Manufacture of GM produced lactase

(106) Currently, Novozymes manufactures GM produced lactase; Chr. Hansen currently sources its GM produced lactase from Novozymes but has developed and pursued plans to start manufacturing in the last [time period].

(107) The market shares for the manufacture of GM produced lactase are set out below in Table 1.

Table 1: Market share in the GM produced lactase manufacturing market.

Manufacture of GM produced lactase – Including direct sales[154] – 2022 (value)		
	Global	**EEA**
Novozymes (DK)	**[40-50]%**	**[50-60]%**
DSM (NL)	[40-50]%	[40-50]%
IFF (US)	[5-10]%	-
Total market size (mEUR)	**EUR […]**	**EUR […]**

Source: Form CO. tables 123 and 125.

5.2.1.1. Overview of the G2 Project

(108) Chr. Hansen is a distributor of lactase that it sources from Novozymes (GM produced lactase) and [names of suppliers], (together the "**[…] Manufacturers**") (non-GM produced lactase). It does not currently manufacture its own lactase. In 2013, Chr. Hansen initiated a project to develop an alternative lactase (the "**G2 Project**").[155] [Information related to the G2 Project].[156]

(109) [Information about the G2 Project].[157] [158] [159]

(110) [Information on the status of the G2 Project][160] [161]

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153 Distribution of lactase (GM and non-GM produced), distribution of GM produced lactase, distribution of non-GM produced lactase.

154 The Parties provided market shares "including direct sales" meaning sales to end-customers and distributors and "excluding direct sales" which only accounts for sales to distributors. Market shares "including direct sales" are more representative of the overall importance of a manufacturer.

155 Form CO. annex 7.G.a, para. 3.

156 Form CO. annex 7.G.a, para. 5.

157 Form CO. annex 7.G.a, paras. 5 and 6.

158 Form CO. annex 7.G.a, para. 8.

159 Form CO. annex 7.G.a, para. 12[b].

160 [Information on the status of the G2 Project] (Form CO. annex 7.G.a, para. 20).

(111) [Information on the status of the G2 Project].[162] [163]

5.2.1.2. The Parties' views

(112) Chr. Hansen's main points relate to the fact that [information regarding the G2 Project][164] and that IFF is a potential competitor.[165]

(113) Chr. Hansen submits that [information about Chr. Hansen's supply of lactase][166].[167]

(114) To bring the G2 Project to market, Chr. Hansen estimates it would need to invest EUR [amount] mostly to [information on the status of G2 Project].[168] Chr. Hansen explains that [information on the status of G2 Project].[169] Chr. Hansen further explains that [information on status of G2 Project] and that [information on status of G2 Project].[170]

(115) Moreover, while Chr. Hansen [information in relation to the G2 Project].[171] The G2 Lactase would therefore be a reasonable substitute for customers.[172]

(116) Finally, the Parties note that while IFF does not have sales of GM produced lactase in the EEA, it is a strong global company fully equipped to be a potentially significant player in lactase manufacturing in the EEA within a short space of time.[173]

5.2.1.3. The Commission's assessment

(117) Based on its market investigation and for the reasons set out below, the Commission considers that there is a significant likelihood that Chr. Hansen would grow into an effective competitive force and that there is not a sufficient number of other potential competitors which would maintain sufficient competitive pressure after the merger.

5.2.1.3.1. Significant likelihood that Chr. Hansen would grow into an effective competitive force

(118) The Commission considers that Chr. Hansen would grow into an effective competitive force on the market for GM produced lactase in the EEA for the following reasons.

(119) *First*, the Commission considers it likely that absent the merger, Chr. Hansen is very likely to incur the necessary sunk costs to enter the market in a relatively short period of time. [Information on status of G2 Project].

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161 Form CO. para. 1308.
162 Form CO. annex 7.G.a, para. 12.
163 Form CO. annex 7.G.a, para. 14 and 15.
164 Form CO. para. 1305.
165 Email from Linklaters, 28/11/2023.
166 The lactase supply agreement between Novozymes and Chr. Hansen is set to expire in [time period] (Form CO. para. 25).
167 Form CO. para. 1335.
168 Form CO. para. 1348.
169 Form CO. para. 1297.
170 Form CO. para. 1352.
171 Form CO. para. 1350.
172 Form CO. para. 1350.
173 Email from Linklaters, 28/11/2023.

(120) [Information on the supply agreement between Chr. Hansen and Novozymes].[174]

(121) [Information on Chr. Hansen's sourcing of lactase].[175].[176]

(122) On the other hand, Chr. Hansen's G2 Project is already advanced: [information on the status of the G2 Project].

(123) Additionally, while scaling up and commercially launching the G2 Lactase would require [information in relation to the G2 Project],[177] the Commission considers that [information in relation to the G2 Project]. First, as explained above in in section 4.1.2.1.2.2, GM produced lactase has grown to represent 20-30% of all lactase sales, and the lactase market is: "*[extract from Market&Markets, Lactase market global forecast to 2027]*"[178] with a global compound annual growth rate of [percentage from Market and markets, Lactase market global forecast to 2027] between 2022 and 2027.[179] Second, despite some [information about the lactase market], in internal documents Chr. Hansen explains that: "*the [information about the lactase market and the status of the G2 Project] and [information in relation to the G2 Project]*".[180] Third, internal documents of Chr. Hansen reveal it estimates that the investment would be paid back in [time period].[181]

(124) Chr. Hansen estimates that, should [information in relation to the G2 Project], it would be able to launch the product in [time period][182].

(125) *Second*, Chr. Hansen is likely to become an effective competitive force. As presented above in section 4.1.2, lactases perform the same function and are technically substitutable from a customer's perspective (except for customers that need an organic certification and need to purchase a non-GM produced lactase). While Chr. Hansen presents the G2 Lactase as [information about the G2 Project]. One document explains that: "*[Information about the G2 Project]*".[183] Consequently, the Commission considers that the G2 Lactase would be [Information about the G2 Project] with the lactase manufactured and sold by Novozymes and would exert an important competitive pressure on Novozymes.

(126) Moreover, Chr. Hansen is already a well-established dairy and lactase distributor with direct access to end-customers.[184] It is the second largest distributor of lactase in the EEA after DSM ([25-35]% market share on the distribution of food and beverage lactase in the EEA)[185] and the largest distributor of GM produced lactase in the EEA ([40-50]% market share on the distribution of GM produced lactase in the EEA). It is an important distributor despite being dependent on Novozymes for

174 Form CO. para. 1341.
175 Chr. Hansen purchases non-GM produced lactase from third parties, that it then distributes under the brand Ha-Lactase™ (Form CO para. 658).
176 Form CO. para. 1343.
177 PN RFI 7, question 15.
178 Form CO. annex 7.A.e – Market and markets, Lactase market global forecast to 2027, p 38.
179 Form CO. annex 7.A.e – Market and markets, Lactase market global forecast to 2027, p 39.
180 PN RFI 1, Annex RFI1-Q55.035, slide 4.
181 PN RFI 2, Annex RFI2-Q9.b.015, slide 59.
182 Form CO. annex 7.G.a, para. 15.
183 PN RFI 1, Annex RFI1-Q55.040, G2 Project status for SteerCo, 30 August 2021, slide 5.
184 It currently sells [percentage] of its lactase directly to end-customers and relies on distributors "*[Information about Chr. Hansen's strategy for using distributors]*" (Form CO. para. 1913).
185 All food and beverage lactase.

its supply of NOLA® Fit. Chr. Hansen notes in internal documents that: "*[information about cost structure of NOLA® Fit]*".[186]

(127) Chr. Hansen currently pays a [percentage] gross margin on its purchases of lactase from Novozymes.[187,188] Manufacturing the G2 Lactase would allow Chr. Hansen to address both limitations it identified and presented above: [Information about Chr. Hansen's strategic assessment].

5.2.1.3.2. There are not a sufficient number of other potential competitors which could maintain sufficient competitive pressure after the merger

(128) The Commission considers that there are not a sufficient number of other potential competitors which could maintain sufficient competitive pressure in the market for GM produced lactase in the EEA after the Transaction for the following reasons.

(129) *First*, the market for the manufacture of GM produced lactase is very concentrated with only two players currently active in the EEA. Novozymes is the leading GM produced lactase manufacturer with [50-60]% in market share in the EEA and DSM has the remaining [40-50]%.

(130) At a global level, the only other manufacturer of GM produced lactase is IFF. The Parties submit that IFF is fully equipped to be a potentially significant player in lactase manufacturing in the EEA within a short space of time given that it already markets GM produced lactase outside the EEA. Novozymes notes to that point that "*[IFF] is ready with 2 new lactases (Bonlacta and Nurica), although we haven't seen them much in the EU yet*".[189]

(131) In this regard, the Commission notes that: (i) the market share data submitted by the Parties' does not currently show any sales by IFF in the EEA; (ii) IFF is a minor manufacturer of GM produced lactase globally compared to DSM and Novozymes. At global level, IFF has a [5-10]% market share while Novozymes has [40-50]% and DSM has [40-50]%; and (iii), internal documents from the Parties show that they consider their main competitor to be DSM.[190,191]

(132) [Information about patents][192]. In that regard, IFF explained that it considers patents to be a barrier to entry in the EEA.[193] Accordingly, part of the reason that IFF has not played a significant role in the EEA market to date may be because of the actual or perceived threat of infringing [name(s)] intellectual property rights. [Information about patents].[194]

(133) *Second*, as noted above in section 4.1.2, there are high barriers to entry in the GM produced lactase manufacturing market. Manufacturers need to develop the required technology (lactase enzyme and GM production host), the required

186 PN RFI 1, Annex RFI1-Q55.032, slide 4.
187 Form CO. para. 1511.
188 Form CO. para. 1511.
189 PN RFI5, Annex RFI5-Q17.015, slide 16.
190 For Novozymes, see PN RFI5, Annex RFI5-Q17.031, slide 5.
191 For Chr. Hansen, see PN RFI5, Annex RFI5_Q16.008, slide 18.
192 Form CO. para. 696.
193 eRFI to competitors and distributors, question C.1.
194 Email submission sent by Linklaters on 28.11.2023.

manufacturing capabilities, obtain a number of regulatory authorisations and develop market access. As a result, most responding manufacturers consider that more than 2 years are needed for a manufacturer of another food and beverage enzymes to start producing and commercially supplying GM produced lactase[195] as well as an investment of less than EUR 10 million or between EUR 10 million and EUR 50 million[196] depending on the existing resources of the manufacturer.[197] The Commission observes that indeed, it has [information on status of G2 Project].[198]

(134) The market investigation identified a number of players that have an interest in entering the market and have taken certain steps in that regard, but none would be in a position to enter the market within the next 2 years.

5.2.1.3.3. Commission's conclusion

(135) In view of the above, the Commission considers that the Transaction raises serious doubts as to its compatibility with the internal market due to its likely horizontal non-coordinated effect in the market for the manufacturing of GM produced lactase in the EEA.

5.2.2. Distribution of lactase

(136) The Parties overlap in the distribution of dairy enzymes (in particular lactase, catalase and lipase)[199], but the only horizontally affected markets are:[200] (i) distribution of dairy enzymes in Denmark;[201] (ii) distribution of lactase in Denmark;[202] (iii) distribution of GM produced lactase at global level; (iv) distribution of GM produced lactase in Spain,[203] and; (v) distribution of non-GM produced lactase in Denmark.[204]

195 eRFI to competitors and distributors, question E.1.

196 eRFI to competitors and distributors, question E.3.

197 eRFI to competitors and distributors, question E.4.

198 Form CO. annex 7.G.a

199 Form CO. figure 15.

200 Other overlaps on plausible distribution markets fall under point 5 of the Commission Notice on a simplified treatment of certain concentrations under Council Regulation (EC) No 139/2004 (OJ C 160, 5.5.2023) because of low combined market shares and/or limited increments. That is notably the case for the markets for the distribution of F&B lactase in the EEA and the distribution of GM produced lactase in the EEA in which the Parties have a combined market share above 30% but below 50% and an HHI delta below 150.

201 Combined market share of [40-50]% (Chr. Hansen [30-40]%, Novozymes [10-20]%). A lot of the overlap is caused by Chr. Hansen's activity in coagulants, that Novozymes is not active in. (Response to RFI 4)

202 Combined market share in all lactases (F&B and DS/OTC) of [20-30]% (Chr. Hansen [5-10]% and Novozymes [10-20]%) and in F&B lactase of [20-30]% (Chr. Hansen [5-10]% and Novozymes [20-30]%). (Response to RFI 4)

203 Combined market share of [50-60]% (Chr. Hansen [50-60]%, Novozymes [0-5]%). (Response to RFI 4)

204 Combined market share of [30-40]% (Chr. Hansen [10-20]%, Novozymes [20-30]%). (Response to RFI 4)

Table 2: Market shares for the distribution of lactase

Distribution of lactase – 2022 (value)				
	EEA		Global	
	F&B lactase[205]	GM produced lactase	F&B lactase[206]	GM produced lactase
Novozymes (DK)	[0-5]%	[0-5]%	[0-5]%	[5-10]%
Chr. Hansen (DK)	[25-35]%	[40-50]%	[10-20]%	[20-30]%
Combined	**[30-40]%**	**[40-50]%**	**[10-20]%**	**[20-30]%**
DSM (NL)	[40-50]%	[30-40]%	[10-20]%	[10-20]%
IFF (US)	[5-10]%	-	[5-10]%	[0-5]%
Amano (JP)	[0-5]%	-	[0-5]%	-
Godo (JP)	[0-5]%	-	[0-5]%	-
Nagase (JP)	[0-5]%	-	[0-5]%	-
Others	[10-20]%	[20-30]%	[50-60]%	[50-60]%
Total market size (mEUR) ([207])	**[…]**	**[…]**	**[…]**	**[…]**

Source: Form CO. tables 131, 132, 139, 140.

5.2.2.1. The Parties' views

(137) The Parties submit that the Transaction will not give rise to horizontal non coordinated effects in the market for the distribution of GM produced lactase for the following reasons.

(138) *First*, the Parties consider that post-Transaction the merged entity will not have significant market power based on the relatively low market shares and non-problematic increment.[208] The Parties submit that post-Transaction, the merged entity will continue to face strong competitors who will impose significant competitive constraints. The Parties mention DSM (considered as a clear segment leader), IFF and a large number of distributors active in the distribution of lactase.[209]

(139) *Second*, the Parties do not consider that it is appropriate to further segment the lactase distribution market between GM and non-GM produced lactase. Should the market be further segmented, the Parties submit that, as further detailed in section 4.1.2.1.1 above, the price of GM produced lactase is constrained by the price of non-GM produced lactase and that a hypothetical monopolist active in GM

205 F&B lactase refers to GM and non-GM lactase sold for use in the food and beverage industry and not for use in the DS/OTC industry. Both Parties are not actively selling lactase for the DS/OTC industry.

206 See footnote above.

207 The combined market value of GM and non-GM produced lactase do not add to the total value of F&B lactase because the market shares for GM/non-GM produced lactase are calculated on the total market for lactase (F&B + DS/OTC) while the F&B lactase distribution market shares are based on the narrower market for F&B lactase (excluding DS/OTC).

208 The increment is only [0-5]% points globally and [0-5]% points in the EEA, leading to a post-merger HHI of [500-1000] globally (with a delta of [<150]) and of [2000-3000] in the EEA (with a delta of [<150]) (Form CO. para. 1417).

209 Form CO. para. 1418.

produced lactase would likely not find it profitable to raise prices of GM products.[210]

(140) *Third*, the Parties submit that they are not each other's closest, or particularly close competitors for the distribution of lactase. This argument is supported by data on customer negotiations and tenders collected by Chr. Hansen which show that Chr. Hansen considers [competitor] to be Chr. Hansen's key competitor and not Novozymes.[211, 212]

(141) *Fourth*, the Parties submit that the Transaction does not combine two important or competing innovators and that, in any case, innovation does not play any particular role with respect to the distribution of lactase.[213]

(142) *Fifth*, the Parties submit that customers have ample opportunities to switch suppliers and that switching can be done in a timely manner and without incurring significant costs, in particular because of the commodity nature of lactase. The Parties sustain that this is evidenced by the fact that: (i) switching between lactase suppliers and negotiations by customers happen quite frequently; and (ii) customers multi-source.[214]

(143) *Sixth*, the Parties submit that the lactase segment is characterized by large customers with significant countervailing buyer power (such as [customer names])[215] who are able to credibly threaten to switch to alternative suppliers in order to negotiate a discount.[216]

(144) *Finally*, the Parties argue that there are no barriers to entry/expansion and that the combined entity will not be able to hinder expansion by competitors post-Transaction.

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210 Form CO. para. 1436.

211 Form CO. para. 1448 to 1451, across all regions, Chr. Hansen submits that [competitor name] is mentioned as the key competitor in only [number] out of the [number] projects ([percentage] of projects). The top key competitors recorded by Chr. Hansen are [competitor name] (mentioned in [number] out of [number] projects, more than [percentage] of projects) and [competitor name] (mentioned [number] times, i.e. [percentage] of projects). Weighting these mentions by the value of the Chr. Hansen bid for each of these projects (to reflect the size of the opportunity), [competitor name] accounted for only [percentage] of the overall value of Chr. Hansen bids, while [competitor name] accounted for [percentage] and [competitor name] accounted for [percentage].

212 Form CO. para. 1452, across the EEA, Chr. Hansen submits that [competitor name] is mentioned as the key competitor in only [number] out of the [number] projects ([percentage] of projects). Again, the top key competitors recorded by Chr. Hansen are [competitor name] (mentioned in [number] out of the [number] projects, more than [percentage] of projects) and also [competitor name] which are perceived as key competitors to a similar extent as [competitor name] ([number] events for [competitor name] vs. [number] events where [competitor name] is mentioned, for an overall value that is comparable to that of [competitor name]). In terms of value, [competitor name] accounted for only [percentage] of the overall value of Chr. Hansen bids, while [competitor name] accounted for [percentage].

213 Form CO. para. 1470.

214 Form CO. para. 1472.

215 Form CO. para. 1474.

216 Form CO. para. 1475.

5.2.2.2. The Commission's assessment

(145) Following its market investigation, the Commission does not consider that the Transaction raises serious doubts as to its compatibility with the internal market as a result of potential horizontal non-coordinated effect on global, EEA and national markets for each of the affected markets listed above in paragraph (136).

(146) *First*, Novozymes and Chr. Hansen have very different go-to-market strategies. Chr. Hansen is a distributor of lactase with direct access to end-customers while Novozymes is a lactase manufacturer relying on distributors for market access which has some limited sales to end customers. This is reflected in the limited increment brought by Novozymes when looking at the market for F&B lactase ([0-5]% at EEA level, [0-5]% at global level) and GM produced lactase ([0-5]% at EEA level, [5-10]% at global level). The combined market share of the Parties for the distribution of GM produced lactase at global level is moderate ([20-30]%) with a moderate increment ([5-10]%).

(147) The different focus of both companies is also reflected in Chr. Hansen bidding data, which show they rarely compete with one another on sales projects. Out of the [number] global sales projects Chr. Hansen has worked on between 2020 and 2023, Novozymes is only mentioned as a key competitor in [percentage] of projects.[217]

(148) *Second*, the merged entity still faces strong vertically integrated manufacturers like DSM as well as sophisticated distributors (such as, Sacco, Kerry, Genofocus, Advanced Enzymes, Proquia, Prozyn, Optiferm and Univar Solutions and many others) whose business models are as a distributor of food and beverage enzymes.

(149) *Third,* no substantiated concerns relating to the horizontal overlap in distribution were raised as part of the market investigation. On the contrary, a majority of responding competitors, distributors[218] and customers[219] consider the Transaction will have a neutral or positive impact in the various enzyme ranges.

5.3. Vertical non-coordinated effects

(150) Vertically affected markets arise between: (i) Novozymes' upstream activities as a manufacturer of GM produced lactase in the EEA; and (ii) the combined activities of the Parties on the downstream markets for the distribution of F&B lactase at national, EEA and global levels.[220]

5.3.1. Legal framework

(151) A merger can entail non-horizontal effects when it involves companies operating at different levels of the same value chain or in closely related markets.

(152) In assessing potential vertical effects of a merger, the Commission analyses, among other things, whether the merger results in foreclosure so that actual or potential

217 Form CO. table 143.

218 eRFI to competitors and distributors, question Q.1

219 eRFI to competitors and distributors, question J.1

220 The assessment is also relevant to other potential vertical links between the (i) upstream manufacturing of GM produced lactase and (ii) downstream enzymes distribution segments (GM and non-GM produced lactase, F&B enzymes and dairy enzymes) at national, EEA and global level.

rivals' access to supplies or markets is hampered or eliminated as a result of the merger, thereby reducing those companies' ability and/or incentive to compete.[221] Such foreclosure may discourage entry or expansion of rivals or encourage their exit. Foreclosure thus can be found even if the foreclosed rivals are not forced to exit the market. It is sufficient that the rivals are disadvantaged and consequently led to compete less effectively. Such foreclosure is regarded as anti-competitive where the merging companies — and, possibly, some of their competitors as well — are as a result able to profitably increase the price charged to consumers.

(153) The Non-Horizontal Merger Guidelines distinguish between two forms of foreclosure: (i) input foreclosure, when access of downstream rivals to supplies is hampered;[222] and (ii) customer foreclosure, when access of upstream rivals to a sufficient customer base is hampered.[223]

(154) In assessing both types of foreclosure, the Commission assesses whether the merged entity: (i) would have the ability to engage in foreclosure; (ii) whether it would have the incentive to do so; and (iii) what would be the overall impact on effective competition in the affected markets. All these criteria must be cumulatively met for foreclosure concerns to arise.

5.3.2. Affected markets

(155) As noted in section 4.1.2.1.2 above, the Commission considers that the relevant upstream market is the market for the manufacture of GM produced lactase which is at least EEA wide in scope. Only Novozymes manufactures lactase and, on both the market for the manufacture of lactase at EEA level and global level, it has below 30% in market share.[224] However, it has above 30% in market share on the market for the manufacturing of GM produced lactase at both global[225] and EEA level.[226]

(156) On the downstream distribution market the only plausible markets on which Parties have a combined market share above 30% are: the market for the distribution of F&B lactase in the EEA,[227] and (ii) the market for the distribution of GM produced lactase in the EEA;[228] as well as some potential national markets.[229]

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221 Non-Horizontal Merger Guidelines, paras. 20-29.

222 Non-Horizontal Merger Guidelines, para. 31.

223 Non-Horizontal Merger Guidelines, para. 58.

224 The market shares stay below 30% whether direct sales on either markets are included or excluded. At most, the Parties have a [20-30]% market share on the upstream market (Manufacture of lactase (food and beverage) - EEA (excl. direct sales)).

225 Manufacture of lactase (food and beverage) - By technology: GM - Global (incl. direct sales): [40-50]%.

226 Manufacture of lactase (food and beverage) - By technology: GM - EEA (incl. direct sales): [50-60]%.

227 Food and beverages lactase is a subsegment of the larger lactase segment which includes both food and beverage lactase and DS/OTC lactase. [Information on the Parties' activities in respect of different types of lactase] (Form CO. para. 921). Consequently, market shares on the larger lactase commercialisation/distribution market are below 30% (Table 130 and 131 of the Form CO).

228 Distribution of GM produced lactase in the EEA: [40-50]%.

229 Distribution of dairy enzymes in Denmark (combined [40-50]%, Chr. Hansen [30-40]% and Novozymes [10-20]%), distribution of GM produced lactase in Italy (combined [40-50]%, Chr. Hansen [40-50]% and Novozymes [0-5]% - [turnover]€ worth of sales for Novozymes in Italy) and Spain (combined [50-60]%, Chr. Hansen [50-60]% and Novozymes [0-5]%), and the distribution of

(157) The Transaction therefore results in the following affected vertical link between: (i) Novozymes' activities in the manufacture of GM produced lactase upstream; and (ii) the combined activities of the Parties on the downstream markets for the distribution of F&B lactase at national, EEA and global level.[230,231]

5.3.3. Input foreclosure

5.3.3.1. The Parties' views

(158) The Parties submit that there is no risk of input foreclosure as the Parties do not have the ability and incentive to engage in input foreclosure and, in the event they did, there would be no impact.

(159) The merged entity would not have the ability to engage in input foreclosure as it does not have any market power in the upstream market, its market share is modest with no increment,[232] it will face a number of strong competitors at the manufacturing level, the market is not characterised by exclusive supply agreements meaning that distributors can source lactase from multiple manufacturers, and, manufacturers have excess capacity and the incentive to expand production to benefit from economies of scale.[233]

(160) According to the Parties, the merged entity would not have the incentive to stop supplying lactase to third parties since such strategy will involve foregoing profits from the upstream sales to these distributors and, given the extent of competition for end-customers from a large number of rivals (including vertically integrated manufacturers as well as independent distributors), have no or insignificant prospects of gaining profits from higher sales to end customers.[234] Additionally, the fact that vertically integrated players like DSM and IFF also sell via distributors also shows a lack of economic incentives to adopt such a strategy.[235]

(161) The Parties submit that, even if the merged entity decided to engage in an input foreclosure strategy, this would not have a detrimental effect on the market.[236] Dairy customers may even be able to obtain better prices for the products when

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non-GM produced lactase in Denmark (combined [30-40]%, Chr. Hansen [10-20]% and Novozymes [20-30]%).

230 In Denmark, there is a hypothetically vertically affected market as a result of the Parties' combined activity in the distribution of dairy enzymes. However, in Denmark, Chr. Hansen distributes coagulants and lactase and Novozymes distributes lactase. Since Novozymes is not active in the coagulant segment (neither at manufacturing nor distribution level), the vertical on the hypothetical dairy enzymes segment does not extend beyond the manufacture and distribution of lactase which is examined below. (Response to RFI 4).

231 The analysis is also applicable to other potential vertical links between the (i) upstream manufacturing of GM produced lactase and (ii) GM and non-GM produced lactase distribution segments and wider downstream enzymes distribution segments (F&B enzymes and dairy enzymes) at national, EEA and global level.

232 Novozymes' market share does not exceed 30% on any plausible basis. At most, it is of [20-30]% in fact, in the market for the manufacture of lactase for the food & beverage industry in the EEA (excluding direct sales) (Form CO. para.1494).

233 Form CO. para. 1494.

234 Form CO. para. 1495.

235 Form CO. para. 1495.

236 Form CO. para. 1496.

purchasing directly from the merged entity, as the final price would not include distributors' own margins.[237]

5.3.3.2. The Commission's assessment

(162) For the reasons set out below, the Commission considers that the merged entity could have the ability to adopt an input foreclosure strategy but would not have the incentive to do so and, in any event, such an input foreclosure strategy would not have an impact on effective competition.

5.3.3.2.1. Ability

(163) Based on the results of the market investigation, the Commission considers that the merged entity could have the ability to foreclose downstream rivals for the following reasons.

(164) *First*, as noted above, the market for the manufacture of GM produced lactase is highly concentrated with only DSM and Novozymes having sales in the EEA in 2022. Novozymes has a share of [40-50]% globally and [50-60]% in the EEA.

(165) *Second*, a majority of competitors, distributors[238] and customers[239] consider Saphera® and/or NOLA® Fit to be important products for distributors to carry in their portfolio as: "*they are good quality lactases, in a market with increased demand for lactose-free products*".[240]

(166) *Third*, long term supply agreements make switching difficult for distributors in the event of a partial foreclosure strategy. As explained by a distributor, switching to an alternative manufacturer would be: "*subject to contractual commitments any alternative source may have with other distributors or 3rd party re-seller which would prevent them from selling*".[241] Additionally, such contractual agreements seem to be common as a majority of competitors and distributors consider that long-term and exclusive agreements between manufacturers and distributors are common.[242] Those long term contracts are cited by some distributors as a reason why it is difficult for them to switch manufacturers.[243]

5.3.3.2.2. Incentive

(167) While the merged entity may have the ability to adopt a foreclosure strategy, the Commission does not consider that it would have the incentive for the following reasons.

(168) *First*, the market investigation suggests that there is no incentive to engage in input foreclosure. A majority of responding competitors, distributors[244] and customers[245] consider that the merged entity would not have the incentive to stop selling lactase via third party distributors. Respondents explain that: "*the merged entity will in all*

237 Form CO. para. 1496.
238 eRFI to competitors and distributors, question G.1.
239 eRFI to customers, question E.B.1.
240 eRFI to competitors and distributors, question G.2.
241 eRFI to competitors and distributors, question I.3
242 eRFI to competitors and distributors, question G.3.
243 eRFI to competitors and distributors, question I.3
244 eRFI to competitors and distributors, question G.5.
245 eRFI to customers, question E.B.3.

likelihood depend on distribution partners to sell the lactase it produces, irrespective of whether GM or non-GM produced lactase, over and above its direct sales channels".[246] They put forward several reasons for the continued reliance on distributors: to access smaller customers,[247] to reach certain geographic locations,[248] or to help deal with the "*commercial & operational complexity of servicing distribution customers*".[249]

(169) *Second*, other vertically integrated manufacturers like DSM nevertheless sell to distributors, which suggests there is no incentive for vertically integrated players to engage in input foreclosure.[250]

(170) *Third*, the combined market share of the Parties on the downstream segment for distribution of F&B lactase in the EEA barely exceeds 30%. Similarly, at national level, the Parties have a combined market share below 30% in all the member states where their activities in the distribution of F&B lactase overlap.[251] Should the merged entity engage in input foreclosure, it would therefore have a limited base of sale upon which it could enjoy higher margins and, given the numerous rivals (vertically integrated manufacturers and distributors such as Sacco, Kerry, Genofocus, Advanced Enzymes, Proquia, Prozyn, Optiferm and Univar Solutions and others), it is unlikely it would recapture a significant share of foreclosed distributors' end customers.

5.3.3.2.3. Impact on effective competition

(171) In any event, should the merged entity engage in input foreclosure, there would not be an impact on effective competition.

(172) Novozymes' top ten customers represent [percentage] of its total sales. Among those 10 largest customers, [number of customers] are distributors: [names of customers]. Among those, [names of customer] the largest customer of Novozymes' lactase.[252] The next [number of customers] distributors purchase a [information on quantity purchased] quantity of lactase and, none of those responding to the market investigation raised any concerns.[253]

Table 3: Novozymes' lactase sales to its ten largest customers (distributors and end-customers included), 2022

Name	Sales value, lactase mEUR	Share of total sales of lactase
[…]	[…]	[…]
[…]	[…]	[…]
[…]	[…]	[…]

246 eRFI to customers, question E.B.4.

247 "*The dairy market is fairly fragmented, so the merged entity would still have a need to use distributors to serve the smaller-sized dairy players*" (eRFI to competitors and distributors, question G.6).

248 "*In Brazil they need distributors to find and support customers*" and "*Local distributors help in increasing market share and brand recognition*" (eRFI to competitors and distributors, question G.6).

249 eRFI to competitors and distributors, question G.6.

250 Form CO. para. 1495.

251 Response to RFI 4.

252 Novozymes' lactase sales to [names of customers] in 2022 amounted to EUR [turnover] million amounting to [percentage] of Novozymes' total sales of lactase.

253 eRFI to competitors and distributors, question Q.1.

Name	Sales value, lactase mEUR	Share of total sales of lactase
[…]	[…]	[…]
[…]	[…]	[…]
[…]	[…]	[…]
[…]	[…]	[…]
[…]	[…]	[…]
[…]	[…]	[…]
[…]	[…]	[…]
Total sales	[…]	
Total of top 10 customers	[…]	[…]

Source: Form CO. table 169

(173) Chr. Hansen sells mostly directly to end customers and has limited sales to distributors. The top ten largest distributors purchasing lactase from Chr. Hansen [proportion] of Chr. Hansen's total lactase sales with the largest purchasing EUR [turnover] worth of lactase from Chr. Hansen. None of those distributors responding to the market investigation raised any concerns about the Transaction.[254] Some consider, on the contrary, that the Transaction will have a positive effect on the lactase market.[255]

Table 4: Chr. Hansen's lactase sales to its ten largest customers that are distributors, 2022

Name	Sales value lactase, mEUR	Share of total lactase sales to distributors	Share of total lactase sales
[…]	[…]	[…]	[…]
[…]	[…]	[…]	[…]
[…]	[…]	[…]	[…]
[…]	[…]	[…]	[…]
[…]	[…]	[…]	[…]
[…]	[…]	[…]	[…]
[…]	[…]	[…]	[…]
[…]	[…]	[…]	[…]
[…]	[…]	[…]	[…]
[…]	[…]	[…]	[…]
Total lactase sales to distributors	[…]	[…]	[…]
Total for top 10 lactase distributors	[…]	[…]	[…]

Source: Form CO. table 172

254 eRFI to competitors and distributors, question Q.1.
255 eRFI to competitors and distributors, question Q.1.

(174) In light of the above, the Commission considers that the Transaction does not raise serious doubts as to its compatibility with the internal market as a result of input foreclosure.

5.3.4. Customer foreclosure

5.3.4.1. The Parties' views

(175) The Parties submit that there is no risk of customer foreclosure as the Parties do not have the ability and incentive to engage in customer foreclosure and, in the event they did, there would be no effect.

(176) The merged entity would not have the ability to foreclose market access to lactase manufacturers. *First,* the parties submit that the merged entity will not have a significant market power in the downstream market both globally and in the EEA to engage in a customer foreclosure strategy. [256] *Second*, […] Manufacturers (that supply the Parties with non-GM produced lactase) would not be foreclosed from a substantial part of the market. As it currently stands, the Parties' combined shares for the distribution/commercialization of non-GM produced lactase account for [5-10]% and [5-10]% of the global and EEA sales in the overall lactase market respectively.[257] *Third*, […] Manufacturers could also choose to distribute their product directly, as they already do in some jurisdictions[258] or through a number of distributors they can easily turn to.[259] The Parties note that, even if there was an ability to foreclose, it would not be merger specific since pre-Transaction, the Parties supply GM lactase manufactured by Novozymes and the non-GM lactase of the […] Manufacturers and intend to continue to do so post-Transaction.[260]

(177) The merged entity would not have the incentive to foreclose and stop distributing products from […] Manufacturers as it would entail significant loss of distribution profits for the Parties,[261] customers would turn to rivals for their lactase supply and switch away from the merged entity.[262]

(178) Additionally, the Parties submit that their modest combined shares at the distribution level would not significantly increase these incentives. [263]

(179) Should the merged entity engage in customer foreclosure strategies, this would not have any effect on competition in the supply of lactase. Indeed, the Parties submit that while there would be one less distributor and that the Parties' combined share in the distribution of lactase would be higher, the increment is very limited (less than [0-5]% at both the global and EEA level).[264]

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256 The only segment where the value market share exceeds 30% is the segment for distribution of lactase for the Food & Beverage industry in the EEA ([30-40]%) (Form CO. para. 1499).

257 Form CO. para. 1499.

258 Form CO. para. 1501.

259 Form CO. para. 1500.

260 Form CO. para. 1502.

261 Form CO. para. 1503.

262 Form CO. para. 1504.

263 [10-20]% and [20-30]% globally and in the EEA respectively for all lactase (F&B and DS/OTC) and [10-20]% and [30-40]% globally and in the EEA respectively for F&B lactase (Form CO. para. 1505).

264 Form CO. para. 1507.

(180) Ultimately, the Parties submit that the Parties' vertical integration will eliminate double marginalisation[265] and that those savings are likely to be passed on to the customer.[266]

5.3.4.2. The Commission's assessment

(181) The Parties [information on sources of supply] purchase non-GM produced lactase. They purchase it from [information on manufacturers]. The Commission therefore investigated whether the merged entity could foreclose access to the lactase market to […] Manufacturers and focus on selling the lactase it produces itself.

(182) Currently, Novozymes purchases lactase from [information on manufacturers].[267] Novozymes then sells part of this lactase to [information on customers].[268] Chr. Hansen sources lactase from [information on manufacturers][269].[270]

(183) For the reasons set out below, the Commission considers that while the merged entity would have the incentive to foreclose upstream rivals, it would not have the ability to adopt an input foreclosure strategy but and in any event, such an input foreclosure strategy would not have an impact on effective competition.

5.3.4.2.1. Ability

(184) The Commission notes that the Parties have limited market power on the downstream distribution market. They have a very limited combined market share on the distribution of non-GM produced lactase ([10-20]% in the EEA and [5-10]% at global level). Their combined market share barely exceeds 30% on the market for the distribution of F&B lactase in the EEA where the Parties have a combined market share of [30-40]% with a limited increment ([0-5]% market share increment from Novozymes).[271] The Parties' market power at national level is equally limited as the only plausible national market where the Parties overlap and have a combined market share above 30% is the market for the distribution of non-GM produced lactase in Denmark (combined market share of [30-40]%).[272]

(185) This is reflected in the results of the market investigation. A majority of responding competitors and distributors consider that the merged entity would not have the ability to foreclose market access to upstream manufacturers.[273] As explained by a respondent: "*I believe that between them, they do not have enough market share to do so*".[274] This analysis is shared by a majority of customers[275] as they explain that "*there would still be enough alternative players in the market*".[276]

(186) Additionally, as mentioned by the Parties and respondents to the market investigation, there are alternatives routes to market. […] Manufacturers can use

265 Form CO. para. 1510.
266 Form CO. para. 1511.
267 Form CO. para. 1497.
268 Form CO. para. 849.
269 Form CO. para. 1497.
270 Form CO. para. 849.
271 See above Table 2: Market shares for the distribution of lactase above.
272 Response to RFI 4.
273 eRFI to competitors and distributors, non-confidential responses to question J.1.
274 eRFI to competitors and distributors, response to question J.2.
275 eRFI to customers, non-confidential responses to question E.A.1.
276 eRFI to customers, non-confidential responses to question E.A.2.

other sophisticated distributors such as, Sacco, Kerry, Genofocus, Advanced Enzymes, Proquia, Prozyn, Optiferm and Univar Solutions and others to access the EEA market.[277] […] Manufacturers can also sell directly to end-customers and the Parties believe [manufacturers] already have direct sales in the EEA.[278]

5.3.4.2.2. Incentive

(187) In the first instance, the Commission notes that the merged entity would have no change of incentive regarding the distribution of non-GM produced lactase for the group of customers that are required to use it, (which represents between 10-25% of the market).[279]

(188) With regard to Novozymes, the Transaction does not change its incentive to try to limit purchases from the […] Manufacturers. Novozymes [information on margins][280].[281] Nevertheless, Novozymes still sells Lactozym® Pure *"[information on commercial strategy]*".[282] Consequently, the incentive for customer foreclosure is not merger specific for Novozymes.

(189) On the other hand, the merger affects Chr. Hansen's incentive. In 2022, Chr. Hansen's margins on the sale of NOLA® Fit (GM produced lactase) and Ha-Lactase™ (non-GM produced lactase) [information on margins].[283].[284].

5.3.4.2.3. Impact on effective competition

(190) […] Manufacturers expressed concerns on the impact of the Transaction on the lactase market.[285] The Commission nevertheless finds that, even if the merged entity did have the ability and incentive to engage in a customer foreclosure with regard to Chr. Hansen's suppliers, such a foreclosure strategy would not have an impact on effective competition.

(191) In 2022, Chr. Hansen's purchases from […] Manufacturers amounted to a total of about EUR [information on Chr. Hansen's purchases from manufacturers].[286] Chr. Hansen only purchased EUR [information on Chr. Hansen's purchases from

277 Form CO. para. 1500.

278 Form CO. para. 1501.

279 To estimate the share of the market those customers represent, the Parties explain that less than 10% of the lactase sold globally and in the EEA goes into organic production (Form CO. para. 673 and 674). Another manufacturer estimates that customers bound to use non-GM produced lactase represent 25% of the market (Minutes of a call with a manufacturer, 10 October 2023, para. 12).

280 Margins earned vary from the year to year and depending on whether sales are made direct to customers or via distributors. In any case Novozymes [information on margins]. Novozymes earns a gross margin between [margin]% and [margin]% on the sales of Saphera®, while its gross margin on the sale of Lactozym® Pure is between [margin]% and [margin]% (PN RFI 5, response to question 30).

281 Form CO. para. 1000 and as also seen in switching data in para 1003 et seq.

282 PN RFI 5, response to question 26.

283 Chr. Hansen earned in 2022 a gross margin of [margin]% on its sales of Ha-Lactase™ and NOLA® Fit (PN RFI 5, response to question 30).

284 Novozymes currently earns a gross margin of approx. [margin]% on its sales of lactase to [information on customers] (Form CO. para. 1511).

285 [Information on suppliers].

286 In 2022, Chr. Hansen purchased [information on Chr. Hansen's purchases from suppliers] (Form CO. tables 72 and 73).

manufacturers].[287] Consequently, Chr. Hansen explains that it is [information on Chr. Hansen's purchases from manufacturers],[288].[289]

(192) As a result, customer foreclosure would not affect a large fraction of the upstream output. Since Chr. Hansen purchases from [information on Chr. Hansen's purchases from manufacturers] would be at risk. Nevertheless, [information on Chr. Hansen's purchases from manufacturers] considers that the Transaction will have a neutral impact on the lactase market.[290]

(193) In any event, should [information on suppliers] be forced out of the market entirely, its share of the upstream market for the manufacture of lactase is of [5-10]% at the global level[291] and [5-10]% at EEA level.[292]

(194) In light of the above, the Commission concludes that the Transaction does not raise serious doubts as to its compatibility with the internal market in relation to customer foreclosure.

5.4. Conglomerate relationships

(195) Conglomerate relationships arise in relation to the Parties' activities within dairy enzymes and related potential markets of manufacture and distribution of dairy cultures.[293]

(196) The Commission identified multiple affected conglomerate markets falling into two main categories, both at the manufacturing and distribution level: (i) bundles of different dairy enzymes; and (ii) bundles of dairy enzymes with dairy cultures. The Commission has identified the following bundles that result in affected markets:

(197) **Pairs of dairy enzymes at the manufacturing level**: (i) coagulants - lactase; (ii) coagulants - protease; (iii) coagulants - catalase; (iv) coagulants - lipase; (v) coagulants - phospholipase; (vi), coagulants - lactose oxidase; (vii) coagulants - transglutaminase;

(198) **Dairy enzymes with dairy cultures at the manufacturing level:** (viii) dairy cultures - lactase (ix) dairy cultures - protease; (x) dairy cultures - catalase; (xi) dairy cultures - lipase (xii) dairy cultures - phospholipase; (xiii), dairy cultures - lactose oxidase; and (xiv) dairy cultures - transglutaminase;

(199) **Pairs of dairy enzymes at the distribution level**: (i) lactase - protease; (ii) lactase - transglutaminase; (iii) coagulants - protease; (iv) coagulants - transglutaminase;

(200) **Dairy enzymes with dairy cultures at the distribution level:** (v) dairy cultures - protease; and (vi) dairy cultures - transglutaminase.

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287 Form CO. tables 72 and 73.

288 Chr. Hansen estimates it represents [percentage] of [information on suppliers] total lactase sales (Form CO. para. 852).

289 Form CO. para. 854.

290 eRFI to competitors and distributors, question Q.1.

291 Form CO. table 115: Manufacture of lactase - Global, F&B lactase, including direct sales.

292 Form CO. table 117: Manufacture of lactase - EEA, F&B lactase, including direct sales.

293 It is noted that the market definition assessment is left open in relation to segmentation of the dairy cultures markets into manufacture and distribution of various dairy cultures. However, for the purposes of the conglomerate assessment in this Decision, the most narrow product pairs are considered.

5.4.1. The Parties' views

(201) The Parties argue that the Transaction does not give rise to any conglomerate concerns because bundling is not a feature of the markets, and even where hypothetical bundling may occur, the price tends to be negotiated separately.[294] In addition, the Parties argue that there will also remain several alternative sources of supply for the products concerned, in particular including competitors such as DSM, IFF, Kerry, Sacco and other distributors (who could theoretically market broad bundles of products were it economically attractive to do so) and from suppliers with a more limited range of products such as Lallemand and AB Enzymes, who have offerings within coagulants and/or cultures.[295] In addition, the Parties argue that the Parties' dairy enzymes customers are sophisticated dairies who commonly multisource.[296]

5.4.2. General Considerations

(202) Possible conglomerate effects arise because of the complementarity of the Parties' product portfolios and the Parties' significant market position in certain product markets, for example lactase. The Commission considered both technical and commercial bundling possibilities of dairy enzymes with each other and dairy enzymes with dairy cultures and investigated whether such bundling strategies would allow the Parties to foreclose other players in the market, for example other manufacturers of dairy enzymes and dairy cultures.

(203) Based on the results of the market investigation, the Commission does not consider that the Transaction gives rise to serious doubt with respect to any possible conglomerate relationships for the reasons set out below. These findings are applicable to each of the affected conglomerate markets listed above in paragraph (196).

(204) *First*, the majority of responding end-customers indicated that bundling across dairy enzymes is not common.[297] In the same vein, the majority of responding customers indicated that it is not a commercial practice to bundle dairy enzymes with dairy cultures.[298] While some customers may purchase multiple products from one supplier; many have multi-sourcing strategies for different enzymes and cultures and may even have multiple suppliers for the same product.

(205) *Second*, while there was some indication that blended products are available, there was no indication that there is a demand for technically bundled dairy enzymes. The majority of responding customers indicated that it is not common to develop dairy enzymes so that they work better or only work with certain specific dairy enzymes and the same was confirmed for dairy enzymes and dairy cultures.[299]

294 Form CO. Section 8.M, paragraphs 1539 et seq.
295 Form CO. Section 8.M, paragraphs 1540.
296 Form CO. Section 8.M, para. 1548.
297 eRFI to customers, reply to Question H.3.
298 eRFI to customers, reply to Question H.5.
299 eRFI to customers, reply to Questions H.7 and H.9.

(206) *Third*, distributors usually offer a wide range of enzymes and/or cultures, as a result, they would be in a position to buy bundles and sell the products individually.[300]

(207) *Fourth*, the majority of responding end-customers considered that post-Transaction, there would remain sufficient alternative sources of supply for dairy enzymes and dairy cultures.[301] The market investigation confirmed that already today competitors of Novozymes and Chr. Hansen, such as DSM and IFF, amongst others, are able to offer the same products as the Parties.

(208) Lastly, the majority of respondents to the market investigation considered that the large portfolio of products of dairy enzymes and dairy cultures would not give the merged entity the ability to exclude rivals and it is not commercial practice to sell together the affected product bundles (lactase-protease, lactase-transglutaminase, coagulants-protease, coagulants-transglutaminase as well as any bundles across other relevant pairs).[302]

(209) The Commission's findings with respect to dairy enzymes and dairy cultures are set out below.

5.4.3. Dairy Enzymes

(210) Novozymes has a significant position in the manufacturing and distribution of Dairy Enzymes, namely lactase as set out in 5.2. For the reasons set out in Section 5.4.2 above, the Commission found that the Transaction would not give the merged entity the ability or incentive to leverage on these products to sell other products, including various combinations of dairy enzymes. This was also confirmed by the majority of respondents to the market investigation in relation to enzymes.[303] As one customer explained: "[t]*esting how enzymes work together is done by setting up appropriate design of experiments to test their individual and combined effects and the conditions (temperature, pH, incubation time, concentrations) that accommodates all products the best. More often than not, the different purchased products going into the same production are not purchased from the same supplier. Instead [customer] tests a range of products from different suppliers and move forward with the one that performs the best*."[304] The majority of responding competitors replied that it is not common to develop dairy enzymes so that they work better or only work with certain specific dairy enzymes.[305] Moreover, the majority of respondents also considered that there would be other sources of supply to match the merged entity's bundled offers.[306]

5.4.4. Dairy Cultures

(211) Chr. Hansen has a significant position in manufacture and distribution of Dairy Cultures. For the reasons set out in Section 5.4.2, the Commission found that the Transaction would not give the merged entity the ability or incentive to leverage enzymes to sell dairy cultures. This was also confirmed by a majority of

300 Non-confidential minutes with a distributor, 1 June 2023, 15:00 – 16:00 CET.
301 eRFI to customers, reply to Question H.1.
302 eRFI to customers, reply to Question H.1.
303 eRFI to customers, reply to Question H.1.
304 Non-confidential minutes, call with customer, 3 May 2023, 16:00 – 17:00 CET.
305 eRFI to customers, reply to Question H.3.
306 eRFI to customers, reply to Question H.3.

respondents to the market investigation specifically in relation to dairy cultures.[307] As a customer explained: "[i]*n terms of sourcing products as a package or a bundle,* [customer] *explained that lactase and other ingredients (cultures and enzymes) are purchased separately.* […] *The food ingredient market, namely cultures and enzymes, is not prone to bundling due to its complexity*".[308] The majority of responding competitors replied that it is not common to develop dairy enzymes so that they work better or only work with certain specific dairy cultures.[309] Moreover, the majority of responding end-customers also considered that there would be other sources of supply to match the merged entity's bundled offers.[310]

5.5. Innovation

(212) The Transaction results in a combination of two strong players in their respective fields, Novozymes in enzymes and Chr. Hansen in microorganisms, with the stated objective of creating a leading provider of bio-solutions, aiming to address "global megatrends" i.e. enabling healthier lives, transforming food systems and accelerating towards a climate neutral society. The accompanying press release cites the strategic rationale of the Transaction as: "*Strong innovation capabilities unlock significant growth opportunities and strengthen the combined group*" and "*Complementary strengths of each business leveraged to create a leading global biosolutions partner with a broad biological toolbox*".[311]

(213) During the market investigation, a number of market participants raised concerns with regard to innovation competition. In particular, concerns were raised that post-merger, other players would not be able to compete with the merged entity's innovation capabilities. For example, one competitor explained that "[i]*n biotechnology, significant investments are needed to develop new products, so the Parties will have great innovation power, but also it will be increasingly difficult for other big players in the market to compete, as they will not be able to afford the same levels of R&D expenditure."*[312]

(214) Given the importance of innovation in these markets, the combination of two key players and the concerns raised by third parties, the Commission investigated whether the Transaction may lead to loss of innovation competition.

(215) Through calls with market participants and an extensive benchmarking exercise, the Commission: (i) compared the Parties' innovation capabilities with rivals', according to various parameters e.g. R&D spend, R&D resources, current market access, access to specific technologies; and (ii) sought to identify whether there would be a specific capability or capacity that the Parties would have post-Transaction that would act as a barrier to rivals' ability to innovate.

(216) Given the breadth of what can be considered as biotechnology or bio-solutions, based on the internal documents of the Parties and initial market feedback, the

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307 eRFI to customers, reply to Question H.5.

308 Non-confidential minutes, call with customer, 6 June 2023, 11:00 – 12:00 CET.

309 eRFI to competitors, reply to Question H.5.

310 eRFI to customers, reply to Question H.1.

311 Press release announcing Transaction: https://ml-eu.globenewswire.com/Resource/Download/0b23bd5b-590b-4601-bf11-88d9e77b2b3a (last accessed 29 November 2023).

312 Non-confidential minutes, call with competitor, 26 April 2023, 14:00 – 15:00 CET.

Commission identified the following industry segments as a relevant segmentation upon which to undertake its assessment: (i) Food & Beverage ("**F&B**"); (ii) Human Health; (iii) Animal Health; (iv) Industrial Applications; (v) Household Care and (vi) Bio Agricultural ("**BioAg**") solutions.[313] The Commission in particular focused on the F&B segment, where the Parties are particularly strong players, both for marketed products and innovation.

(217) With regard to specific barriers to innovation, based on feedback during pre-notification from market participants, the Commission identified the following capabilities and capacities that could act as a barrier to others' ability to innovate:

(a) Fermentation capacity: many biotech production processes in this sector include a fermentation process and fermentation facilities are required. Such facilities require very high capital investment. A market participant indicated that the merged entity would have a lead over its competitors with an unmatched fermentation capacity and noted that only a handful of companies offer contract manufacturing in the biotech industry in Europe.[314]

(b) Strain banks: the Parties own individual strain banks, which are a collection of sequenced strains of proteins and genome microbe sequences. A concern was raised that a combination of Chr. Hansen's very large strain collection with Novozymes' unmatched enzymes bank, would result in a combination of a powerhouse that would be active in many different technology fields and markets with an extraordinary fermentation asset base.[315]

(c) Intellectual Property Rights: IPRs play an important role in the industry and market participants explained that a combination of the IP portfolio's of the Parties may increase barriers to entry. A competitor explained that "*the barriers to entry for these markets lie in the combination of the technology/production/IP that is required with the knowhow in adapting the application of the cultures / enzymes to the needs of the customers to achieve the right taste and texture; it is this combination that provides the high barrier for new entries"*.[316]

5.5.1. Parties' views

(218) The Parties argue that there is no credible basis for concerns in relation to innovation to arise as a result of the Transaction and there is no loss of innovation competition.[317] The Parties argue that instead, the Transaction would lead to more innovation than either company can achieve individually. The Parties argue that: (i) the Transaction, by applying complementary strengths of the Parties, will enhance R&D capabilities and spending of the Parties, unlocking new opportunities for enhanced benefits to innovation; (ii) the Parties' respective R&D activities are highly differentiated and complementary; (iii) the Parties do not consider each other to be their closest, or particularly close, competitors for innovation; and

313 These industry segments do not necessarily correspond to the market definition assessment, but rather represent wider industry segments used for segmentation of the innovation pipelines and R&D investments based on Parties' internal documents and third-party feedback during the market investigation.

314 Non-confidential minutes, call with a market participant, 10 May 2023, 10:00 – 11:00 CET.

315 Non-confidential minutes, call with a market participant, 10 May 2023, 10:00 – 11:00 CET.

316 Non-confidential minutes, call with a market participant, 26 April 2023, 14:00 – 15:00 CET.

317 Form CO. Section 8.N. The Parties provided data in their reply to the benchmarking request for information; and also submitted a short economic paper – "Assessment on the Impact on Innovation" (the "Innovation Paper").

(iv) the Parties compete with several strong players in each of their respective R&D focus areas, and rivals have significant R&D spend, capabilities and IP portfolios.[318] With regard to fermentation capacity, the Parties note that no third parties will be reliant on the merged entity for fermentation services to compete neither within innovation or in any relevant markets.[319] With regard to strain banks, Parties argue that they do not have a significant competitive advantage, their assets are highly complementary, and there are publicly available strain banks that are used by the industry.[320] With regard to IP, the Parties argue that the Transaction will not increase IP barriers for any third parties and that Parties' portfolios are largely differentiated and will be smaller than main competitors.[321]

5.5.2. Commission's assessment

(219) Based on the results of the Commission's market investigation, the Commission does not consider that the Transaction raises serious doubts with regard to the potential impact on innovation competition, for the following reasons.

(220) *First*, the review of the Parties' internal documents and pipeline data showed that the Parties' pipelines, as well as R&D efforts more widely, are by and large complementary. First, the Parties do not overlap in certain segments: [information on R&D efforts] where Novozymes focuses its R&D. In the segments where the Parties overlap, the assessment of innovation pipelines revealed that Novozymes' pipelines are enzyme-based, and Chr. Hansen's pipelines are microbe-based. Moreover, in the overlapping segments, [information on overlaps of R&D efforts], the focus of projects is for different applications.[322] For example, the overlapping pipeline projects [information on R&D efforts] are very likely complementary in nature, as Novozymes' projects split into [information on R&D efforts] while Chr. Hansen's projects mostly focus on [information on R&D efforts]. This is supported by the review of the Parties' internal documents.

(221) The Commission did identify a marketed-pipeline overlap with regard to the manufacture of lactase which is presented above in Section 5.2.1.1.

(222) Respondents to the market investigation also observe the Parties' R&D efforts as being complementary. The majority of responding end-customers and competitors indicated that for F&B segment, as well as for all other segments, the merged entity would have complementary portfolios and would likely not change its innovation strategy or would in fact improve innovation post-Transaction.[323] One customer active in the F&B segment explained in relation to R&D and innovation, that "*it perceives the Transaction as positive because of the Parties' complementary product focus – enzymes and cultures".*[324] This lack of competitive overlap today indicates that the merged entity would likely lack any incentive to reduce R&D efforts.

(223) *Second*, the Commission's investigation did not indicate that the Parties would post-Transaction be an unmatched innovation leader. To the contrary, the Parties'

318 Ibid.
319 Innovation Paper, para. 10.
320 Innovation Paper, para. 13.
321 Innovation paper, para. 11.
322 Innovation Paper, paras. 20 to 28.
323 eRFI to customers and competitors, Sections I and P respectively.
324 Non-confidential minutes, call with customer, 6 June 2023, 11:00 – 12:00 CET.

internal documents and the results of the market investigation (including the extensive benchmarking exercise)[325] indicate that there are many prominent players engaged in R&D efforts in all the relevant segments. In particular, the Commission compared the Parties' capabilities with competitors on a number of factors, such as total R&D spend in value, number of R&D centres, scientists, active pipeline projects and extent of patent portfolios. The analysis carried out for all industry segments did not reveal that the Parties' R&D capabilities would be unmatched.

(224) In addition, in the market investigation, the majority of responding customers indicated that there would be a significant number of players able to compete with the merged entity on innovation in all segments.[326] For the F&B segment, the responding customers indicated that entities such as DSM, IFF, Kerry, Lallemand, Sacco, AB Enzymes and others would be able to effectively compete on innovation against the merged entity (considering their capabilities in enzymes and cultures). For Human and Animal Nutrition (covering Human Health and Animal Health segments), responding customers indicated that the merged entity would face innovation competition from DSM, IFF, Cargill, Evonik Industries, Kerry, AB Enzymes, BASF, Bayer and others. For Household Care, the responding customers indicated that DSM, IFF, Evonik, BASF, Bayer and others would be able to compete with the merged entity on innovation. For Industrial Applications and BioAg, the responding customers indicated that DSM, IFF, Lallemand, Cargill, BASF, Gingko Bioworks, AB Enzymes, Lonza, Sacco and others would be able to compete with the merged entity.[327]

(225) *Third,* the results of the market investigation indicate that in all five segments, there would be no loss to competition innovation. The majority of both competitors and customers expect the impact of the Transaction on the level of R&D for each specific segment to be either neutral or positive.[328] Market participants have pointed to potential synergies, as a result of the Transaction, that would allow the merged entity to enhance its R&D capabilities. One competitor explained that it expects: "*that together the Parties, would have more capacity to innovate, which would be beneficial for the market*."[329]

(226) With respect to **food and beverage**, the majority of responding customers and competitors indicated that innovation by all players in the market will not be significantly affected or will be positively improved post-Transaction. Only one out of 21 responding customers, and a small minority of responding competitors, considered that the innovation in the market will be negatively affected. The majority of respondents considered that innovation will not be significantly affected, or will be positively affected. Similarly, the majority of responding customers also indicated that innovation by the merged entity will either not significantly change or will improve. Only two end-customers out of 21, and a minority of responding competitors (manufacturers and distributors), considered that innovation will decrease following the Transaction by the merged entity. An end-customer with a strong focus on dairy R&D, explained that *"[f]urther to the transaction, the merged entity will also be in a better position to advise on the*

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325 RFI 6 to the Parties. Non-confidential replies to the RFI on innovation sent to competitors dated 5 July 2023.

326 eRFI to customers, Question I.2-1.

327 eRFI to customers, Question I.2-1.

328 eRFI to customers and competitors, Question I.1-1.

329 Non-confidential minutes, call with competitor, 12 May 2023, 14:30 – 15:30 CET.

interactions between different cultures and enzymes, as they will manage a complete portfolio. This could be instrumental in helping [this producer] deliver better products to our customers. [This customer] does not believe that the Transaction will result in price increases and considers the Transaction likely to have a positive impact on innovation".[330]

(227) With regard to **Human and Animal Health**, the majority of responding customers and competitors considered that innovation in the market by all players will either not be significantly affected, or will be positively affected.[331] Only one out of 17 responding customers, and a minority of responding competitors, considered that innovation will be negatively affected. In the same vein, the majority of responding end-customers considered that innovation by the merged entity will either not change significantly or will improve. Only one out of 18 responding customers considered that innovation by the merged entity would decrease. One customer explained: "*I don't see a potential market control after this merge[r] as there are options and generics coming continuously to the animal production market.*"[332] Another customer explained: "[Customer] *has the impression that with this merger both partners combined will become a more strategic partner for* [Customer] *in the future*."[333] Another customer explained that: "[s]*ynergies in the merged entity wo[u]ld probably impact positively innovation and, therefore, this would also improve innovation in the overall market (all players).*"[334]

(228) With regard to **Household Care**, the majority of responding end-customers and competitors considered that innovation in the market (by all players) and by the merged entity will not significantly change, or will be positively affected.[335] Only one out of 9 responding customers and a small number of competitors expressed a negative view.

(229) For **Industrial Applications** (including Bio Energy), the majority of responding end-customers and competitors indicated that innovation in the market by all players and by the merged entity will not change significantly, or will be positively affected.[336] Only one out of 12 responding customers and a small number of competitors expressed a negative view.

(230) For **BioAg solutions**, the majority of responding end-customers and competitors indicated that innovation in the market by all players and by the merged entity will not change significantly, or will be positively affected.[337] Only one out of 16 responding customers and a small number of competitors expressed a negative view. Specific to the BioAg segment, one customer explained that: "[l]*ow impact on innovation expected. Novozymes launched differentiating products with tangible benefits to the market. Chr. Hansen launched limited and less beneficial portfolio to the market*."[338] Another customer explained that: "[n]*either company is a major player. Competition with current product lines exists in the industry*."[339]

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330 Non-confidential minutes, call with customer, 24 July 2023, 15:00 – 16:00 CET.
331 eRFI to customers and competitors, Sections I and P respectively.
332 eRFI to customers, Question I.1-3.
333 eRFI to customers, Question I.1-3.
334 eRFI to customers, Question I.1-3.
335 eRFI to customers and competitors, Sections I and P respectively.
336 eRFI to customers and competitors, Sections I and P respectively.
337 eRFI to customers and competitors, Sections I and P respectively.
338 eRFI to customers, Question I.1-3.
339 eRFI to customers, Question I.1-3.

(231) *Fourth*, the Commission assessed the fermentation capacity and investigated whether access to the merged entity's fermentation capacity is an important input for competitors' innovation efforts. The market investigation revealed that the Parties do not have fermentation capacity that would not be matched by other market participants or competitors. In any event, the Commission found that third parties do not rely on the Parties for fermentation capacity and there would be no significant change post Transaction.[340] As such, the Commission found that the merged entity would not have any incentive to withhold any fermentation capacity to the detriment of its competitors, since it did not provide such capacity in a meaningful way prior to the Transaction.

(232) Following the market outreach the Commission found that the majority of competitors have their own fermentation capabilities in-house; [information on fermentation capability]. There are also a range of contract manufacturing organisations ("**CMOs**") — for example, Zytex, Osprey Biotechnics, Sacco, Lonza and Sylvan Technologies, among others — that competitors lacking in-house fermentation capacity can use to manufacture and/or develop products.

(233) *Fifth,* the Commission assessed the capacity of strain banks and investigated whether the combination of the Parties' strain banks would be unmatched by rivals and would raise a barrier to innovation. While Novozymes' existing bank has c. [a number] physical strains and Chr. Hansen's [a number] deposits (which Chr. Hansen estimates would equate to c.[a number] strains), the Parties' strain banks are largely differentiated in composition. Novozymes' bank is focused on [information on strain banks] while Chr. Hansen's is focused on [information on strain banks] given its dairy heritage.[341] The results of the market investigation revealed that other competitors will have comparable strain banks and strain engineering capabilities; and the Parties can and do innovate based on publicly available genomes and strain banks.[342] The Commission did not find any indications that a combination of the two complementary strain banks would create a competitive advantage that would negatively impact the overall innovation competition on the market. Moreover, publicly available sequences vastly outweigh the Parties' sequences.

(234) *Lastly*, the Commission assessed if the aggregation of the Parties' IP portfolios would raise a barrier to innovation. The Commission found that the Parties' patent portfolios are largely differentiated and will not be prohibitively larger than the main competitors post-Transaction. The majority of Novozymes' patent families [information on patents], while (as of August 2023), [percentage] of Novozymes' patents related to microbes, and [percentage] of Chr. Hansen's related to enzymes. Moreover, the protection afforded by patents in these areas tends to be with narrow fields and application-specific scope (rather than having a broader technological focus); such that patents do not generally constitute a material barrier to third parties to enter or expand in these areas.

(235) In light of the above and of all available evidence, the Commission concludes that the Transaction does not raise serious doubts as to its compatibility with the internal market as regards the loss of innovation.

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340 Innovation Paper, para. 10.

341 Innovation Paper, para. 13.

342 Innovation Paper, para. 13.

6. COMMITMENTS

6.1. Framework for the assessment of the Commitments

(236) Where a notified concentration raises serious doubts as to its compatibility with the internal market, the parties may undertake to modify the concentration to remove the grounds for the serious doubts identified by the Commission. Pursuant to Article 6(2) of the Merger Regulation, where the Commission finds that, following modification by the undertakings concerned, a notified concentration no longer raises serious doubts, it shall declare the concentration compatible with the internal market pursuant to Article 6(1)(b) of the Merger Regulation.

(237) As set out in the Commission's Remedies Notice,[343] the commitments must eliminate the competition concerns entirely and be comprehensive and effective from all points of view.[344]

(238) In assessing whether commitments will maintain effective competition, the Commission considers all relevant factors, including the type, scale and scope of the proposed commitments with reference to the structure and the particular characteristics of the market in which the Transaction is likely to significantly impede effective competition, including the position of the Parties and other participants on the market.[345]

(239) At the time of its Decision, the Commission must be satisfied that it will be possible to implement the commitments and that it will be likely that the new commercial structures resulting from them will be sufficiently workable and lasting to ensure that effective competition will be maintained.[346] Divestiture commitments are normally the best way to eliminate competition concerns resulting from horizontal overlaps.

(240) The divested activities must consist of a viable business that, if operated by a suitable purchaser, can compete effectively with the merged entity on a lasting basis. The business must include all the assets which contribute to its current operation, or which are necessary to ensure its viability and competitiveness as well as all personnel which are currently employed by the business, or which are necessary to ensure the business' viability and competitiveness.[347]

(241) The Commission may accept in appropriate circumstances that the divestiture of a business which needs to be carved out from the remaining businesses of the parties is a suitable remedy.[348] In such cases, the Commission must be certain that at the time when the business is transferred to the purchaser, that a viable business will be divested on a stand-alone basis and that the risks for the viability and competitiveness caused by the carve-out will thereby be reduced to a minimum.[349] In such cases, the Parties must commit to carve out the assets that contribute to the divested business in the interim period between the adoption of the Commission's

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343 Commission Notice on remedies acceptable under Council Regulation (EC) No 139/2004 and under Commission Regulation (EC) No 802/2004 (OJ C 267, 22.10.2008, p. 1-27), the "Remedies Notice".

344 Remedies Notice, paras. 9 and 61.

345 Remedies Notice, para. 12.

346 Remedies Notice, para. 10.

347 Remedies Notice, paras. 23-25.

348 Remedies Notice, para. 113.

349 Remedies Notice para. 36.

decision and the competition of the divestiture.[350] The carve-out is supervised by the monitoring trustee with the cooperation of the hold-separate manager.[351] The costs and risks of the carve out will be borne by the Parties during this interim period.[352]

(242) The intended effect of the divestiture will only be achieved if the business is transferred to a suitable purchaser in whose hands it will become an active competitive force in the market. The potential of a business to attract a suitable purchaser is an important element of the Commission's assessment of the appropriateness of the proposed commitments.[353]

(243) The standard purchaser requirements are the following:

(a) the purchaser is required to be independent of and unconnected to the parties;

(b) the purchaser must have the financial resources, proven relevant expertise and the ability and incentive to develop and maintain the divested business as a viable and active competitive force in competition with the parties and other competitors;

(c) the acquisition of the business by a proposed purchaser must neither be likely to create new competition problems or give rise to a risk that the implementation of the commitments will be delayed. Therefore, the proposed purchaser must reasonably be expected to obtain all necessary approvals from the relevant regulatory authorities for the acquisition of the business to be divested.[354]

(244) These criteria may be supplemented on a case-by-case basis to ensure the suitability of the purchaser, for example, in markets where the purchaser needs to have an existing industry presence to be able to ensure the divestment business becomes a competitive force on the market.[355]

6.2. Procedure

(245) In order to render the concentration compatible with the internal market, the Parties submitted a set of commitments under Article 6(2) of the Merger Regulation on 20 November 2023 (the "**Initial Commitments**"). The Commission market tested the Initial Commitments on 21 November 2023 in order to assess whether they were sufficient and suitable to remedy the serious doubts identified in Section 5.2.1.3 above regarding the manufacture of GM produced lactase at the EEA level.

(246) Following the feedback received from the market test, amended commitments were submitted on 5 December 2023 (the "**Final Commitments**"). The Final Commitments are annexed to this Decision[356] and form an integral part thereof.

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350 Remedies Notice, para. 113.
351 Remedies Notice, para. 114.
352 Remedies Notice, para. 113.
353 Remedies Notice, para. 47.
354 Remedies Notice, para. 48.
355 Remedies Notices, para. 49.
356 See Annex 1.

6.3. The Initial Commitments

6.3.1. Description of the Initial Commitments

(247) The Initial Commitments set out the Parties' proposal to divest Chr. Hansen's G2 Project and its existing lactase distribution business together with the Novozymes lactase production facility where [proportion] of Novozymes and Chr. Hansen's lactase products are currently produced (the "**Divestment Business**").

(248) The scope of the Divestment Business is as follows:

(a) The lactase manufacturing facility in the Tianjin Economic – Technological and Development Area, China (the "**Lactase Plant**") where [proportion] the Parties' current production of the NOLA® bifido lactase products ("**the NOLA products**") and the Saphera® bifido lactase products takes place. The Lactase Plant includes buildings, equipment and machinery, warehouse capacity and all required regulatory approvals and permits necessary to produce the NOLA products and prepare the Ha-Lactase™ yeast lactase products for distribution;[357]

(b) a worldwide, irrevocable, perpetual, royalty-free licence to the proprietary production strain and the production guide which will include all relevant production know-how needed to operate the Lactase Plant to produce the NOLA products;

(c) the rights to develop, improve, manufacture and distribute the NOLA products, and the worldwide right to distribute the Ha-Lactase™ yeast lactase products and associated intellectual property rights and all required regulatory clearances, registrations and authorisations;

(d) trade secrets, confidential know-how, confidential customer data, or other confidential information used exclusively or predominantly in the commercialisation of lactase;

(e) the G2 collaboration agreement and all associated intellectual property rights needed to develop a G2 Lactase for manufacture within [time period];

(f) the right to develop, manufacture and distribute a further lactase pipeline product, including all associated intellectual property rights;

(g) a number of employees working in relation to the manufacture and distribution of lactase, including R&D employees;

(h) the assignment or novation of (i) supply contracts, (ii) distribution agreements; and (iii) customer contracts related to lactase; and

(i) transitional arrangements allowing the Divestment Business to benefit from equivalent arrangements equivalent to those that the Parties have in place for the supply of products and services for a period of 12 months.

(249) The Divestment Business also includes any asset or personnel which is not covered by the points above, but which is exclusively or primarily used for or works in relation to the commercialisation of lactase by Chr. Hansen or is necessary for the continued viability or competitiveness of the Divestment Business.

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[357] Transitional arrangements will be put in place to ensure the operation of the Lactase Plant whilst the required permits are being obtained.

(250) The Initial Commitments also include measures regarding the separation of the Divestment Business from the Parties' retained businesses and the preservation of the viability and competitiveness of the Divestment Business, including the appointment of a monitoring trustee.

(251) The Divestment Business will compete against the Parties' retained lactase business, which would comprise the manufacture of the Saphera® bifido lactase products and the distribution of the Lactozym® yeast lactase products. The Parties intend to manufacture lactase for the retained business at [geographic location(s)]. The retained lactase products will continue to be sold through Novozymes' existing network of third-party distributors and direct customers.

6.3.2. Assessment of the Initial Commitments

(252) The Commission analysed the suitability of the Initial Commitments to remedy the serious doubts raised by the Transaction, in particular under the principles set out in the Remedies Notice. In its assessment, the Commission relied, *inter alia,* on the results of the market test which was sent to competing lactase producers, lactase distributors and lactase customers on 21 November 2023.

(253) The Commission found that the Initial Commitments were, in principle, capable of removing the potential competition concerns identified as they reflect the current commercial position of Chr. Hansen in the markets for the production and distribution of lactase and replicate the competitive constraint it exercises. However, the Commission highlighted that the Commitments could be further strengthened in order to ensure that the purchaser of the Divestment Business would be able to compete effectively in the market for the production of lactase.

(254) The Commission found that the Initial Commitments reflect the current commercial position of Chr. Hansen because Chr. Hansen currently distributes lactase produced by Novozymes under the NOLA® brand. The Initial Commitments include the Lactase Plant where the NOLA products are currently manufactured, and the transfer of the intellectual property rights needed to produce these products. The commitments also include all the necessary licences and know-how needed to operate the Lactase Plant together with the operational personnel and Chr. Hansen's current lactase sales and distribution network.

(255) The Commission further found that the Initial Commitments replicate the competitive constraint currently exercised by Chr. Hansen as they include the G2 Project and the associated R&D staff which should allow a suitable purchaser to enter the lactase manufacturing market within a period of [time period] and compete against the Parties' retained lactase manufacturing business.

(256) The results of the market test were positive. The majority of respondents who shared their views explained that the Initial Commitments would remove the competition concerns raised by the Transaction.[358] Only one respondent expressed reservations about the effectiveness of the commitments, noting that the carve out of different elements of the Parties' businesses was inherently complex.[359] With respect to this concern, the Commission notes that the Divestment Business replicates the commercial arrangements which Chr. Hansen currently has in place

[358] Response to question E.A.1 Remedies Market Test.
[359] Response to question E.A.1 Remedies Market Test.

for the manufacture and distribution of lactase. The carved-out businesses have worked together for many years under these arrangements, which should facilitate their future integration.

(257) Respondents found that the commitments included all the necessary manufacturing assets that a purchaser would need in order to become a viable and competitive force in the manufacture of lactase.[360] Competing lactase manufacturers queried whether the know-how being licenced, and the intellectual property being transferred, were sufficient to replicate the competitive constraint currently posed by Chr. Hansen. Respondents to the market test did not have access to the confidential schedules of patent families being transferred nor to the terms of the technology transfer agreement seen by the Commission which address these queries.[361]

(258) The majority of respondents expressing a view were confident that the commitments included sufficient production assets, know-how, intellectual property and staff to allow a purchaser to develop the lactase entry and pipeline products so that they can be successfully brought to market.[362] The Commission notes that this should happen within the next [time period] following the transfer of the Divestment Business to a suitable purchaser.

(259) The majority of respondents confirmed that the commitments would be attractive to potential purchasers. However, a number of respondents noted that in order for the divestment business to be attractive, contractual measures should be put in place to limit customer attrition.

(260) Respondents were also comfortable with the transitional and long-term services agreements proposed,[363] although one respondent noted that these services agreements should be provided at cost so as not to undermine the viability and competitiveness of the Divestment Business.

(261) Overall, the vast majority of responses to the market test stated that the Divestment Business would be attractive to potential purchasers. However, the responses to a number of questions in the market test highlighted that the identity of the purchaser would play an important role in ensuring the viability of the Divestment Business, in particular regarding whether the personnel transferring would be sufficient[364] and whether Chr. Hansen's lactase suppliers and customers would consent to transfer their commercial agreements to the Divestment Business.[365]

6.4. The Final Commitments

(262) The Commission asked the Parties to improve the Initial Commitments to reflect the points highlighted above regarding the non-compete/non-poach clause, the terms of the transitional and long-term services agreements and the purchaser criteria.

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360 Response to questions E.B.1, E.C, E.E Remedies Market Test.
361 Responses to questions E.C and E.D Remedies Market Test.
362 Response to question E.H Remedies Market Test.
363 Response to question E.G Remedies Market Test.
364 Response to question E.E Remedies Market Test.
365 Response to question E.F Remedies Market Test.

(263) In order to address these points, the Parties submitted the Final Commitments, on 5 December 2023.

(264) The Parties amended the commitments to reflect the following points raised by the feedback from the market investigation:

(a) the merged entity agrees not to solicit the customers of the Divestment Business for a period of 3 years, to further ensure the viability and competitiveness of the Divestment Business;

(b) the transitional and long-term services agreements shall [information on terms]; and

(c) the purchaser of the Divestment Business shall have expertise in the food and beverage industry, including in the development, manufacturing and commercialisation of food and beverage enzymes, expertise in dairy applications and in bringing new products to market.

6.4.1. Assessment of the Final Commitments

(265) The Commission considers that the Final Commitments ensure the viability and competitiveness of the Divestment Business as they will enable a suitable purchaser to compete effectively in the market for the manufacture of lactase on a lasting basis. The Final Commitments are comprehensive, effective, and are capable of being implemented effectively within a short period of time with oversight from the monitoring trustee and with the cooperation of the hold-separate manager.

(266) In particular, the Commission finds that the Divestment Business is capable of fully addressing the competition concerns identified, namely the loss of the competitive constraint posed by Chr. Hansen's development of a GM produced lactase which would be ready for manufacture within the EEA in the next [time period]. Firstly, the Divestment Business includes the G2 Project which removes the overlap between the Parties' lactase manufacturing activities. Secondly, the Divestment Business includes the existing Chr. Hansen lactase distribution business which made Chr. Hansen a credible potential market entrant. Thirdly, the Divestment Business includes the production assets which currently manufacture the lactase products of the Divestment Business. Finally, the income from the divested lactase manufacturing business plays an important part in ensuring the viability of the Divestment Business. This income will help support the G2 Project [information on status of G2 Project] and should enable a suitable purchaser to start manufacturing and selling further G2 Lactase products within [time period].

(267) For these reasons the Final Commitments create a stand-alone business which replicates the commercial arrangements set up by Chr. Hansen, re-creates the competitive conditions needed for a suitable purchaser to enter the lactase manufacturing market, and includes sufficient revenues to ensure the viability of the Divestment Business in the long term.

(268) The market test confirmed that the Divestment Business is viable and contains all the assets needed to become an effective competitive force. From its review of the Parties' financial statements and internal documents, the Commission is satisfied that the Divestment Business is sufficiently profitable.[366]

(269) The market test confirmed that the identity of the purchaser is also fundamental to ensuring that the Divestment Business will become an effective competitive force in the market for the manufacture of lactase within the EEA. Refining the purchaser criteria in the Final Commitments enables the Commission to ensure that the buyer of the divestment business has expertise in developing and manufacturing food and beverage enzymes and dairy applications so that they will be able to make the Divestment Business an effective competitive force in the manufacturing of lactase.

6.5. Conclusion

(270) Based on the reasoning set out above and taking into consideration the results of the market test, the Commission therefore considers that the Final Commitments are sufficient to eliminate all serious doubts as to the compatibility of the Transaction with the internal market and the EEA Agreement.

6.6. Conditions and obligations

(271) Under the first sentence of the second subparagraph of Article 6(2) of the Merger Regulation, the Commission may attach to its decision conditions and obligations intended to ensure that the undertakings concerned comply with the commitments they have entered into vis-à-vis the Commission with a view to rendering a notified concentration compatible with the internal market.

(272) The achievement of the measure that gives rise to the structural change of the market is a condition, whereas the implementing steps which are necessary to achieve this result are generally obligations on the Parties. Where a condition is not fulfilled, the Commission's decision declaring the concentration compatible with the internal market no longer stands. Where the undertakings concerned commit a breach of an obligation, the Commission may revoke the clearance decision in accordance with Article 8(6) of the Merger Regulation. The undertakings concerned may also be subject to fines and periodic penalty payments under Articles 14(2) and 15(1) of the Merger Regulation.

(273) In accordance with the distinction described above, the Decision in this case is conditioned on the full compliance with the requirements set out in Section B of the Final Commitments (including the Schedules and the Annexes), which constitute conditions. The remaining requirements set out in the other sections of the Final Commitments constitute obligations on the Parties.

(274) The detailed text of the Final Commitments is annexed to this Decision. The full text of the Final Commitments forms an integral part of this Decision.

366 Parties' Internal Documents, Information Memorandum June 2023, pages 4 and 9.

7. CONCLUSION

(275) For the above reasons, the Commission has decided not to oppose the notified operation as modified by the commitments and to declare it compatible with the internal market and with the functioning of the EEA Agreement, subject to full compliance with the conditions in Section B of the commitments annexed to the present decision and with the obligations contained in the other sections of the said commitments. This decision is adopted in application of Article 6(1)(b) in conjunction with Article 6(2) of the Merger Regulation and Article 57 of the EEA Agreement.

For the Commission

(Signed)
Margrethe VESTAGER
Executive Vice-President

CASE COMP/M.11043 – NOVOZYMES / CHR HANSEN HOLDING



COMMITMENTS TO THE EUROPEAN COMMISSION

Pursuant to Article 6(2) of Council Regulation (EC) No 139/2004 (the "**Merger Regulation**"), Novozymes A/S ("**NZ**") and Chr. Hansen Holding A/S, hereby enter into the following Commitments (the "**Commitments**") vis-à-vis the European Commission (the "**Commission**") with a view to rendering the merger of NZ and Chr. Hansen Holding A/S, including all Affiliated Undertakings ("**CH**"), with NZ as the surviving entity and CH as the dissolving entity (the "**Concentration**") compatible with the internal market and the functioning of the EEA Agreement.

This text shall be interpreted in light of the Commission's decision pursuant to Article 6(1)(b) of the Merger Regulation to declare the Concentration compatible with the internal market and the functioning of the EEA Agreement (the "**Decision**"), in the general framework of European Union law, in particular in light of the Merger Regulation, and by reference to the Commission Notice on remedies acceptable under Council Regulation (EC) No 139/2004 and under Commission Regulation (EC) No 802/2004[1] (the "**Remedies Notice**").

Section A. Definitions

1. For the purpose of the Commitments, the following terms shall have the following meaning:

Affiliated Undertakings: undertakings controlled by the Parties and/or by the ultimate parents of the Parties, whereby the notion of control shall be interpreted pursuant to Article 3 of the Merger Regulation and in light of the Commission Consolidated Jurisdictional Notice under Council Regulation (EC) No 139/2004 on the control of concentrations between undertakings (the "**Consolidated Jurisdictional Notice**").

[Name of supplier]

Assets: the assets that contribute to the current operation or are necessary to ensure the viability and competitiveness of the Divestment Business as indicated in Section B, paragraph 6(a)-(i) and described more in detail in the Schedule.

CH: CH Holding and subsidiaries directly or indirectly controlled by CH Holding, including Chr. Hansen A/S.

CH Lactase Business: the lactase commercialization business as operated today by CH full particulars of which are set out in the Schedule.

CH Lactase Business Patents: the patents listed in Annex 6, table 1.

[1] For completeness it is noted that Commission Regulation (EC) No 802/2004 has been replaced by Commission Regulation (EC) 914/2023.

CH Holding: Chr. Hansen Holding A/S, a limited liability company incorporated under the laws of Denmark, with its registered office at Bøge Alle 10, 2970 Hørsholm, Denmark, and registered with the Danish Central Business Register under number 28318677.

CH Lactase Pipeline Project: **[Information on an innovation/development project related to lactase]**

Closing: the transfer of the legal title to the Divestment Business to the Purchaser, excluding the Deferred Closing Assets.

Closing Period: the period of **[time period]** from the approval of the Purchaser and the terms of sale by the Commission within which Closing shall occur.

CMO: Contract Manufacturing Organisation, i.e. a company supporting the pharmaceutical and/or biotechnology sectors in the form of outsourced manufacturing services.

Confidential Information: any business secrets, know-how, commercial information, or any other information of a proprietary nature that is not in the public domain.

Conflict of Interest: any conflict of interest that impairs the Trustee's objectivity and independence in discharging its duties under the Commitments.

CRO: Contract Research Organisations, i.e. a company supporting the pharmaceutical and/or biotechnology sectors in the form of outsourced research and development services.

Deferred Closing Assets: the Lactase Plant Premises and certain related contracts as detailed in Annex 13 that will transfer to the Purchaser.

Deferred Closing: obtaining of the title certificate of the Lactase Plant Premises and all necessary operational permits by Plant NewCo.

Deferred Closing Period: the period of **[information on timing of Deferred Closing]**.

[Name of supplier]

Divestment Business: means transfer of the G2 Collaboration Agreement and certain IP rights currently held by CH as well as NZ's manufacturing capabilities including the Lactase Plant, licences to the Production Strain and the Production Guide supplemented by the CH Lactase Business as defined in Section B and the Schedule, which the Parties commit to divest.

Divestment Products: NOLA® Products, HA-LACTASE™ Products and the Lactosens® R Assay Kit Products listed in Annex 1.

Divestiture Trustee: one or more natural or legal person(s) who is/are approved by the Commission and appointed by the Parties and who has/have received from the Parties the exclusive Trustee Mandate to sell the Divestment Business to a Purchaser at no minimum price.

Effective Date: the date of adoption of the Decision.

Fast Track Dispute Resolution Procedure: the dispute resolution procedure outlined in Annex 4.

Field: production and commercialization of Lactases using the Production Strain.

First Divestiture Period: the period of 6 months from the Effective Date.

Food Licence Agreement: [Information on cross-licensing agreement].

G2 Collaboration Agreement: [a collaboration agreement with a third party with the aim of developing a lactase with similar properties to that of the NZ proprietary production strain.]

G2 Collaboration Agreement Relevant Patents: the enzyme/molecule patents potentially relevant for commercialization of the G2 Collaboration Agreement listed in Annex 6, table 1.

[Name of supplier]

HA-LACTASE™ Products: Products listed in Annex 1, section 2.

Hold Separate Manager: the person appointed by the Parties for the Divestment Business to manage the day-to-day business under the supervision of the Monitoring Trustee.

Key Personnel: all personnel necessary to maintain the viability and competitiveness of the Divestment Business, as listed in the Schedule and Annex 5, including the Hold Separate Manager.

Lactase(s): as defined as EC Enzyme nomenclature 3.2.1.108 in BRENDA (http://www.brenda-enzymes.org/)

Lactase Licence Agreement: **[Information on cross-licensing agreement]**.

Lactase Plant: manufacturing facility for producing lactase located in TEDA, China, as described in the Schedule and Annex 2.

Lactase Plant Premises: the land use right of the underlying land of the Lactase Plant and the current existing buildings and buildings to be constructed on the Lactase Plant land prior to Deferred Closing as detailed in Annex 13.

Lactosens® R Assay Kit Products: A biosensor assay kit for the measure of lactose in low lactose and lactose-free dairy products **[information on sources of supply]** as listed in Annex 1, section 3.

Lactozym® Products: the yeast lactase products manufactured by **[Name of supplier]** and sold by NZ.

Monitoring Trustee: one or more natural or legal person(s) who is/are approved by the Commission and appointed by the Parties, and who has/have the duty to monitor the Parties' compliance with the conditions and obligations attached to the Decision.

[Name of supplier].

NOLA® Products: Products listed in Annex 1, section 1.

Notifying Party: NZ and CH.

NZ: Novozymes A/S, a limited liability company incorporated under the laws of Denmark, with its registered office at Krogshøjvej 36, 2880 Bagsværd, Denmark, and registered with the Danish Central Business Register under number 10007127.

NZCB: the NZ Chinese subsidiary, Novozymes (China) Biotechnology Co. Ltd.

NZ NOLA® Products Patents: the patents listed in Annex 6, table 2.

Parties: NZ and CH.

Personnel: all staff listed as per the Schedule and in Annex 5.

Pipeline Projects: The G2 Collaboration Agreement and the CH Lactase Pipeline Project.

Plant NewCo: a limited liability company newly established in the PRC (i.e. Nuocheng Trillion Food (Tianjin) Company Limited) to which the Lactase Plant will be transferred, including all assets, rights, employees, liabilities and obligations pertaining to the Lactase Plant.

PRC: the People's Republic of China, excluding for the purpose of these Commitments only, the Hong Kong Special Administrative Region, the Macau Special Administrative Region and Taiwan.

Production Guide: a comprehensive production guide based on NZ's know-how, for production of the NOLA® Products, including all relevant process parameters.

Production Strain: NZ's proprietary bacillus licheniformis production strain (biological organism) optimized to be used for producing the NOLA® Products listed in Annex 1.

Purchaser: the entity approved by the Commission as acquirer of the Divestment Business in accordance with the criteria set out in Section D.

Purchaser Criteria: the criteria laid down in paragraph 16 of these Commitments that the Purchaser must fulfil in order to be approved by the Commission.

Saphera® Products: bifido lactase products manufactured and sold by NZ.

Schedule: the schedule to the Commitments describing more in detail the Divestment Business.

TEDA: Tianjin Economic – Technological and Development Area of the PRC.

Trustee(s): the Monitoring Trustee and/or the Divestiture Trustee as the case may be.

Trustee Divestiture Period: the period of 3 months from the end of the First Divestiture Period.

Section B. The commitment to divest and the Divestment Business

Commitment to divest

2. In order to maintain effective competition, the Parties commit to divest, or procure the divestiture of the Divestment Business by the end of the Trustee Divestiture Period as a going concern to a purchaser and on terms of sale approved by the Commission in accordance with the procedure described in paragraph 17 of these Commitments. To carry out the divestiture, the Parties commit to find a purchaser and to enter into a final binding sale and purchase agreement for the sale of the Divestment Business within the First Divestiture Period. If the Parties have not entered into such an agreement at the end of the First Divestiture Period, the Parties shall grant the Divestiture Trustee an exclusive mandate to sell the Divestment Business in accordance with the procedure described in paragraph 29 in the Trustee Divestiture Period.

3. The proposed concentration shall not be implemented before the Parties or the Divestiture Trustee have entered into a final binding agreement for the sale of the Divestment Business and the Commission has approved the purchaser and the terms of sale in accordance with paragraph 17.

4. The Parties shall be deemed to have complied with this commitment if:

   (a) by the end of the Trustee Divestiture Period, the Parties or the Divestiture Trustee have entered into a final binding agreement and the Commission approves the proposed purchaser and the terms of sale as being consistent with the Commitments in accordance with the procedure described in paragraph 17; and

   (b) the Closing and Deferred Closing of the sale of the Divestment Business to the Purchaser take place within the Closing Period and Deferred Closing Period respectively.

5. In order to maintain the structural effect of the Commitments, the Parties shall, for a period of 10 years after Deferred Closing, not acquire, whether directly or indirectly, the possibility of exercising influence (as defined in paragraph 43 of the Remedies Notice, footnote 3) over the whole or part of the Divestment Business, unless, following the submission of a reasoned request from the Parties showing good cause and accompanied by a report from the Monitoring Trustee (as provided in paragraph 43 of these Commitments), the Commission finds that the structure of the market has changed to such an extent that the absence of influence over the Divestment Business is no longer necessary to render the proposed concentration compatible with the internal market.

Structure and definition of the Divestment Business

6. The Divestment Business consists of the worldwide lactase commercialization business of CH, the G2 Collaboration Agreement and the Lactase Plant. The legal and functional structure of the Divestment Business is described in the Schedule. The Divestment Business, described in more detail in the Schedule, includes all assets and staff that contribute to the current operation or are necessary to ensure the viability and competitiveness of the Divestment Business, in particular:

   (a) the assets comprising the Lactase Plant operated by a number of employees, and with all required regulatory approvals and permits necessary to produce the NOLA® Products to the extent transfer is permitted by law;

   (b) a worldwide, irrevocable, perpetual, royalty-free licence to the Production Strain and the Production Guide as well as to any other production know-how needed to operate the Lactase Plant;

(c) the Pipeline Projects including all IP rights attached hereto;

(d) the Personnel (including Key Personnel);

(e) those patent rights owned by CH and NZ that are used within or necessary for the operation of the Divestment Business, as specified in Annex 6;

(f) all trademarks relating to the Divestment Business;

(g) all trade secrets, confidential know-how, confidential customer data, or other confidential information and other intellectual property used exclusively or predominantly in the commercialization of lactase;

(h) access to or transfer of all necessary regulatory clearances, registrations and authorizations used in the distribution, marketing, promotion, selling or offering for sale of lactase;

(i) subject to obtaining all relevant third-party consents, all supply contracts related to lactase, including the agreements relating to the supply of yeast lactase, all distribution agreements related to lactase and all customer contracts related to lactase.

7. In addition, the Divestment Business includes the benefit, for a transitional period of up to 12 months (unless detailed in the Schedule) after Closing and on terms and conditions equivalent to those at present afforded to the Divestment Business of all current arrangements under which the Parties or their Affiliated Undertakings supply products or services to the Divestment Business, as detailed in the Schedule, unless otherwise agreed with the Purchaser. Strict firewall procedures will be adopted so as to ensure that any competitively sensitive information related to, or arising from such supply arrangements (for example, product roadmaps) will not be shared with, or passed on to, anyone outside the NZCB personnel strictly necessary to provide the support to the Lactase Plant envisaged in the Commitments or other personnel necessary to provide the transitional services to the Purchaser envisaged in the Commitments, unless otherwise permitted pursuant to the agreement with the Purchaser.

Section C. Related commitments

Preservation of viability, marketability and competitiveness

8. From the Effective Date until Closing the Parties shall preserve or procure the preservation of the economic viability, marketability and competitiveness of the Divestment Business, in accordance with good business practice. They shall minimise as far as possible any risk of loss of competitive potential of the Divestment Business. In particular the Parties undertake:

(a) not to carry out any action that might have a significant adverse impact on the value, management or competitiveness of the Divestment Business or that might alter the nature and scope of activity, or the industrial or commercial strategy or the investment policy of the Divestment Business;

(b) to make available, or procure to make available, sufficient resources for the development of the Divestment Business, on the basis and continuation of the existing business plans;

(c) to take all reasonable steps, or procure that all reasonable steps are being taken, including appropriate incentive schemes (based on industry practice), to encourage all Key Personnel to remain with the Divestment Business, and not to solicit or move any Personnel to the Parties remaining business. Where, nevertheless, individual members of the Key Personnel exceptionally leave the Divestment Business, the Parties shall provide a reasoned proposal to replace the person or persons concerned to the Commission and the Monitoring Trustee. The Parties must be able to demonstrate to the Commission that the

replacement is well suited to carry out the functions exercised by those individual members of the Key Personnel. The replacement shall take place under the supervision of the Monitoring Trustee, who shall report to the Commission.

Hold-separate obligations

9. The Parties commit, from the Effective Date until Closing to procure that the Divestment Business is kept separate from the business that the Parties will be retaining and, after closing of the notified transaction to keep the Divestment Business separate from the business that the Parties are retaining and to ensure that unless explicitly permitted under these Commitments: (i) management and staff of the business(es) retained by the Parties have no involvement in the Divestment Business; (ii) the Key Personnel and Personnel of the Divestment Business have no involvement in any business retained by the Parties and do not report to any individual outside the Divestment Business.

10. Until Closing, the Parties shall assist the Monitoring Trustee in ensuring that the Divestment Business is managed as a distinct and saleable entity separate from the business which the Parties are retaining. Immediately after the adoption of the Decision, the Parties shall appoint a Hold Separate Manager. The Hold Separate Manager, who shall be part of the Key Personnel, shall manage the Divestment Business independently and in the best interest of the business with a view to ensuring its continued economic viability, marketability and competitiveness and its independence from the businesses retained by the Parties. The Hold Separate Manager shall closely cooperate with and report to the Monitoring Trustee and, if applicable, the Divestiture Trustee. Any replacement of the Hold Separate Manager shall be subject to the procedure laid down in paragraph 8(c) of these Commitments. The Commission may, after having heard NZ, require NZ to replace the Hold Separate manager.

Ring-fencing

11. The Parties shall implement, or procure to implement, all necessary measures to ensure that they do not, after the Effective Date, obtain any Confidential Information relating to the Divestment Business and that any such Confidential Information obtained by the Parties before the Effective Date will be eliminated and not be used by the Parties. This includes measures vis-à-vis the Parties' appointees on the supervisory board and/or board of directors of the Divestment Business. In particular, the participation of the Divestment Business in any central information technology network shall be severed to the extent possible, without compromising the viability of the Divestment Business. The Parties may obtain or keep information relating to the Divestment Business which is reasonably necessary for the divestiture of the Divestment Business, or the disclosure of which to the Parties is required by law.

Non-solicitation clause

12. The Parties undertake, subject to customary limitations, not to solicit, and to procure that Affiliated Undertakings do not solicit, the Key Personnel transferred with the Divestment Business for a period of 3 years after Closing.

Due diligence

13. In order to enable potential purchasers to carry out a reasonable due diligence of the Divestment Business, the Parties shall, subject to customary confidentiality assurances and dependent on the stage of the divestiture process:

(a) provide to potential purchasers sufficient information as regards the Divestment Business;

(b) provide to potential purchasers sufficient information relating to the Personnel and allow them reasonable access to the Personnel.

Reporting

14. The Parties shall submit written reports in English on potential purchasers of the Divestment Business and developments in the negotiations with such potential purchasers to the Commission and the Monitoring Trustee no later than 10 days after the end of every month following the Effective Date (or otherwise at the Commission's request). The Parties shall submit a list of all potential purchasers having expressed interest in acquiring the Divestment Business to the Commission at each and every stage of the divestiture process, as well as a copy of all the offers made by potential purchasers within five days of their receipt.

15. The Parties shall inform the Commission and the Monitoring Trustee on the preparation of the data room documentation and the due diligence procedure and shall submit a copy of any information memorandum to the Commission and the Monitoring Trustee before sending the memorandum out to potential purchasers.

Section D. The Purchaser

16. In order to be approved by the Commission, the Purchaser must fulfil the following criteria:

(a) The Purchaser shall be independent of and unconnected to the Parties and their Affiliated Undertakings (this being assessed having regard to the situation following the divestiture);

(b) The Purchaser shall have the financial resources, proven expertise and incentive to maintain and develop the Divestment Business as a viable and active competitive force in competition with the Parties and other competitors. The Purchaser shall have expertise in the food and beverage industry, including the development, manufacture and commercialization of food and beverage enzymes and expertise in dairy applications as well as expertise in bringing new products to market;

(c) The acquisition of the Divestment Business by the Purchaser must neither be likely to create, in light of the information available to the Commission, prima facie competition concerns nor give rise to a risk that the implementation of the Commitments will be delayed. In particular, the Purchaser must reasonably be expected to obtain all necessary approvals from the relevant regulatory authorities for the acquisition of the Divestment Business.

17. The final binding agreement (as well as ancillary agreements) relating to the divestment of the Divestment Business shall be conditional on the Commission's approval. When the Parties have reached an agreement with a purchaser, the Parties shall submit a fully documented and reasoned proposal, including a copy of the final agreement(s), within one week to the Commission and the Monitoring Trustee. The Parties must be able to demonstrate to the Commission that the purchaser fulfils the Purchaser Criteria and that the Divestment Business is being sold in a manner consistent with the Commission's Decision and the Commitments. For the approval, the Commission shall verify that the purchaser fulfils the Purchaser Criteria and that the

Divestment Business is being sold in a manner consistent with the Commitments including their objective to bring about a lasting structural change in the market. The Commission may approve the sale of the Divestment Business without one or more of the Assets or parts of the Personnel, or by substituting one or more Assets or parts of the Personnel with one or more different assets or different personnel, if this does not affect the viability and competitiveness of the Divestment Business after the sale, taking account of the proposed purchaser.

Section E. Trustee

I. Appointment procedure

18. The Parties shall appoint a Monitoring Trustee to carry out the functions specified in these Commitments for a Monitoring Trustee. The Parties commit not to close the Concentration before the appointment of a Monitoring Trustee.

19. If the Parties have not entered into a binding agreement regarding the Divestment Business one month before the end of the First Divestiture Period or if the Commission has rejected a purchaser proposed by the Parties at that time or thereafter, the Parties shall appoint a Divestiture Trustee. The appointment of the Divestiture Trustee shall take effect upon the commencement of the Trustee Divestiture Period.

20. The Trustee shall:

(i) at the time of appointment, be independent of the Parties and their Affiliated Undertakings;

(ii) possess the necessary qualifications to carry out its mandate, for example have sufficient relevant experience as an investment banker or consultant or auditor; and

(iii) neither have nor become exposed to a Conflict of Interest.

21. The Trustee shall be remunerated by the Parties in a way that does not impede the independent and effective fulfilment of its mandate. In particular, where the remuneration package of a Divestiture Trustee includes a success premium linked to the final sale value of the Divestment Business, such success premium may only be earned if the divestiture takes place within the Trustee Divestiture Period.

Proposal by the Parties

22. No later than two weeks after the Effective Date, the Parties shall submit the name or names of one or more natural or legal persons whom the Parties propose to appoint as the Monitoring Trustee to the Commission for approval. No later than one month before the end of the First Divestiture Period or on request by the Commission, the Parties shall submit a list of one or more persons whom the Parties propose to appoint as Divestiture Trustee to the Commission for approval. The proposal shall contain sufficient information for the Commission to verify that the person or persons proposed as Trustee fulfil the requirements set out in paragraph 20 and shall include:

(a) the full terms of the proposed mandate, which shall include all provisions necessary to enable the Trustee to fulfil its duties under these Commitments;

(b) the outline of a work plan which describes how the Trustee intends to carry out its assigned tasks;

(c) an indication whether the proposed Trustee is to act as both Monitoring Trustee and Divestiture Trustee or whether different trustees are proposed for the two functions.

Approval or rejection by the Commission

23. The Commission shall have the discretion to approve or reject the proposed Trustee(s) and to approve the proposed mandate subject to any modifications it deems necessary for the Trustee to fulfil its obligations. If only one name is approved, the Parties shall appoint or cause to be appointed the person or persons concerned as Trustee, in accordance with the mandate approved by the Commission. If more than one name is approved, the Parties shall be free to choose the Trustee to be appointed from among the names approved. The Trustee shall be appointed within one week of the Commission's approval, in accordance with the mandate approved by the Commission.

New proposal by the Parties

24. If all the proposed Trustees are rejected, the Parties shall submit the names of at least two more natural or legal persons within one week of being informed of the rejection, in accordance with paragraphs 18 and 23 of these Commitments.

Trustee nominated by the Commission

25. If all further proposed Trustees are rejected by the Commission, the Commission shall nominate a Trustee, whom the Parties shall appoint, or cause to be appointed, in accordance with a trustee mandate approved by the Commission.

II. Functions of the Trustee

26. The Trustee shall assume its specified duties and obligations in order to ensure compliance with the Commitments. The Commission may, on its own initiative or at the request of the Trustee or the Parties, give any orders or instructions to the Trustee in order to ensure compliance with the conditions and obligations attached to the Decision.

Duties and obligations of the Monitoring Trustee

27. The Monitoring Trustee shall:

(i) propose in its first report to the Commission a detailed work plan describing how it intends to monitor compliance with the obligations and conditions attached to the Decision.

(ii) oversee, in close co-operation with the Hold Separate Manager, the on-going management of the Divestment Business with a view to ensuring its continued economic viability, marketability and competitiveness and monitor compliance by the Parties with the conditions and obligations attached to the Decision. To that end the Monitoring Trustee shall:

(a) monitor the preservation of the economic viability, marketability and competitiveness of the Divestment Business, and the keeping separate of the Divestment Business from the business retained by the Parties, in accordance with paragraphs 8 and 9 of these Commitments;

(b) supervise the management of the Divestment Business as a distinct and saleable entity, in accordance with paragraph 10 of these Commitments;

(c) with respect to Confidential Information:

- determine all necessary measures to ensure that the Parties do not after the Effective Date obtain any Confidential Information relating to the Divestment Business,
- in particular strive for the severing of the Divestment Business' participation in a central information technology network to the extent possible, without compromising the viability of the Divestment Business,
- make sure that any Confidential Information relating to the Divestment Business obtained by the Parties before the Effective Date is eliminated and will not be used by the Parties and
- decide whether such information may be disclosed to or kept by the Parties as the disclosure is reasonably necessary to allow the Parties to carry out the divestiture or as the disclosure is required by law;

(d) monitor the splitting of assets and the allocation of Personnel between the Divestment Business and the Parties or Affiliated Undertakings;

(iii) propose to the Parties such measures as the Monitoring Trustee considers necessary to ensure the Parties' compliance with the conditions and obligations attached to the Decision, in particular the maintenance of the full economic viability, marketability or competitiveness of the Divestment Business, the holding separate of the Divestment Business and the nondisclosure of competitively sensitive information;

(iv) review and assess potential purchasers as well as the progress of the divestiture pro-cess and verify that, dependent on the stage of the divestiture process:

(a) potential purchasers receive sufficient and correct information relating to the Divestment Business and the Personnel in particular by reviewing, if available, the data room documentation, the information memorandum and the due diligence process, and

(b) potential purchasers are granted reasonable access to the Personnel;

(v) act as a contact point for any requests by third parties, in particular potential purchasers, in relation to the Commitments;

(vi) provide to the Commission, sending the Parties a non-confidential copy at the same time, a written report within 15 days after the end of every month that shall cover the operation and management of the Divestment Business as well as the splitting of assets and the allocation of Personnel so that the Commission can assess whether the business is held in a manner consistent with the Commitments and the progress of the divestiture process as well as potential purchasers;

(vii) promptly report in writing to the Commission, sending the Parties a non-confidential copy at the same time, if it concludes on reasonable grounds that the Parties are failing to comply with these Commitments;

(viii) within one week after receipt of the documented proposal referred to in paragraph 17 of these Commitments, submit to the Commission, sending the Parties a non-confidential copy at the same time, a reasoned opinion as to the suitability and independence of the proposed purchaser and the viability of the Divestment Business after the Sale and as to whether the Divestment Business is sold in a manner consistent with the conditions and obligations attached to the Decision, in particular, if relevant, whether the Sale of the Divestment Business without one or more Assets or not all of the Personnel affects the viability of the Divestment Business after the sale, taking account of the proposed purchaser;

(ix) assume the other functions assigned to the Monitoring Trustee under the conditions and obligations attached to the Decision.

28. If the Monitoring and Divestiture Trustee are not the same legal or natural persons, the Monitoring Trustee and the Divestiture Trustee shall cooperate closely with each other during and for the purpose of the preparation of the Trustee Divestiture Period in order to facilitate each other's tasks.

Duties and obligations of the Divestiture Trustee

29. Within the Trustee Divestiture Period, the Divestiture Trustee shall sell at no minimum price the Divestment Business to a purchaser, provided that the Commission has approved both the purchaser and the final binding agreement (and ancillary agreements) as in line with the Commission's Decision and the Commitments in accordance with paragraphs 16 and 17 of these Commitments. The Divestiture Trustee shall include in the agreement (as well as in any ancillary agreements) such terms and conditions as it considers appropriate for an expedient sale in the Trustee Divestiture Period. In particular, the Divestiture Trustee may include in the agreement such customary representations and warranties and indemnities as are reasonably required to effect the sale. The Divestiture Trustee shall protect the legitimate financial interests of the Parties, subject to the Parties' unconditional obligation to divest at no minimum price in the Trustee Divestiture Period.

30. In the Trustee Divestiture Period (or otherwise at the Commission's request), the Divestiture Trustee shall provide the Commission with a comprehensive monthly report written in English on the progress of the divestiture process. Such reports shall be submitted within 15 days after the end of every month with a simultaneous copy to the Monitoring Trustee and a non-confidential copy to the Parties.

III. Duties and obligations of the Parties

31. The Parties shall provide and shall cause their advisors to provide the Trustee with all such cooperation, assistance and information as the Trustee may reasonably require to perform its tasks. The Trustee shall have full and complete access to any of the Parties' or the Divestment Business' books, records, documents, management or other personnel, facilities, sites and technical information necessary for fulfilling its duties under the Commitments and the Parties and the Divestment Business shall provide the Trustee upon request with copies of any document. The Parties and the Divestment Business shall make available to the Trustee one or more offices on their premises and shall be available for meetings in order to provide the Trustee with all information necessary for the performance of its tasks.

32. The Parties shall provide the Monitoring Trustee with all managerial and administrative support that it may reasonably request on behalf of the management of the Divestment Business. This shall include all administrative support functions relating to the Divestment Business which are currently carried out at headquarters level. The Parties shall provide and shall cause their advisors to provide the Monitoring Trustee, on request, with the information submitted to potential purchasers, in particular give the Monitoring Trustee access to the data room documentation and all other information granted to potential purchasers in the due diligence procedure. The Parties shall inform the Monitoring Trustee on possible purchasers, submit lists of potential purchasers at each stage of the selection process, including the offers made by potential purchasers at those stages, and keep the Monitoring Trustee informed of all developments in the divestiture process.

33. The Parties shall grant or procure Affiliated Undertakings to grant comprehensive powers of attorney, duly executed, to the Divestiture Trustee to effect the sale (including ancillary agreements), the Closing and Deferred Closing and all actions and declarations which the Divestiture Trustee considers necessary or appropriate to achieve the sale and the Closing and the Deferred Closing, including the appointment of advisors to assist with the sale process. Upon request of the Divestiture Trustee, the Parties shall cause the documents required for effecting the sale and the Closing and (subsequently) Deferred Closing to be duly executed.

34. The Parties shall indemnify the Trustee and its employees and agents (each an "**Indemnified Party**") and hold each Indemnified Party harmless against, and hereby agrees that an Indemnified Party shall have no liability to the Parties for, any liabilities arising out of the performance of the Trustee's duties under the Commitments, except to the extent that such liabilities result from the wilful default, recklessness, gross negligence or bad faith of the Trustee, its employees, agents or advisors.

35. At the expense of the Parties, the Trustee may appoint advisors (in particular for corporate finance or legal advice), subject to the Parties' approval (this approval not to be unreasonably withheld or delayed) if the Trustee considers the appointment of such advisors necessary or appropriate for the performance of its duties and obligations under the Mandate, provided that any fees and other expenses incurred by the Trustee are reasonable. Should the Parties refuse to approve the advisors proposed by the Trustee the Commission may approve the appointment of such advisors instead, after having heard the Parties. Only the Trustee shall be entitled to issue instructions to the advisors. Paragraph 34 of these Commitments shall apply mutatis mutandis. In the Trustee Divestiture Period, the Divestiture Trustee may use advisors who served the Parties during the Divestiture Period if the Divestiture Trustee considers this in the best interest of an expedient sale.

36. The Parties agree that the Commission may share Confidential Information proprietary to the Parties with the Trustee. The Trustee shall not disclose such information and the principles contained in Article 17 (1) and (2) of the Merger Regulation apply *mutatis mutandis*.

37. The Parties agree that the contact details of the Monitoring Trustee are published on the website of the Commission's Directorate-General for Competition and they shall inform interested third parties, in particular any potential purchasers, of the identity and the tasks of the Monitoring Trustee.

38. For a period of 10 years from the Effective Date the Commission may request all information from the Parties that is reasonably necessary to monitor the effective implementation of these Commitments.

IV. Replacement, discharge and reappointment of the Trustee

39. If the Trustee ceases to perform its functions under the Commitments or for any other good cause, including the exposure of the Trustee to a Conflict of Interest:

(a) the Commission may, after hearing the Trustee and the Parties, require the Parties to replace the Trustee; or

(b) the Parties may, with the prior approval of the Commission, replace the Trustee.

40. If the Trustee is removed according to paragraph 39 of these Commitments, the Trustee may be required to continue in its function until a new Trustee is in place to whom the Trustee has effected a full hand over of all relevant information. The new Trustee shall be appointed in accordance with the procedure referred to in paragraphs 18-25 of these Commitments.

41. Unless removed according to paragraph 39 of these Commitments, the Trustee shall cease to act as Trustee only after the Commission has discharged it from its duties after all the Commitments with which the Trustee has been entrusted have been implemented. However, the Commission may at any time require the reappointment of the Monitoring Trustee if it subsequently appears that the relevant remedies might not have been fully and properly implemented.

Section F. The review clause

42. The Commission may extend the time periods foreseen in the Commitments in response to a request from the Parties or, in appropriate cases, on its own initiative. Where the Parties request an extension of a time period, it shall submit a reasoned request to the Commission no later than one month before the expiry of that period, showing good cause. This request shall be accompanied by a report from the Monitoring Trustee, who shall, at the same time send a non-confidential copy of the report to the Notifying Party. Only in exceptional circumstances shall the Parties be entitled to request an extension within the last month of any period.

43. The Commission may further, in response to a reasoned request from the Parties showing good cause, waive, modify or substitute, in exceptional circumstances, one or more of the undertakings in these Commitments. This request shall be accompanied by a report from the Monitoring Trustee, who shall, at the same time send a non-confidential copy of the report to the Parties. The request shall not have the effect of suspending the application of the undertaking and, in particular, of suspending the expiry of any time period in which the undertaking has to be complied with.

Section G. Entry into force

44. The Commitments shall take effect upon the date of adoption of the Decision.

[Signed] 5 December 2023 in Copenhagen, Denmark

duly authorised for and on behalf of Novozymes A/S

[name]

[Signed] 5 December 2023 in Brussels, Belgium

duly authorised for and on behalf of Chr. Hansen Holding A/S

[name]

[Signed] 5 December 2023 in Copenhagen, Denmark
duly authorised for and on behalf of Chr. Hansen Holding A/S
[name]

SCHEDULE

THE DIVESTMENT BUSINESS

1. The Divestment Business has the following legal and functional structure. The Divestment Business includes, but is not limited to:

   a. the assets comprising the lactase commercialization business carried out by CH's Food Cultures & Enzymes division, namely the worldwide rights and interest in (including the right to develop, improve, manufacture and commercialise at worldwide level) the NOLA® Products (a bifido lactase), the worldwide right to distribute the HA-LACTASE™ Products (a yeast lactase) and the Lactosens® R Assay Kit Products, as listed in **Annex 1**;

   b. the assets comprising the Lactase Plant, at which the bifido lactase is produced and which is currently owned by NZCB, and operated by a number of employees which are employed by NZCB, and which will have all required regulatory approvals and permits necessary to produce the NOLA® Products, as more particularly described in **Annex 2**;

   c. a worldwide, irrevocable, perpetual, royalty-free licence to the Production Strain as described in **Annex 3**;

   d. a worldwide, irrevocable, perpetual, royalty-free licence to the Production Guide, which includes all relevant production know-how, needed to operate the Lactase Plant to produce the NOLA® Products, as described in **Annex 3**;

   e. the G2 Collaboration Agreement;

   f. the CH Lactase Pipeline Project, as described in **Annex 4**;

   g. the Personnel (including Key Personnel) listed in **Annex 5**;

   h. those patent rights owned or licensed by CH that are used within or necessary for the operation of the Divestment Business, as listed in **Annex 6 table 1**;

   i. those patent rights owned or licensed by NZ that are used within or necessary for the operation of the Divestment Business, as listed in **Annex 6**, **table 2;**

   j. **[Information on rights pursuant to cross-licensing agreement]**;

   k. all trademarks relating to the Divestment Business, including the NOLA® Products and the HA-LACTASE™ Products trademarks, as listed in **Annex 7**;

   l. a time-limited, non-exclusive, worldwide, royalty-free license to use the trademarks for the CH name and logo as needed by the Purchaser to allow the Purchaser time to transition the brand;

m. all trade secrets, confidential know-how, confidential customer data, or other confidential information and other intellectual property used exclusively or predominantly in the commercialization of lactase by CH, which shall include, without limitation:

   i. supporting documentation, including marketing and customer service procedures;

   ii. pricing and volume history with customers;

n. access to and transfer of all necessary regulatory clearances, registrations and authorizations used in the distribution, marketing, promotion, selling or offering for sale of lactase (i.e. (a) approval letters and redacted EFSA opinion, safety reports and documents, and (b) environmental and safety documentation), subject to the Parties' best efforts obligation to provide all reasonable assistance in obtaining replacement regulatory clearances, registrations and authorizations where appropriate as listed at **Annex 8**; and access to relevant product and marketing material for the benefit of the Divestment Business and/or the Divestment Products,

o. all inventories, including raw materials, works in process, semi-finished and finished products, stores, packaging and labelling materials, operating supplies and inventory on consignment, in transit or deposited in a warehouse, in each case to the extent used in the commercialization of lactase by CH;

p. all advertising, marketing, training and promotional materials, books, records, files, tax records, customers lists, information and history used exclusively in the commercialization of lactase by CH, and co-ownership of an undivided interest of all other books, records, files, tax records, customers lists, information and history to the extent related to the commercialization of lactase by CH;

q. all of the following contracts to the extent related to the commercialization of lactase by CH (subject to obtaining all relevant third-party consents, recognizing that the Parties will use best efforts to obtain such consents):

   i. all supply contracts related to lactase, **[information on suppliers]**, as detailed in **Annex 9**;

   ii. all distribution agreements related to lactase; including those listed in **Annex 10;** and

   iii. all customer contracts related to lactase, including those listed in **Annex 11**.

2. The divestment of the Divestment Business, excluding the equity interest in Plant NewCo, will be completed as an asset transfer whereby the relevant NZ or CH group company being the direct owner of the relevant asset or party to the contract to be transferred will (where applicable) split and transfer such asset or contract, etc. directly to the Purchaser or a wholly-owned subsidiary and/or an entity under common control with the Purchaser.

3. The divestment of the Lactase Plant will consist of the transfer of equity interests in Plant NewCo to the Purchaser and subsequently completion of an asset transfer of the Lactase Plant Premises to the Plant NewCo. Prior to the transfer of Plant NewCo's equity interests to the Purchaser, the equipment/machine, employees and certain contracts will be transferred to Plant NewCo. The Deferred Closing Assets will subsequently transfer to Plant NewCo once relevant regulatory approvals are obtained, as described in **Annex 13**.

4. The Purchaser will benefit from transitional arrangements to ensure the viability and competitiveness of the Divestment Business for a transitional period of up to 12 months after Closing. The transitional services to be provided by NZ and CH at the option of the Purchaser include:

   a. for a transitional period between Closing and shortly prior to Deferred Closing (i.e. when Plant NewCo will start independent production on a trial basis) in accordance with **Annex 13**, **section 6**, NZ or its Affiliated Undertakings will supply the concentrate for the NOLA® Products to the Divestment Business and CH or its Affiliated Undertakings will provide a transitional service agreement ("**TSA**") relating to reformulation and tapping to the Divestment Business to enable the manufacture of the NOLA® Products, unless otherwise agreed with the Purchaser. Safety measures and clean team procedures will be adopted so as to ensure that any competitively sensitive information related to, or arising from such arrangements will not be shared with, or passed on to, anyone outside NZCB;

   b. for a transitional period of up to 12 months after Closing, to the extent necessary, NZ or its Affiliated Undertakings will provide technical and production know-how support services to the Divestment Business related to the manufacture of the concentrate products for the NOLA® Products at the Lactase Plant, unless otherwise agreed with the Purchaser. Safety measures and clean team procedures will be adopted so as to ensure that any competitively sensitive information related to, or arising from such arrangements is appropriately protected;

   c. for a transitional period of up to 12 months after Closing, NZ or its Affiliated Undertakings will supply other transitional services as described in **Annex 12**, unless otherwise agreed with the Purchaser. Safety measures and clean team procedures will be adopted so as to ensure that any competitively sensitive information is appropriately protected;

   d. shortly prior to Deferred Closing (i.e. when Plant NewCo will start independent production on a trial basis), the benefit of long-term service level agreements **[information on terms]** for the facilities specified in **Annex 12**.

5. The Divestment Business shall not include:

   (a) Subject to the option of the Purchaser, all CH's Russian activities.

   (b) Any personnel in the operations of CH or NZ, including in finance, HR, legal and IT personnel, other than the Personnel as defined in Annex 5.

   (c) Any legal title to the Production Strain and the Production Guide.

   (d) Any rights outside of Lactase.

   (e) Access to sections pertaining to the description of the technologies used for making the modifications in the production strain in submissions and dossiers related to governmental approvals (i.e. supporting documentation provided to relevant governmental authorities to obtain approval letters and positive lists), which contain highly confidential business information that has the scope to commercially prejudice the Parties' operation beyond lactase.

   (f) Any IT systems that are used by CH or NZCB (covering the Lactase Plant), such as SAP ERP system, Myms, Capture, TEM, and Cabin system, apart from the IT software and systems installed in and integrated into the machines and equipment necessary for the manufacture of lactase products.

(g) Any production equipment, e.g., machinery, fermentation/recovery plants etc., apart from the production equipment to be transferred as part of the Lactase Plant and transferred to Plant NewCo.

(h) Any Saphera® and Lactozym® trademarks or the right to sell products using the names Saphera® or Lactozym®.

(i) Any logistics network and warehouse facilities (except for the existing warehouse capacity at the Lactase Plant, which will transfer to the Purchaser).

(j) Inventory considered to be non-transferrable, e.g. liquid ammonia, active carbon and acetic acid or any hazardous chemicals.

(k) Operational and sales permits in NZ's or its Affiliates' own names (except that NZ shall assist Plant NewCo to obtain all necessary operational permits (including water and pollutant discharge permits) in Plant NewCo's name on or before Deferred Closing).

(l) Any registered names such as "Novozymes" or "Chr. Hansen", together with all variations thereof and all trademarks, service marks, domain names, trade names, trade dress, corporate names, logos and other identifiers of source containing, incorporating or associated with any of the foregoing that are unrelated to lactase.

(m) In the event that materials to be transferred contain information that is confidential to the Parties' retained businesses and not relevant for the Divestment Business, the information shall be redacted as appropriate.

6. If there is any asset or personnel which is not covered by paragraph 1 of the Schedule, but which is exclusively or primarily used for or works in relation to the commercialization of Lactase by CH or necessary for the continued viability and competitiveness of the Divestment Business, that asset, personnel or adequate substitute will be offered to potential purchasers.

Annex 1: the Divestment Products

1. The NOLA® Products

- NOLA™ Fit 1100\1000L
- NOLA™ Fit 2100\1000L
- NOLA™ Fit HF 2100\5L
- NOLA™ Fit HF 2100\20L
- NOLA™ Fit 2800\1000L
- NOLA™ Fit 5500\5L
- NOLA™ Fit 5500\20L
- NOLA™ Fit 5500\1000L
- NOLA® Fit FM\5L
- NOLA™ Fit 5500\6X1L
- NOLA® Fit 5500 IMF\1Kg
- NOLA® Fit 5500 IMF\2Kg
- NOLA® Fit 5500 IMF\5Kg
- NOLA™ Fit Express\5L
- NOLA™ Fit Express\20L
- NOLA™ Fit Flex-S1000\5L
- NOLA™ Fit Flex-S1000\10L
- NOLA™ Fit Flex-S2000\5L
- NOLA™ Fit Flex-S2000\10L
- NOLA™ Fit Flex -S2700\10L
- NOLA™ Fit Flex VDA-S2000 3.2\5L
- NOLA™ Fit Flex VDA-S2000 3.2\10L
- NOLA® GOS (previously Fiber)\5L
- NOLA® GOS (previously Fiber)\20L

2. The HA-LACTASE™ Products

- HA-LACTASE™ 1100\1000L
- HA-LACTASE™ 2100\5L
- HA-LACTASE™ 2100\20L
- HA-LACTASE™ 2100\1000L
- HA-LACTASE™ P-2100\5L

- HA-LACTASE™ P-2100\1000L
- HA-LACTASE™ 5200\2,5kg
- HA-LACTASE™ 5200\5Kg
- HA-LACTASE™ 5200\5L
- HA-LACTASE™ 5200\20L
- HA-LACTASE™ 5200\1000L
- HA-LACTASE™ 5200\6X1KG
- HA-LACTASE™ 5200\4X1GAL
- HA-LACTASE™ 5200\5Gal
- HA-LACTASE™ Flex-S1000\5L
- HA-LACTASE™ Flex-S2000\10L
- HA-LACTASE™ Flex PS2000\10L
- HA-LACTASE™ Plus 1100\1000L
- HA-LACTASE™ Plus 2100\5L
- HA-LACTASE™ Plus 2100\1000L
- HA-LACTASE™ Plus 5200\5L
- HA-LACTASE™ Plus 5200\20L
- HA-LACTASE™ Plus Flex S2000\10L
- HA-LACTASE™ Vari-S1000 3.2\10L
- HA-LACTASE™ VDA-S1000 3.2\2,5L
- HA-LACTASE™ VDA-S1000 3.2\5L
- Dulzime™ \5Kg
- Dulzime™ \20Kg

3. The Lactosens® R Assay Kit Products

- Lactosens™ 0.02% 25\BOX
- LactoSens® R for NOLA™ fit 25/BOX
- LactoSens® R Reader Kit/EA
- LactoSens® R 25/BOX
- LactoSens® R Reader Cal Module/BOX
- LactoSens® R Adapter/BOX
- LactoSens® Extend 25/BOX

Annex 2: The Lactase Plant

1. The Lactase Plant is located in TEDA, China. The Lactase Plant is a fully invested Active Pharmaceutical Ingredient Plant, which fully complies with all regulatory requirements needed to produce food grade lactase in China.

2. At Closing all the NOLA® Products can be produced at the Lactase Plant, and the Lactase Plant will comprise all equipment and capacity to handle tapping, bottling, labelling and packaging of the NOLA® Products. As operated to date, the Lactase Plant produces **[percentage]** of NZ' and CH's bifido lactases.

3. The Lactase Plant includes:

    a. approximately 12,235 sqm of land with a building size of 11,200 sqm;

    b. warehouse space of approximately 700 sqm;

    c. a spray dryer used for converting liquids into solid products (not used for lactase production);

    d. operating equipment, mainly relating to production equipment, tanks, technical service equipment and office equipment, and including **[information on fermentation capacity]**; and

    e. approximately DKK **[amount]** invested as capex in the Lactase Plant with a book value of approximately DKK **[amount]**, both of which include the value for the spray dryer as mentioned in item c above.

4. Detailed information of the divided land to be transferred to Plant NewCo is to be provided upon approval of land division. In addition to the buildings mentioned above, NZ will also construct certain new facilities and buildings on the land to be transferred to Plant NewCo (such as a guard house and ammonia station).

Annex 3: The Production Strain and the Production Guide (production know-how)

1. **[summary of annex:** The Parties and the Purchaser will enter into a technology transfer agreement *inter alia* regulating the license and access to the Production Strain and license to the Production Guide.

2. Upon Closing, NZ will transfer a full master cell bank and a working cell bank and all relevant protocols and grant the Purchaser a world-wide, irrevocable, perpetual, royalty free licence to the Production Strain within a defined field of use.

3. The Purchaser will also get access to any improved production strain within a certain time frame.

4. Production know-how will upon Closing be transferred to the Purchaser by providing the Purchaser with a worldwide, irrevocable, perpetual, royalty-free licence to the Production Guide within a defined field of use.

5. The Purchaser will get access to the revised production guide within a certain time frame.

6. NZ will, at the option of the Purchaser, provide transitional support to the Purchaser for 12 months after Closing.**]**

Annex 4: CH Lactase Pipeline Project

1. The Parties will transfer at Closing to the Purchaser all rights, title and interests to develop, improve, manufacture and commercialise the CH Lactase Pipeline Project.

2. The CH Lactase Pipeline Project will be conducted and continued during the Hold Separate period by the CH Lactase Business under the supervision of the Monitoring Trustee (depending on the timing of completion) in the following manner:

   a. The CH Lactase Business will devote all commercially reasonable efforts (including sufficient resources), in particular in terms of budget and personnel, to conclude the development of the CH Lactase Pipeline Project without unnecessary delays, so that the Purchaser can step in and effectively continue these as soon as possible after Closing;

   b. At the option of the Purchaser, CH or the Parties (as applicable) on the behalf of the Purchaser will seek regulatory approval for the CH Lactase Pipeline Project after completion of the development;

   c. Any disputes between the Parties and Purchaser in relation to the development of the CH Lactase Pipeline Project shall be handled in accordance with a Fast Track Dispute Resolution. **[Terms of procedure]**

Annex 5: Personnel and Key Personnel of the Divestment Business

1. The Personnel include personnel across key functions, including both commercial and personnel resources dedicated to the Lactase Plant sufficient to fully operate the Divestment Business. A total of 66 FTEs will be transferred to the Purchaser upon Closing.

2. The transferring personnel resources are set out below across functions, and of the 66 FTEs, 17 FTEs pertain to the CH Lactase Business (and currently employed in CH) and 48 FTEs are employed by NZ; 47 thereof pertain to the Lactase Plant and one to PPMG & IP FTE. In addition hereto the Personnel include 1 Lactase Executive Manager taking on the role as Hold Separate Manager of the Divestment Business.

Function	**Total Transfer FTE**
Commercialization/distribution	
Lactase Executive Manager (Hold Separate Manager)	1.0
Sales	11.0
Marketing	1.0
Commercial Development and Leadership	2.0
R&D and application	3.0
Product portfolio management and IP	1.0
Production & Quality Control	
Management	1.0
Procurement & Supply-Chain	1.0
Production & Quality Control	34.0
Process Engineering	2.0
Maintenance	6.0
Facility Service	1.0
Regulatory & Quality Assurance	2.0
Total	**66.0**

3. The Purchaser will be assumed to be able to absorb back-office functions, and no such employees will transfer. At the option of the Purchaser TSAs will be offered for certain back-office functions.

4. The following are considered Key Personnel:

Function	**Total Transfer FTE**	**Name of FTE**
Commercialization/distribution		
Lactase Executive Manager (Hold Separate Manager)	1.0	**[Name of FTE]**
Sales	11.0	**[Names of FTEs]**
Marketing	1.0	**[Name of FTE]**
Commercial Development and Leadership	2.0	**[Names of FTEs]**
R&D and application	3.0	**[Names of FTEs]**
Product portfolio management and IP	1.0	**[Name of FTE]**

Production & Quality Control		
Operation Director – the head of the plant	1.0	**[Name of FTE]**
Technology specialist (plus maintenance supervising)	1.0	**[Name of FTE]**
Production supervisor	1.0	**[Name of FTE]**
Sr. Quality specialist, QC lead	1.0	**[Name of FTE]**
Sr. Quality specialist	1.0	**[Name of FTE]**
EHS specialist	1.0	**[Name of FTE]**
Sourcing category manager	1.0	**[Name of FTE]**
Planning, import and export specialist	1.0	**[Name of FTE]**
Production coordinators	2.0	**[Names of FTEs]**
Production team leaders (leading production teams on shifts)	5.0	**[Names of FTEs]**
Total	**34.0**	

5. **[Information on status of G2 Collaboration Agreement]**. However, the Personnel to be transferred as part of the Divestment Business will include a Senior Project Manager(**[Information on the Senior Project Manager]**), a senior Application Scientist (responsible for technical service, support and troubleshooting within the existing lactase portfolio, and who has worked on the project of the G2 Collaboration Agreement) and one laboratory technician (who supports the current lactase portfolio with customer requests and trouble-shooting based on directions from the Application Scientist). Both the Application Scientist and laboratory technician have extensive dairy lactase application experience. All of these Personnel are very capable and experienced and will collectively be able to manage the G2 Collaboration Agreement on behalf of the Purchaser – regardless of the Purchaser's own capabilities in launching projects like the G2 Collaboration Agreement lactase. The Project Manager will supervise the upscaling of the technology/biology that has been developed for G2 Collaboration Agreement lactase. The senior scientist and technician will conduct a number of tasks including analyzing data and carrying out various dosage and purity tests on the G2 Collaboration Agreement lactase (product qualifications) to verify its performance, including in relevant applications. They will also support preparation of launch material and customer trials. In addition to the G2 Collaboration Agreement activities, the scientists will be supporting customer service requests related to the existing product portfolio. These Divestment Business employees will be working closely with, and supported by, a senior commercial development manager from CH who is also included in the Personnel, and who will be able to support the G2 Collaboration Agreement activities. Therefore, while lactase is not a particularly dynamic sector for innovation, the overall contribution of these Personnel will ensure the commercialization and futureproofing of the G2 Collaboration Agreement.

Annex 6: Intellectual Property Rights for the Divestment Business

The CH Lactase Business Patents

1. Upon Closing, the Parties will irrevocably assign, convey and transfer all rights, titles and interests throughout the world in and to the patents and patent applications (published and unpublished) related to the NOLA® Products and other lactases listed in Table 1, which are owned, maintained and/or controlled by CH:

Table 1: Transfer of the CH Lactase Business Patents and the G2 Collaboration Agreement Relevant Patents

Patent family	Granted	Pending	Transferor/Licensor	Relevant for Product/Project
[Information on patents]				

2. The assignment and transfer of all rights, titles and interest to the patent families identified by **[information on patents]** and the two unpublished patent applications in Table 1 are conditional upon the Purchaser granting NZ and NZ's Affiliates upon transfer of the patents to the Purchaser a non-exclusive, royalty-free, perpetual, global, irrevocable, partially sublicensable licence to the patents as such licence is needed to operate and develop the NZ lactase business, including to improve, manufacture and/or commercialise the Saphera® Products and potentially the Lactozym® Products.

3. The Purchaser must respect all licences granted to third parties to the assigned patents listed in Table 1, including the licences in the Food Licence Agreement and the Lactase Licence Agreement.

4. The Purchaser will be responsible for defending and maintaining the assigned patents, but NZ will offer its support in relation to the protection of the assigned patents.

The NZ NOLA® Products Patents

5. Upon Closing NZ will irrevocably assign, convey, and transfer all rights, titles, and interests throughout the world in and to the patents and patent applications (published and unpublished) related to the NOLA® Products.

Table 2: Transfer of the NZ NOLA® Products Patents

Patent family	Granted	Pending	Transferor/Licensor	Relevant for Product
[Information on patents]				

6. The assignment and transfer of all rights, titles and interest to the patents listed in Table 2 are conditional upon the Purchaser granting NZ and NZ's Affiliates upon transfer of the patents to the Purchaser a non-exclusive, royalty-free, perpetual, global, irrevocable, partially sublicensable licence to the patents as such licence is needed to operate and develop the NZ lactase business, including to improve, manufacture and/or commercialise the Saphera® Products and potentially the Lactozym® Products.

7. The Purchaser must respect all licences granted to third parties to the assigned patents listed in Table 2 including the licences in the Food Licence Agreement and the Lactase Licence Agreement.

8. The Purchaser will be responsible for defending and maintaining the assigned patents, but NZ will offer its support in relation to the protection of the assigned patents.

Annex 7: The Trademarks for the Divestment Business

Table 3: NOLA® and HA-LACTASE™ Trademarks

Title	Registration no.	Country	Status	Transferor
NOLA	2874083	Argentina	Registered	CH
NOLA	1318867 (1809676)	Australia	Registered	CH
NOLA	911155805	Brazil	Registered	CH
NOLA	TMA1041286	Canada	Registered	CH
NOLA	1318867	China	Registered	CH
NOLA	1318867	Colombia	Registered	CH
NOLA	VR 2016 00976	Denmark	Registered	CH
NOLA	1318867	European Union	Registered	CH
NOLA	1318867	India	Registered	CH
NOLA	1318867	International Protocol (Madrid)	Registered	CH
NOLA	1318867	Iran, Islamic Republic of	Registered	CH
NOLA	1318867	Korea, Republic of	Registered	CH
NOLA	2016059998	Malaysia	Registered	CH
NOLA	1318867 (1809572)	Mexico	Registered	CH
NOLA	1318867 (1055381)	New Zealand	Registered	CH
NOLA	1318867	Norway	Registered	CH
NOLA	1318867	Switzerland	Registered	CH
NOLA	211110343	Thailand	Registered	CH
NOLA	1318867	Turkey	Registered	CH
NOLA	1318867	Ukraine	Registered	CH
NOLA	UK00801318867	United Kingdom	Registered	CH
NOLA	1318867 (5238765)	United States	Registered	CH
NOLA	361231	Venezuela, Bolivarian Republic of	Registered	CH
DULZIME	3259014	Argentina	Registered	CH
DULZIME	919713530	Brazil	Registered	CH
DULZIME	1327749	Chile	Registered	CH
DULZIME	670639	Colombia	Registered	CH
DULZIME	VR 2020 01777	Denmark	Registered	CH
DULZIME	2117940	Mexico	Registered	CH
DULZIME	295931	Peru	Registered	CH
DULZIME	514152	Uruguay	Registered	CH
HA-LACTASE			Unregistered	CH

1. The NOLA® Products and the HA-LACTASE™ Products are protected through trademarks, which are listed above, and upon Closing, CH will transfer ownership of these trademarks and assign its registered and unregistered trademark rights in the trademarks to the Purchaser with full ownership.

2. The Purchaser will also be granted a time-limited, non-exclusive, non-transferable, non-sub-licensable world-wide, royalty-free license to use the trademarks for the CH name and logo as needed by the Purchaser to allow the Purchaser time to transition the brand and only for operation of the Divestment Business materially as such business was conducted immediately prior to Closing.

Annex 8: Regulatory Clearances

1. Each of the NOLA® Products and the HA-LACTASE™ Products have relevant approvals in all key geographies, details of which will be provided to the Purchaser. In a few geographies, a new registration for the Purchaser as the new local importer/distributor of the Divestment Products will be needed in connection with Closing, accounting for de-minimis sales. The Parties will provide the Purchaser with the necessary documentation (consent letter) to assist Purchaser in obtaining the necessary registrations.

Annex 9: Supply Contracts for the Divestment Business

1. **[Information on the transfer of supply agreements relating to the CH Lactase Business to the Purchaser.]**

2. **[Information on the transfer of supply agreements relating to the CH Lactase Business to the Purchaser.]**

3. **[Information on the transfer of supply agreements partially relating to the CH Lactase Business, or of suppliers with no formal supply agreement to the Purchaser.]**

Annex 10: Distribution Agreements for the Divestment Business

[Distributor names]

Annex 11: Customer Contracts for the CH Lactase Business

1. All contracts with existing customers that relate solely to lactase within the CH Lactase Business will be transferred to the Purchaser at Closing.

2. **[Information on transfer of shared contracts which extend beyond the CH Lactase Business]**.

3. All customer lists, customer orders, customer records and credit records of the CH Lactase Business dating three (3) years back concerning the sale of the Divestment Products that are material and/or necessary to the CH Lactase Business to the extent they are capable of being assigned.

4. In relation to the above the Parties undertake to use best efforts to obtain all necessary third-party consents where applicable or to assist in putting in place a new agreement between the Purchaser and the customer.

5. **[Information on transfer of customers with informal ad hoc agreements]**.

6. **[Information on terms]**.

Annex 12: Transitional Services Agreements

1. The Parties will provide appropriate TSAs for the benefit of the Purchaser for a maximum of 12 months, subject to discussion with the Purchaser, covering the areas at 1-6 below.

   Services will be provided at the option of the Purchaser.

   Services may include transitional:

   1. HR support;

   2. IT support notably in respect of the Lactase Plant;

   3. Finance functions support notably in respect of the Lactase Plant;

   4. Facility and maintenance services in respect of the Lactase Plant;

   5. Production, regulatory and quality control services (e.g. ad-hoc troubleshooting support, permit/licence assistance, and certain quality control support); and

   6. Logistics, procurement and other services relating to the chain of supply of the NOLA® Products and/or HA-LACTASE™ Products to the extent needed.

   [Information on terms].

   The Parties will also enter into a reverse TSA with the Purchaser whereby the Parties will undertake to reformulate and tap the NOLA® Products for the Purchaser at CH's facility in Graasten, Denmark, while the Purchaser and Plant NewCo will undertake to reformulate and tap the Saphera® Products for the Parties at the Lactase Plant.

2. In addition, a permanent service agreement ("**SLA**") will be entered into between Plant NewCo and NZCB from shortly prior to Deferred Closing (i.e., when Plant NewCo will start independent production on a trial basis) for the following:

   - Firefighting water supply;
   - Production wastewater treatment;
   - Cleaning and inactivation of model filters containing waste enzymes;
   - Biomass treatment; and
   - Cooling water supply.

3. **[Information on terms]**

Annex 13: Lactase Plant Premises

1. **[Summary of annex:** At or before Closing, certain fixed assets, supplier contracts, rights, employees, liabilities, obligations and other assets (including, inventory, records etc.) pertaining to the Lactase Plant (excluding the underlying land, existing buildings and buildings under construction) will be transferred from NZCB to Plant NewCo. All equity interests in Plant NewCo will be transferred to the Purchaser at Closing.

2. Certain temporary transitional arrangements between NZCB and Plant NewCo will commence at Closing to ensure that the Lactase Plant is fully and immediately operational. These will also ensure Plant NewCo's (i.e. the Purchaser's) continued supply of the concentrate products for NOLA® Products and that the related economic benefits from the Lactase Plant can be enjoyed by Plant NewCo (i.e. the Purchaser) from Closing.

3. To allow Plant NewCo to operate production independently at Deferred Closing, following Closing and before Deferred Closing, NZ will complete the construction of certain buildings (such as a guard house and ammonia station together with a hazardous chemicals warehouse) and utility facilities for the Lactase Plant, before transferring the underlying land (including existing and newly constructed buildings) i.e. the Lactase Plant Premises to Plant NewCo.

4. NZ will also support Plant NewCo in applications for certain necessary local operational permits. This process will involve Plant NewCo independently running the Lactase Plant on a trial basis shortly prior to Deferred Closing. The food production licence with food additives categorisation can then be obtained. Once relevant permits are obtained, Plant NewCo will commence formal independent production at the Lactase Plant and Deferred Closing will occur.

5. Any disputes between the Parties and Purchaser in relation to the transfer of the Lactase Plant Premises shall be handled in accordance with a fast track dispute resolution procedure.**]**