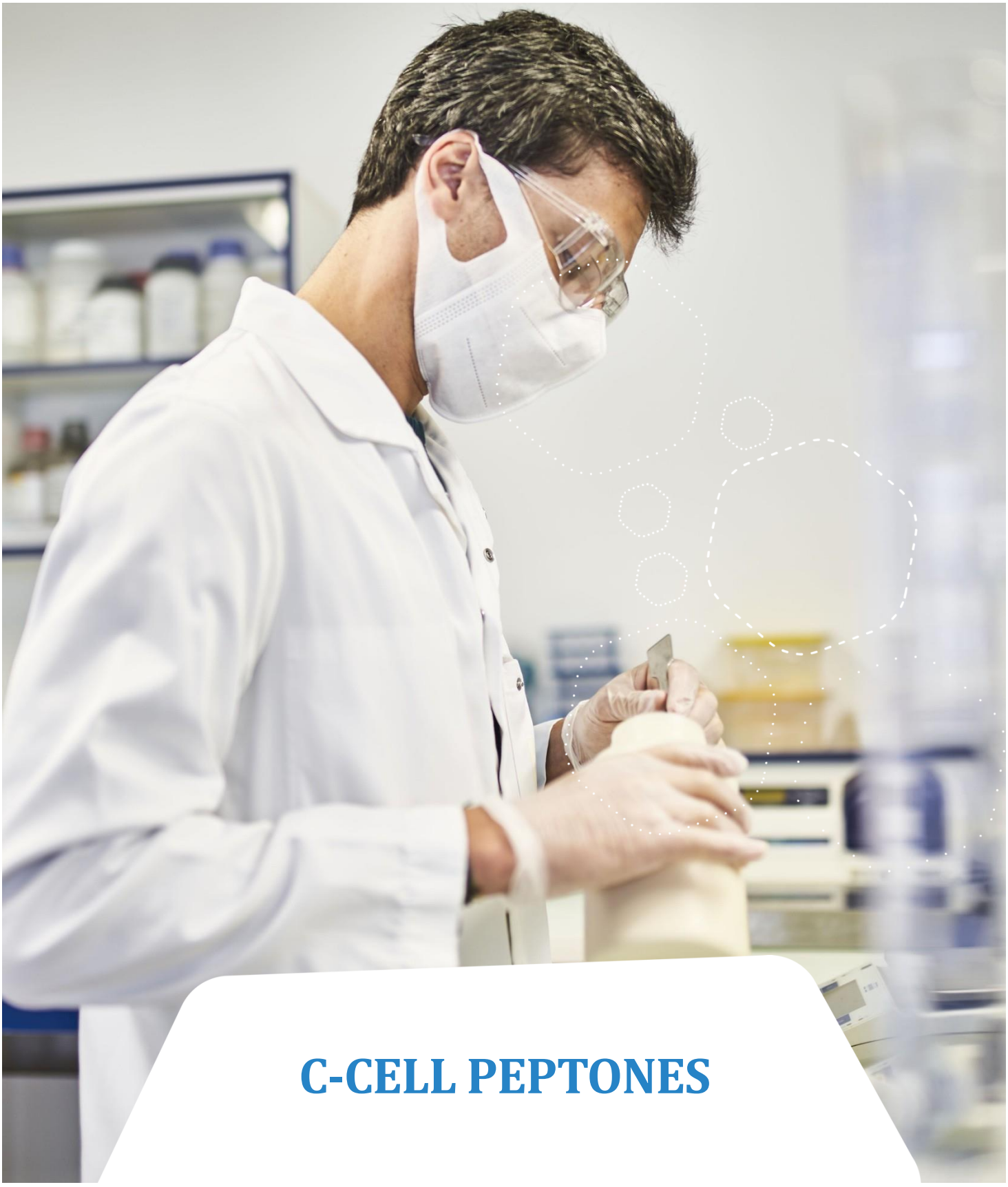

C-CELL PEPTONES

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ORGANO TECHNIE
SOURCE OF LIFE

Table of content

Cell Culture introduction

Cell culture is the growth of mammalian cells in an artificial, controlled environment.

Mammalian cells can be expanded in culture for use as a research tool, for the production of virus vaccines and various therapeutic proteins, and to generate functional cells or tissue analogues for regenerative medicine.

Cells grown outside their natural animal or vegetal origin are extremely fragile and require specialized culture media.

Peptones are hydrolysates of protein, which are used as a component for such media in order to improve adhesion, cell growth or other specific properties (protein production, EV production...).

C-Cell Peptones

Organotechnie manufactures Peptones for industrial microbiology for more than 50 years.

To meet mammalian cell culture's requirements, Organotechnie has designed a new range of Peptones named **C-CELL Peptones**.

C-CELL Peptones provide essential nutrients to the cells, including:

- Peptides
- Amino-acids
- Sugar
- Minerals
- Vitamins

C-CELL Peptones are SAFE, EFFECTIVE, AFFORDABLE and designed for biopharmaceutical industries.

Main characteristics:

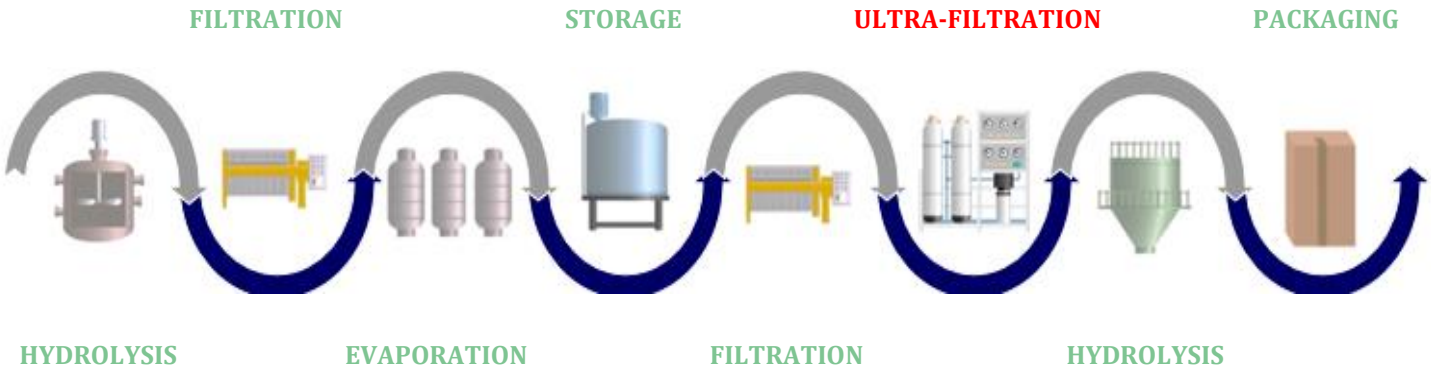
- High filterability (0.2µ)
- High solubility
- Low endotoxin level
- Protein free
- Batch to Batch Consistency
- Low bioburden level
- Animal free (for all vegetable and yeast origin references)

Protein origins

Organotechnie has selected various high quality protein sources:

VEGETAL	ANIMAL	YEAST EXTRACT
SOY WHEAT GUAR PEA RICE BROADBREAN	CASEIN MEAT	YEAST

Manufacturing process



C-CELL 100: Ultrafiltered peptones

C-CELL 200: Microfiltered peptones

External research project

- **INSERM / PhD thesis**

Stem cells (MSC) cultivation and extracellular vesicles production with Peptones supplementation

- **University La Sorbonne Paris Nord / PhD thesis**

Design of a new synthetic culture media containing new generation of Peptones

(Recombinant protein expression in CHO)

- **University La Sorbonne Paris Nord**

Effect of peptones on human fibroblast cells proliferation and caracterization of proteins (proteomic study).

- **University La Sorbonne Paris Nord / Analytics**

Characterisation of peptones using different technologies: MIR, MALDI-TOF mass spectrometry,

peptones fractioning

- **European project with University of Nancy**

CULTURED MEAT (project sponsored by the EU)

- **TEBU BIO**

Production of Interleukin 4 in HEK293 cells

PEPTONE CATALOGUE

Soy Peptones

- MANUFACTURING INFORMATIONS

Product ref.	Product name	Enzyme	Co-processed with Yeast Extract (%)	Microfiltration (MF) / Ultrafiltration (UF)	pH adjustment reagents
17104	**C-CELL S104**	Papain + microbial protease	15%	UF	CH_3COOH NaOH, KOH
17113	**C CELL S113**	Papain + microbial protease	0%	UF	CH_3COOH NaOH
E0003 (S146B)	**C-CELL S146B**	Microbial protease	0%	UF	H3PO4 NaOH, $CA(OH)_2$
E0003 (S146C)	**C-CELL S146C**	Microbial protease	0%	UF	H3PO4, CH_3COOH NaOH
E0003 (S146D)	**C-CELL S146D**	Microbial protease	0%	UF	H3PO4 KOH, $CA(OH)_2$
17204	**C-CELL S204**	Papain + microbial protease	15%	MF	CH_3COOH NaOH, KOH
17205	**C-CELL S205**	Papain + microbial protease	15%	MF	CH_3COOH NaOH, KOH
17208	**C-CELL S208**	Papain + microbial protease	0%	MF	CH_3COOH NaOH, KOH

- PHYSICO CHEMICAL CHARACTERISTICS *

Product ref.	PH (5%)	Loss on drying (%)	Total Nitrogen (%)	α-Amino nitrogen (%)	AN/TN x100	Residue on Ignition (%)	Chloride (%)	Filterability (sec.)	Endotoxin (EU/g)
17104	7,6	4	9,0	3,1	34	18	0	<300	<200
17113	7,3	4	9,0	2,8	31	18	0	<300	<200
E0003 (S146B)	6,9	3	8,5	2,1	25	17	0	<300	<200
E0003 (S146C)	6.9	3	8.6	2.0	23	16	0	<300	<200
E0003 (S146D)	6.8	2	8.5	2.6	31	18	0	<300	<200
17204	7.2	5	8.9	3.3	37	15	0	<300	<1000
17205	7.2	5	9.1	3.2	35	15	0	<300	<1000
17208	7.4	5	8.8	2.8	32	16	0	<300	<1000

* Typical data

- FREE AMINO ACIDS (G/100G) *

Product ref.	Asp	Glu	Ala	Arg	Cys	Gly	His	Ile	Leu	Lys	Met	Phe	Pro	Ser	Thr	Tyr	Val	Total FAA
17104	0,6	1,8	1,2	1,3	<0,5	0,6	0,3	0,6	1,6	0,9	0,4	0,9	0,3	0,7	0,3	0,6	0,8	12,8
17113	0,1	0,6	0,5	1,8	<0,5	0,7	0,3	<0,15	1,5	1,0	0,2	0,6	<0,1	0,5	0,2	0,4	<0,5	8,3
E0003 (S146B)	0,2	2,3	0,1	0,2	<0,15	<0,1	<0,1	0.1	0.3	0,1	<0,1	0,3	<0,05	0,1	0,1	0,2	<0,1	3.8
E0003 (S146C)	0.1	2.4	0.1	0.2	<0,15	<0,1	<0,1	<0,1	0.2	0,1	<0,1	0,3	<0,05	0,1	0,1	0,2	<0,1	3.8
E0003 (S146D)	0.1	2.4	0.1	0.3	<0,15	<0,1	<0,05	0.1	0.2	0,1	<0,05	0.2	<0,05	0.1	<0,05	0.2	<0,05	3.7
17204	0,4	1,5	1,0	2,1	0,6	0,8	0,5	0,4	2.0	1,4	0,2	0,8	0,2	1.0	1,0	0,6	0,6	15.3
17205	0.4	1.1	0.8	1.8	<0.5	0.6	0.3	0.3	1.9	1.2	0.4	0.9	0.18	0.8	<0.5	0.6	0.5	11.9
17208	0.1	0.5	0.4	1.7	<0.5	0.6	0.3	<0.08	1.6	1.0	0.3	0.6	<0.06	0.5	<0.2	0.4	<0.2	8.1

- MINERALS AND SUGARS *

	MINERALS (mg/100g)						SUGARS (g/100g)					
Product ref.	Fe (mg/kg)	Ca	Mg	P	K	Na	Fructose	Glucose	Lactose	Maltose	Saccharose	Total sugar
17104	31	49	63	235	3927	2640	0,6	0,4	<0,1	5,3	4,9	11,3
17113	33	69	164	203	3484	2784	0.9	0.6	<0.1	7.5	9.1	18.1
E0003 (S146B)	2	68	86	1743	3132	3496	0.5	0.5	<0.1	6.1	8.3	15.2
E0003 (S146C)	20	117	256	1213	2998	1662	0.5	0.7	<0.1	7.9	11.8	20.8
E0003 (S146D)	5	80	136	1611	2862	2126	0.6	0.5	<0.1	9.5	12.0	22.6
17204	41.3	-	-	-	-	-	0.9	0.6	<0.1	6.1	6.8	14.4
17205	57	63	177	308	2702	1829	0.8	0.5	<0.1	6.2	6.8	14.3
17208	41.5	46	141	146	2861	2157	1.2	0.6	<0.1	7.1	8.2	17.2

* Typical data

- MOLECULAR WEIGHTS DISTRIBUTION (%) *

Product ref.	≥7 kDa	3-7 kDa	1-3 kDa	500 Da-1 kDa	300-500 Da	150-300 Da	<150 Da	Average Molecular weight (Da)
17104	0	0	7	39	20	16	17	509
17113	0	0	4	37	25	18	16	473
E0003 (S146B)	0	0	14	43	19	13	11	663
E0003 (S146C)	0	1	16	43	18	12	10	697
E0003 (S146D)	0	0	12	44	21	13	9	612
17204	0	0	3	33	25	21	19	431
17205	0	0	3	33	25	19	20	430
17208	0	0	3	35	26	19	17	451

* Typical data

Other Vegetal Peptones (Wheat, Pea, Guar, Broadbean, Rice)

- MANUFACTURING INFORMATIONS

Product ref.	Protein Source	Product name	Enzyme	Co-processed with Yeast Extract (%)	Microfiltration (MF) / Ultrafiltration (UF)	pH adjustment reagents
17106	WHEAT	C-CELL W106	Papain + microbial protease	0%	UF	NaOH
17206		C-CELL W206	Papain + microbial protease	0%	MF	NaOH
17112	PEA	C-CELL P112	Microbial protease	0%	UF	HCl, NaOH
17118		C-CELL P118	Microbial protease	0%	UF	HCl, NaOH
17218		C-CELL P218	Microbial protease	0%	MF	HCl, NaOH
17115	GUAR	C-CELL G115	Microbial protease	24%	UF	CH_3COOH NaOH
17120	BROADBEAN	C-CELL F120	Microbial protease	0%	UF	HCl, NaOH
17116	RICE	C-CELL R116	Microbial protease	0%	UF	CH_3COOH NaOH, NH3

- PHYSICO CHEMICAL CHARACTERISTICS *

Product ref.	pH (5%)	Loss on drying (%)	Total Nitrogen (%)	α-Amino nitrogen (%)	AN/TN x100	Residue on Ignition (%)	Chloride (%)	Filterability (sec.)	Endotoxin (EU/g)
17106	6,3	3	13,1	2,6	20	5,9	1	<300	<200
17206	6.8	4	11.9	2.3	19	6.4	0	<300	<1000
17112	7.3	3	13.2	4.8	36	14.4	4	<300	<200
17118	7.1	5	13.0	4.3	33	12.9	3.7	<300	<200
17218	6.7	5	13	4.3	33	11.1	3.7	<300	<1000
17115	7.2	10	9.8	3.6	37	17	0	<300	<200
17120	6.9	7	10.6	5.2	49	17.1	2.5	<300	<200
17116	6.9	5	12.9	4.1	32	11.3	0.1	<300	<200

* Typical data

- FREE AMINO ACIDS (G/100G) *

Product ref.	Asp	Glu	Ala	Arg	Cys	Gly	His	Ile	Leu	Lys	Met	Phe	Pro	Ser	Thr	Tyr	Val	Total FAA
17106	<0,05	0,3	0,3	0,6	-	0,5	0,2	<0,05	1,4	0,2	0,3	0,4	<0,05	0,6	0,2	0,3	-	5,2
17206	0.1	0.3	0.4	0.7	0.1	0.7	0.4	0.2	1.5	0.3	0.3	0.5	0.0	0.7	0.3	0.5	0.2	7.2
17112	0.4	1.7	0.7	3.0	<0.1	0.2	0.7	1.3	3.7	2	0.1	2.0	<0.05	0.9	0.8	1.2	1.4	20.4
17118	0,4	0,8	0,7	2,5	<0,05	0,1	0,5	0,9	3,3	2,1	0,1	2,2	-	0,6	0,4	1,0	0,9	17,1
17218	0.4	0.6	0.4	3.2	0.2	0.2	0.1	1.2	3.1	2.4	0.5	2.1	0.1	1.2	0.5	1.2	1.3	18.7
17115	1,7	4,1	1,9	3,8	<0,15	0,7	0,7	1,3	2,1	1,2	0,5	1,1	1,0	1,1	0,8	0,7	1,5	24,0
17120	1,8	4,3	1,5	4,1	0,1	0,6	0,9	2,3	3,8	2,5	0,2	2,0	0,5	NA	1,4	0,4	2,4	28,6
17116	0.3	0.4	0.7	2.6	0.1	0.2	0.5	1.2	3.0	0.8	0.4	1.8	0.1	0.7	0.5	0.3	1.5	14.9

- MINERALS AND SUGARS *

	MINERALS (mg/100g)						SUGARS (g/100g)					
Product ref.	Fe (mg/kg)	Ca	Mg	P	K	Na	Fructose	Glucose	Lactose	Maltose	Saccharose	Total sugar
17106	25	64	4	60	91	1576	0,1	0,3	1,2	2,5	1,0	5,5
17206	19	74	1,2	78	119	1866	<0.1	0.4	0.9	2.6	0.1	4
17112	36	39	30	590	363	4563	0.5	0.4	<0.1	<0.1	<0.1	0.9
17118	30	31	26	561	355	3276	0.4	0.9	<0.1	0.2	0.2	1.7
17218	44	61	18	805	356	4426	0.2	0.7	<0.1	<0.1	<0.1	0.9
17115	87	71	112	357	2680	3791	3	2	<0.1	<0.1	0.1	5.1
17120	86	43	137	1139	3642	2867	2.8	1.9	3.5	0.3	<0.1	8.5
17116	14	93	4.0	324	121	3005	<0.1	1.1	<0.1	2.4	<0.1	3.5

* Typical data

- MOLECULAR WEIGHTS DISTRIBUTION (%) *

Product ref.	≥7 kDa	3-7 kDa	1-3 kDa	500 Da-1 kDa	300-500 Da	150-300 Da	<150 Da	Average Molecular weight
17106	0	0	5	57	23	11	5	598
17206	0	0	5	56	24	11	5	595
17112	0	0	8	34	21	20	16	499
17118	0	0	9	34	22	21	14	520
17218	0	1	14	34	19	17	15	617
17115	1	1	10	21	14	27	24	612
17120	0	0	2	11	18	29	39	293
17116	0	0	11	35	19	19	16	541

* Typical data

Yeast Extracts

- MANUFACTURING INFORMATIONS

Product ref.	Product name	Enzyme	Microfiltration (MF) / Ultrafiltration (UF)	pH adjustment reagents
17109	C-CELL Y109	microbial enzyme	UF	-
17119	C-CELL Y119	NA	UF	-
17121	C-CELL Y121	NA	UF	NAOH
17209	C-CELL Y209	NA	MF	-

- PHYSICO CHEMICAL CHARACTERISTICS *

Product ref.	PH (5%)	Loss on drying (%)	Total Nitrogen (%)	α-Amino nitrogen (%)	AN/TN x100	Residue on Ignition (%)	Chloride (%)	Filterability (sec.)	Endotoxin (EU/g)
17109	5,5	5	10,4	5,3	51	9	1	<300	<200
17119	5,6	4	10,6	5,6	53	9	0	<300	<200
17121	6,0	2	10,7	4,2	39	19	0	<300	<200
17209	6.9	4	10.7	5.7	53	16	0	<300	<1000

- FREE AMINO ACIDS (G/100G) *

Product ref	Asp	Glu	Ala	Arg	Cys	Gly	His	Ile	Leu	Met	Phe	Pro	Ser	Thr	Tyr	Val	Lys	Total FAA
17109	2.0	5.9	3.3	1.5	<0.05	1.0	0.5	1.3	1.8	0.5	1.6	1	1.6	1.2	0.3	2.2	1.7	27.8
17119	2,0	6,0	3,4	1,5	<0,05	1,1	0,5	1,4	2,1	0,6	1,6	1,0	1,6	1,2	0,4	2,2	1,7	28,3
17121	0,8	3,8	1,7	0,3	0,5	0,2	0,2	0,4	1,2	0,2	0,5	NR	0,4	0,7	0,3	0,8	1,1	13,1
17209	2	6.3	3.8	1.8	<0.05	1.2	0.6	2.1	3.6	0.8	2.2	1.2	3.0	1.7	0.4	2.4	2.1	35.2

- MINERALS AND SUGARS *

	MINERALS (mg/100g)						SUGARS (g/100g)					
Product ref.	Fe (mg/kg)	Ca	Mg	P	K	Na	Fructose	Glucose	Lactose	Maltose	Saccharose	Total sugar
17109	26	132	161	1342	3050	84	< 0,1	0,7	< 0,1	< 0,1	< 0,1	0,7
17119	40	113	153	1314	3514	93	< 0,1	< 0,1	< 0,1	< 0,1	< 0,1	< 0,1
17121	16	41	131	2522	3341	2004	< 0,1	< 0,1	< 0,1	< 0,1	< 0,1	< 0,1
17209	-	22	10	1237	5242	80	0.1	0.8	<0.1	<0.1	<0.1	0.9

* Typical data

- MOLECULAR WEIGHTS DISTRIBUTION (%) *

Product ref.	≥7 kDa	3-7 kDa	1-3 kDa	500 Da-1 kDa	300-500 Da	150-300 Da	<150 Da	Average Molecular weight
17109	0	0	2	23	18	22	35	364
17119	0	0	2	25	18	20	35	380
17121	0	0	5	34	18	13	30	426
17209	0	0	6	18	8	18	50	344

* Typical data

Animal Peptones (Casein, Meat)

- MANUFACTURING INFORMATIONS

Product ref.	Protein Source	Product name	Enzyme	Co-processed with Yeast Extract (%)	Microfiltration (MF) / Ultrafiltration (UF)	pH adjustment reagents
E0001 (new product)	Meat	C-CELL M2DX	NA	0%	MF	H3PO4, HCL NaOH, $CA(OH)_2$
17207	Casein	C-CELL Tryptone N1	Microbial + Animal	3%	MF	CH_3COOH, NaOH

- PHYSICO CHEMICAL CHARACTERISTICS *

Product ref.	pH (5%)	Loss on drying (%)	Total Nitrogen (%)	α-Amino nitrogen (%)	AN/TN x100	Residue on Ignition (%)	Chloride (%)	Filterability (sec.)	Endotoxin (EU/g)
E0001 (M2DX)	7.0	2	12.9	3.1	24	15.6	3.2	<300	<200
17207	6.7	5	12.9	4.2	33	10.9	0.1	<300	<1000

- FREE AMINO ACIDS (G/100G) *

Product ref.	Asp	Glu	Ala	Arg	Cys	Gly	His	Ile	Leu	Met	Phe	Pro	Ser	Thr	Tyr	Val	Lys	Total FAA
E0001 (M2DX)	0.6	1.2	0.6	0.3	<0.05	0.3	0.1	0.2	1.6	0.5	1.3	0.2	0.4	0.3	0.7	0.3	0.3	8.9
17207	0.1	0.5	0.3	2.7	0.3	0.1	0.3	0.8	3.7	0.7	2.2	0.1	0.4	0.4	0.1	1.0	4.5	17.8

- MINERALS AND SUGARS *

	MINERALS (mg/100g)						SUGARS (g/100g)					
Product ref.	Fe (mg/kg)	Ca	Mg	P	K	Na	Fructose	Glucose	Lactose	Maltose	Saccharose	Total sugar
E0001	25	64	4	60	91	1576	0,1	0,3	1,2	2,5	1,0	5,5
17207	9.8	67	11	742	105	3244	<0.1	<0.1	<0.1	<0.1	0.1	0.1

- MOLECULAR WEIGHTS DISTRIBUTION (%) *

Product ref.	≥7 kDa	3-7 kDa	1-3 kDa	500 Da-1 kDa	300-500 Da	150-300 Da	<150 Da	Average Molecular weight
E0001	8	9	28	24	9	12	10	2270
17207	0	0	25	45	10	12	7	754

* Typical data

Methods of analysis

- TOTAL NITROGEN (TN) CONTENT

TN content is performed according to an internal method based on Kjehldahl method; this method takes into account the specificity of peptones.

- α AMINO NITROGEN (AN) CONTENT

AN content is performed according to an internal method based on Sorenson's Method of Formol Titration. This method takes into account the specificity of peptones. AN is determined by a potentiometric titration using formaldehyde solution.

- LOSS ON DRYING

Loss on drying is performed according to an internal method based on European Pharmacopoeia.
› 105 °C in the dryer oven during 6 hours
› Cool in the desiccator (wait for 2 to 5 min) and weigh

- RESIDUE ON IGNITION

Residue on ignition content is performed according to European Pharmacopoeia.
›Weigh peptone
›Moisten with sulphuric acid and heat on the sand bath
›Heat 2 hours at 600 °C

- CHLORIDE

Chloride content is performed according to European Pharmacopoeia (Potentiometric titration with silver nitrate in nitric medium).

- ENDOTOXIN

LAL method according to Method D of European Pharmacopeia (chromogenic kinetic method) is used.

- FILTERABILITY

Filterability is performed according to an internal method:
› Prepare a 5% solution of Peptone in purified water
› Filter 100 mL of the solution through a 0,22µm Hydrophilic membrane
› Time the filtration until all the solution has passed through (seconds)

- MOLECULAR WEIGHT

The molecular weights distribution is determined by an HPLC method (size exclusion chromatography) which has been developed internally by our QC laboratory.