PRODUCT SPECIFICATION

K2VITAL® 1% DELTA Powder

Document ID	SPEC-DEL-258
Version No.:03	Validity: 3 years
Verified:26.02.2019/FSE	Approved:11.03.2019/TKH

Product Number: KB 2-100-01 (for 1 Kg bags); KB 2-100-05 (for 5 Kg bags) **Country of Origin:** Denmark
Product Description: Microencapsulated vitamin K2 all-trans MK-7 **Production Site:** BASF A/S
Shelf-Life: 36 months from the date of manufacture in unopened original bags
Storage: Room temperature, protected from light, excessive heat and moisture in unopened original bags
MK-7 CAS No.: 2124-57-4 **Packaging:** 1 Kg or 5 Kg

Test	Specification	Method
Appearance	White to light yellow fine powder	Visual
Through Mesh 20 USP (%)	>99.5 %	Sieving
Through Mesh 40 USP (%)	>85 %	Sieving
Through Mesh 100 USP (%)	<20 %	Sieving
Loss on Drying	≤5 %	Gravimetric
Total all-trans K2 MK-7	≥1.00 % or ≥10,000 ppm	HPLC
Lead (Pb)	Max. 0.5 mg/kg	ICP-MS or ICP-OES
Cadmium (Cd)	Max. 0.5 mg/kg	ICP-MS or ICP-OES
Mercury (Hg)	Max. 0.1 mg/kg	ICP-MS or ICP-OES
Arsenic (As)	Max. 0.5 mg/kg	ICP-MS or ICP-OES
Total aerobic microbial count (TAMC)	Max. 1000 cfu/g	Ph.Eur./USP
Total yeasts and mould (TYMC)	Max. 100 cfu/g	Ph.Eur./USP
E. coli	Absent in 10 g	Ph.Eur./USP
Staphylococcus aureus	Absent in 10 g	Ph.Eur./USP
Salmonella sp.	Absent in 25 g	ISO 6579
Pseudomonas aeruginosa	Absent in 10 g	Ph.Eur./USP
Enterobacteria	Absent in 1 g	ISO 21528

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Verified:26.02.2019/FSE	Approved:11.03.2019/TKH

Version	Change	Date/Initials
02	Use of Change log and TMP-03-statement started in the document; Revised heavy metal specification in accordance with US requirement – MOC-REQ-727	07.11.2018/TKH
03	Deleted "total heavy metals" parameter Added "1% and Powder" in the heading	28.01.2019/MSU

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PRODUCT SPECIFICATION

K2VITAL® 0.2% DELTA Powder

Document ID	SPEC-DEL-001
Version No.:05	Validity: 3 years
Verified:26.02.2019/FSE	Approved:11.03.2019/TKH

Product Number: KB 2-020-01 (for 1 Kg bags); KB 2-020-05 (for 5 Kg bags)
Country of Origin: Denmark
Product Description: Microencapsulated vitamin K2 all-trans MK-7
Production Site: BASF A/S
Shelf-Life: 36 months from the date of manufacture in unopened original bags
Storage: Room temperature, protected from light, excessive heat and moisture in unopened original bags
MK-7 CAS No.: 2124-57-4
Packaging: 1 kg or 5 kg in aluminium foil bags

Test	Specification	Method
Appearance	White to light yellow fine powder	Visual
Through Mesh 20 USP (%)	>99.5%	Sieving
Through Mesh 40 USP (%)	>85 %	Sieving
Through Mesh 100 USP (%)	<20 %	Sieving
Loss on Drying	≤5 %	Gravimetric
Total all-trans K2 MK-7	≥0.200% or ≥2000 ppm	HPLC
Lead (Pb)	Max. 0.5 mg/kg	ICP-MS or ICP-OES
Cadmium (Cd)	Max. 0.5 mg/kg	ICP-MS or ICP-OES
Mercury (Hg)	Max. 0.1 mg/kg	ICP-MS or ICP-OES
Arsenic (As)	Max. 0.5 mg/kg	ICP-MS or ICP-OES
Total aerobic microbial count (TAMC)	Max. 1000 cfu/g	Ph.Eur./USP
Total yeasts and mould (TYMC)	Max. 100 cfu/g	Ph.Eur./USP
E. coli	Absent in 10 g	Ph.Eur./USP
Staphylococcus aureus	Absent in 10 g	Ph.Eur./USP
***Salmonella* sp.**	Absent in 25 g	ISO 6579
Pseudomonas aeruginosa	Absent in 10 g	Ph.Eur./USP
Enterobacteria	Absent in 1 g	ISO 21528

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PRODUCT SPECIFICATION

K2VITAL® 0.2% DELTA Powder

Document ID	SPEC-DEL-001
Version No.:05	Validity: 3 years
Verified:26.02.2019/FSE	Approved:11.03.2019/TKH

Version	Change	Date/initials
04	Use of Change log and TMP-03-statement started in the document; Added "in aluminium foil bags" under Packaging in header in alignment with CoA template Revised heavy metal specification in accordance with US requirement – MOC-REQ-727	31.08.2018/MSU
05	Deleted "Total Heavy metals from parameters Added "0.2%" in the heading	21.02.2019/MSU

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PRODUCT SPECIFICATION

VITAMIN D3

VITAMIN D3 POWDER (100,000 IU/G)

Document ID	SPEC-VID-032
Version No.: 06	Validity: 3 years
Verified:11.12.19/MNA	Approved:11.12.19/FSE

Product Number	800703-25
Product Description	Cholecalciferol concentrate in a water-dispersible powder form. Vitamin D3 is microencapsulated in a matrix of maltodextrin, starch and sucrose (food quality). Purity according to Ph. Eur./USP and Reg. (EC) 1881/2006 in reference to food supplements.
Country of Origin	China
Storage	In an airtight original sealed bag, protected from light, excessive heat, moisture and contact to the atmosphere. Once the container has been opened, it has to be closed tightly and its contents are to be used as soon as possible. For long-term storage, we recommend protecting any unused part by an inert gas atmosphere. The product has to be handled in accordance with the Safety Data Sheet.
Packaging	25 kg net in Al-film foil bags lined with polyethylene, outer package is carton.
Shelf Life	36 months from the date of manufacture (re-test)
Application	Food and food preparations (e.g. food supplements)

Parameter	Method/ Reference	Unit	Minimum	Maximum
Appearance	Organoleptic	---	White free flowing powder	
Dispersibility	Internal	---	Disperse in water	
Identification B: UV	Ph. Eur.	---	Confirms test	
Content Cholecalciferol	HPLC/ Ph. Eur.	IU/g	100,000	---
Loss on drying	CP/ Ph. Eur.	%	---	5.0
Heavy metals	USP	ppm	---	3.0
Arsenic	USP	ppm	---	0.5
Lead	USP	ppm	---	0.5
Cadmium	USP	ppm	---	0.1
Mercury	USP	ppm	---	0.1
Chromium	USP	ppm	---	0.1
Bulk density	Internal	g/ml	0.6	---
Passing through 40 Mesh	Sieve	%	100	---
Total viable aerobic count	Ph. Eur.	cfu/g	---	10^3
Total yeast/ moulds count	Ph. Eur.	cfu/g	---	10^2
Bile tolerant gram-negative bacteria	Ph. Eur.	cfu/g	---	10^2
Salmonella	Ph. Eur.	/25 g	Absence	
Staphylococcus aureus	Ph. Eur.	/g	Absence	
E. coli	Ph. Eur.	/g	Absence	

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PRODUCT SPECIFICATION

VITAMIN D3

VITAMIN D3 POWDER (100,000 IU/G)

Document ID	SPEC-VID-032
Version No.: 06	Validity: 3 years
Verified:11.12.19/MNA	Approved:11.12.19/FSE

Version	Change log	Date/Initials
05	Added Country of origin Updated packaging information Amended method reference for appearance to "Organoleptic " Amended method reference for Identification to "Ph. Eur." Amended method reference for Loss on drying to "CP/ Ph. Eur." Amended method reference for heavy metals, arsenic, lead, cadmium, mercury, chromium to "USP" Amended method reference for TAMC, TYMC, Staphylococcus aureus, Escherichia coli and salmonellae to "Ph. Eur." Updated passing through 40 mesh to min. 100 Deleted the parameter coliforms Added bile-tolerant gram-negative bacteria	18.09.2019/SLD
06	Amended storage requirements	11.12.2019 / LWI

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