

Where others see products, we see purpose.

We see therapies that safely and efficiently help to improve people's lives.

Purpose-led pharmaceutical solutions

Discover how DSM can be your innovation partner in supporting patients' health.



NUTRITION · HEALTH · SUSTAINABLE LIVING

Inspired by people, delivered by experts

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At DSM, we take pride in everything we do to help people live healthier lives, and we're proud to dedicate our expertise to that noble goal.

> Kelsey Achenbach, Global Segment Director Pharma & Medical Nutrition

DSM is a global, purpose-led, sciencebased company active in nutrition, health, and sustainable living.

We help build, agile, and safe therapeutic innovations that help keep the world's growing population healthy and improve the quality of patients' lives. Our purpose is to create brighter lives for people today and for generations to come. As a global leader in vitamin and lipid manufacturing, DSM leverages its active pharmaceutical ingredient (API) offerings as proven, safe, and innovative agents for life-changing therapies. We draw on our unique skills in chemical synthesis and biotechnology to ensure all products meet strict sustainability standards.

Our commitment to making substantial future investments in excellence and sustainability also means our global production network remains high-quality and cutting-edge. In addition, our global network of GMP-compliant production facilities along with our expertise and processes ensure a consistent, high-quality, and secure supply of vitamin APIs and lipid intermediates. This, paired with our comprehensive regulatory capabilities, means faster time to market.

Co-innovate to bring new products to market

DSM brings expertise and innovation to co-develop new over-the-counter products and prescription medicines in this ever-changing and competitive marketplace. We also realize the importance of continued success after launch, so we support the growth and evolution of these products across their entire life cycle. Our 400-strong R&D team; portfolio of patents; global network of regulatory specialists; and key scientific, academic, and manufacturing partnerships provide the foundational capabilities for timely and effective product co-innovation.

BRAINS BIOCEUTICAL CORP. In June 2021, DSM entered an exclusive commercial partnership with global pioneer

in cannabinoid APIs, Brains Bioceutical. Enabled by Brains Bioceutical's leading portfolio of naturally sourced cannabinoid APIs and extensive expertise in the field, DSM offers an innovation platform for early-stage drug development to unlock new cannabinoid-based products that benefit global patient health.

Safe and proven agents for faster innovation

Since their discovery, scientific evidence has continued to reinforce the therapeutic benefits of vitamins and lipids. As a result, use of both categories has moved beyond the scope of deficiencies, validating their broader therapeutic use in clinical practice.





As safe, proven compounds, vitamin and lipid APIs provide pharmaceutical manufacturers the opportunity to experience shorter lead times and the potential for improved pharmacologic profiles throughout the clinical development process.

The science for cannabinoid APIs is building for central nervous system (CNS) diseases in particular. Neurological disorders are increasingly recognized as one of the most prevalent disorders worldwide, whereby cannabinoids represent an exciting opportunity for pharmaceutical manufacturers to expand treatment possibilities.

Emerging research suggests promising applications for the development of new indications, and a myriad of opportunities exists for manufacturers to develop innovative vitamin-, lipid- and cannabinoid-based treatments to address unmet needs, improve quality of life, and contribute to beneficial patient outcomes.

One partner, multiple APIs

At DSM, we aim to help keep the world's growing population healthy and to improve patients' quality of life. Innovation is the engine that gets us there by bringing exciting new science-based solutions to market that benefit people, planet, and profit.



Active pharmaceutical ingredients (APIs)

Product code Product	
Vitamin A	
04 2187 1	Dry Vitamin A Palmitate, Type 250 CWS/F (too
04 2401 3	Vitamin A Palmitate 1.7 MIU/g (BHA/BHT)
04 2400 5	Vitamin A Palmitate 1.7 MIU/g*
50 1626 2	Retinyl Palmitate 1.7 MIUg Ph
50 1227 9	Dry Vitamin A Acetate 500 B
	Vitamin A 04 2187 1 04 2401 3 04 2400 5 50 1626 2

Vitamin E

50 0112 9	Dry Vitamin E 50% CWS/S*
50 1657 7	Dry Vitamin E 50% CWS/S Ph
04 2008 5	DL-alpha-Tocopheryl Acetate *
50 1626 0	dl-a-Tocopheryl Acetate Ph
04 1027 6	DL-alpha-Tocopherol
50 1674 1	all-rac-alpha-Tocopherol Ph

Vitamin D

50 1621 2	Dry Vitamin D3 100 SD/S Ph
50 1647 3	Dry Vitamin D3 100 CWS Ph
50 1157 4	Vitamin D3 1.0 MIU/g
50 1626 3	Vitamin D3 Crystalline Ph

Vitamin K1

04 3492 2	Dry Vitamin K1 5% SD
04 3501 5	Vitamin K1
50 1322 4	Vitamin K1 API (US DMF only)

Product code	Product
Vitamin B1	
04 2947 3	ROCOAT Thiamine Mononitrate 33 1/3%
50 1625 7	Thiamine Hydrochloride Ph
04 1894 3	Thiamine Mononitrate
Vitamin B2	
50 1626 1	Riboflavin 5'-Phosphate Ph
04 7040 6	Riboflavin Universal

Vitamin B3

04 8784 8	Niacinamide
50 1629 1	Niacinamide Ph (US DMF only)

Vitamin B5

4 1267 8	Calcium D-Pantothenate
0 1625 8	D-Panthenol Ph

Vitamin B6

04 2945 7	ROCOAT Pyridoxine Hydrochloride 33 1/3%
50 1626 5	Pyridoxine Hydrochloride Ph (origin: China)
50 1646 0	Pyridoxine Hydrochloride Ph (origin: Germany)

Vitamin B7

50 1165 5	D-Biotin*
50 1626 4	D-Biotin Ph

Vitamin B9

50 1625 9 Folic Acid Ph

Product code	Product

Vitamin B12

50 1251 1	Vitamin B12 1% SD
04 2909 0	Vitamin B12 0.1% WS
04 2915 5	Vitamin B12 Crystalline
50 1630 0	Vitamin B12 Crystalline Ph (US DMF)

Vitamin C

04 0809 3	Ascorbic Acid Fine Granular
04 2246 0	Ascorbic Acid Fine Powder*
50 1645 0	Ascorbic Acid Fine Powder Ph
50 1625 5	Ascorbic Acid Ph
04 1944 3	Calcium Ascorbate
50 1625 6	Sodium Ascorbate Ph
50 0976 6	Ascorbic Acid Ultra Fine Powder
04 2511 7	Coated Ascorbic Acid, Type EC
50 0774 7	Ascorbic Acid 95% Granulation

Beta-Carotene

50 1434 4	β-Carotene Crystalline Ph
50 1438 7	β-Carotene 30% FS Ph
50 1435 2	BetaTab [®] 20% S Ph

Lipid API Intermediates

Eicosapentaenoic Acid (EPA)	Customized concentrations and combinations to meet your needs. Contact your DSM Account Manager for details.
Docosahexaenoic Acid (DHA)	
Arachadonic Acid (ARA)	

Cannabinoid APIs

50 1714 2 BSPG CBD API	BSPG CBD API
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* The applicability of our portfolio for pharmaceutical application is subject to local approvals. Please check the status with local DSM Regulatory Affairs team in your closest office.

Version 6.1 Last update: 1 February 2022. Replaces version 6.0 from 29 July 2021

Accelerate your registration process

DSM is the first and only company in the world that can provide access to US and Japanese Drug Master Files (DMFs) and the Certificates of Suitability (CEPs) for all 13 vitamins and support local market requirements that go beyond, such as supporting China DMFs upon request. Our APIs are supported by comprehensive regulatory packages in accordance with regulations set forth by the European Union, United States, Japan, China, and Brazil, among many others. We continually monitor regulatory changes and adjust accordingly, providing our partners with a distinct competitive advantage.

Mitigate risk with proven reliability of supply and consistent quality



Partnering with DSM means your products will benefit from a consistent high-quality and secure supply of vitamin APIs and lipid intermediates through the continuous investments we make in the environmental health, safety, and quality of our global network of GMP-compliant production facilities.



Our dedication to patients' quality of life has enabled significant investment to establish best-in-class GMP facilities,

sustaining the foundation for an industry-leading global network of API manufacturing plants; our vitamin and lipid API intermediate production capacity is unmatched. With Brains Bioceutical, DSM found an ideal partner to offer its customers a sustainable and secure supply of quality cannabinoids APIs.

Why partner with DSM?

We help both brand and generic manufacturers realize market success by enabling agile drug development, ensuring seamless product entry and optimizing life-cycle management efforts. We deliver passion, innovation, and scientific expertise for every stage of your products' life cycle. You will have access to our broad portfolio of APIs, customized solutions, and expert services globally.

DSM has more than 70 years of experience in producing and securing the supply of APIs. This, together with the unique innovation expertise and the unparalleled ability to manage the market entry registration process, makes us a most ideal partner for the development of over-the-counter products and prescription medications. This takes more than active pharmaceutical ingredients. It takes a partner.

Our commitment to quality, innovation, and sustainable supply makes us your ideal partner to address emerging therapeutic areas benefiting global patient health while helping our customers achieve long-term growth.

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Get in touch

Partner with DSM for access to our broad portfolio of APIs, customized solutions, and expert services aimed at supporting your entire product life cycle.

Looking to have a conversation with DSM? <u>Contact us</u>.

Partner with DSM for access to our broad offering of APIs, customized solutions, and expert services aimed at reliably supporting your entire product life cycle.

Visit **DSM-PharmaSolutions.com** to get started.

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