Personal Care & Aroma Ingredients

BRIGHT SCIENCE. BRIGHTER LIVING.
Safe harbor statement

- This factbook may contain forward-looking statements with respect to DSM’s future (financial) performance and position. Such statements are based on current expectations, estimates and projections of DSM and information currently available to the company. DSM cautions readers that such statements involve certain risks and uncertainties that are difficult to predict and therefore it should be understood that many factors can cause actual performance and position to differ materially from these statements. DSM has no obligation to update the statements contained in this factbook, unless required by law.

- A more comprehensive discussion of the risk factors affecting DSM’s business can be found in the company’s latest Annual Report, which can be found on the company's corporate website, www.dsm.com
Introduction

Personal Care & Aroma Ingredients for home & personal care products

- **Personal Care & Aroma Ingredients** provides innovative solutions for sun, skin and hair care as well as for the fragrance and flavour industry. These solutions are used by many of the world’s best-known consumer brands (€382m in sales in 2018)

- DSM’s **extensive portfolio of key ingredients** includes peptides, natural bio-actives, UV filters, hair polymers, vitamins and (specialty) aroma ingredients (such as lavenders & ionones)
  - The product portfolio is complemented by a unique range of services in the areas of formulation, sensory, technical, quality and regulatory expertise

- The business is driven by global megatrends, local consumer beauty regime insights, and growth opportunities presented by emerging markets
Personal Care & Aroma Ingredients

Key Products

PARSOL®

Delivering the power of UV Protection. Crafted by our bright science, the PARSOL® portfolio offers the world’s broadest range of high performing UV filters, and a globally recognized expertise on which our customers can build their brands.

Natural ingredients

As well as being pioneers in the organic beauty market, DSM offers a wide-ranging portfolio of 55 natural ingredients certified at various levels from Organic to ISO 16128. This House of Naturals originates from edible vegetables, herbs, oils, milk, silk or marine algae. Some are extracted from natural botanical sources while others are produced sustainably using biotechnology.

QUALI®-Vitamins

DSM’s QUALI® vitamins help provide skin protection, lightening and other cosmetic benefits. DSM is leading an exciting revolution in vitamins. Bringing the power of vitamins to health and beauty and showing the incredible difference that quality vitamins can make to people’s skin and hair.

AMPHISOL®

Our dedicated AMPHISOL® portfolio offers a bedrock of emulsifiers for maximum formulation versatility in sun and skin care. We pay careful attention to the emulsifier and emulsion stability, enabling our customers to harness the power of robust emulsification to create creams with superior sensorial qualities.

SYN®-Peptides

SYN®-Peptides offer specific skin benefits based on substantiated efficacy. The range is proven to be highly effective in the fight against ageing and our in-depth knowledge of peptide processing technology ensures quality and flexibility over the whole production process - providing tailored peptides for visible, targeted effects.
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Key Products

DSM’s pioneering ALPAFLOR® portfolio offers a full range of high performing bioactives extracted from rare alpine plants that are cultivated organically in a pristine environment high in the Alps. Every step of our supply chain is traceable and is an excellent example of sustainability and fair trade in action.

VALVANCE® is DSM’s answer to consumer and customer demand for immediate, strongly perceived effects and for desirable formulations that couple cosmetic elegance with extra comfort. Specially designed with DSM's customary expertise to deliver on people’s everyday beauty aspirations in skin care and sun care.

Our 50-plus years of expertise in polymer technologies is dedicated to designing tailored, high quality TILAMAR® products that deliver outstanding hair care and styling benefits to help our customers stand out in their markets.

The agility of DSM, our people’s expertise in skin biology and our advanced synthetic peptide and extraction technologies enable us to deliver in the targeted benefit areas and set new standards for improved skin appearance and ultimate skin sensation.

Our bright science helps fragrance houses to continue innovating and producing products of the highest purity and quality that put a smile on consumers’ faces. Targeted molecules include products already known to the industry, brand new molecules, or equally important intermediates, which support the industry’s drive for success.
**Personal Care & Aroma Ingredients**

**Key markets**

**Sun Care**

DSM’s PARSOL® portfolio offers the world’s broadest range of high performing UV filters, and a globally recognized expertise on which DSM’s customers can build their brands. DSM selects and combines UV filters in the most effective formulation, to deliver the required UV protection.

**Hair Care**

DSM’s hair care formulations can be used in a variety of market application to create market leading products. DSM’s hair care formulations include polymers alongside UV filters, skin bioactives and vitamins. Ingredients can be combined to create hybrid formulations that style, protect and provide care, so consumers get a product that fits in with their individual lifestyle and need.

**Skin Care**

With 40 years of experience in skin care, DSM has developed a broad portfolio of claim substantiated skin actives – including our pioneering SYN®-Peptides, the unique, certified organic ALPAFLOR® line of alpine plant extracts with scientifically proven cosmetic efficacy, and vitamins from DSM’s comprehensive portfolio optimized for cosmetic applications.

**Aroma ingredients**

Our bright science helps fragrance houses to continue innovating and producing products of the highest purity and quality. DSM constantly looks to expand its portfolio and develop innovative new products for the Fragrance customers. DSM’s advanced chemical and biotechnological expertise, in combination with a unique technology and production infrastructure, are the cornerstones of DSM Aroma Ingredients Innovation capability.
Personal care ingredients market 2018

(x) = Growth rate 2018-2021 (CAGR, %)

Active ingredients (3-6%)
- UV-filters, vitamins, skin care actives (natural extracts, synthetic peptides)

Performance ingredients (3-4%)
- Hair conditioning & styling polymers, skin sensory modifiers & enhancers, pigments & dyes

Technical ingredients (2-3%)
- (Co) emulsifiers, thickeners & rheology control agents, emollients, solubilizers, etc.

Surfactants (0-1%)
- Fatty alcohols, FA sulphates/ ethoxylates/ ethersulphates, betaines, amphotocetates, etc.
Aroma ingredients market 2018

- DSM’s aroma ingredients portfolio consists of lavenders and ionones that are sold to the world’s leading fragrance and flavor companies.
- These products find their use mainly in home and personal care products, fine fragrances as well as in the food industry.
- Market growth for lavenders and ionones is expected to be around 3-4% per year in 2018-2021 period.
- DSM product range includes:
  - Ionones
    - Alpha-Ionone
    - Beta-Ionone
    - Methyl-Ionone
  - Lavender
    - Linelool
    - Linalyl Acetate
    - Tetrahydroinalool

Overview of the aroma ingredients market (2018)

- Synthetic
- Essential oil/natural

€5bn
Terpenes
Benzoids
Musk

€1.5bn
Lavender & Ionones
Citrus
Pinene
Menthol
Terpenes

F&F ingredients
Personal Care & Aroma Ingredients
Value chain Personal Care

Selected Specialty Ingredients segments

Active and UV Ingredients (€1.5bn)
- DSM
- BASF
- Ashland
- Chinese players
- Lubrizol
- Croda
- Evonik

Performance Ingredients (€2.5bn)
- DSM
- BASF
- Ashland
- AkzoNobel
- Symrise
- Croda
- Evonik
- Dow Corning
- Solvay

Technical Ingredients (€3.5bn)
- DSM
- BASF
- Ashland
- Clariant
- Lubrizol
- Croda
- Evonik
- Solvay

Surfactants (€5bn)
- DSM
- BASF
- Clariant
- Croda
- Evonik
- Stepan
- Solvay

Base Chemicals (€15bn)
- DSM
- BASF
- Dow
- Shell

Cosmetic brand companies and Private Label Value: €240bn
- L’Oreal
- Beiersdorf
- Sephora
- DM
- Marionnaud

Fast Moving Consumer Goods Value: €380bn
- Walmart
- Unilever
- P&G
- Henkel
- Johnson & Johnson

Leading position in selected key ingredients for cosmetic companies
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Sales overview

2018 Personal Care ingredients Market by segment (%)
- Surfactants: 0-1%
- Performance Ingredients: 3-4%
- Active ingredients: 3-6%
- Technical Ingredients: 2-3%
- Market Growth 2-3%

DSM PC&A Sales by segment (%)
- Aroma Ingredients (2018): 37%
- Skin: 26%
- Hair: 5%
- Sun: 24%
- Others: 8%
- DSM Growth ~5%

DSM PC&A Sales by region (%)
- Europe
- Asia-Pacific
- China
- Latin America
- North America
- Europe
- ~$0.4bn (2018)
Personal Care & Aroma Ingredients
€0.4bn sales (2018)

Sales (€ million)

2015  2016  2017  2018

8% CAGR organic growth 2016-2018
Sustainability GEMS

PRODUCTS

**Quali®-E vitamin**
The lowest carbon footprint.

**ALPAFLOR®**
Organic and fair trade farming, green chemistry, traceability from seed to bioactive, certified.

**PENTAVITIN®**
100% renewable, low carbon footprint, 100% natural origin, certified.

**Panthenol**
CEFIC award for production process: energy efficiency, reduced emissions, reduced and reused waste.

PROGRAMS AND TOOLS

**Quali®-E footprint calculator**

**The House of Naturals**

**Skin Cancer Prevention initiative**

**DSM SUNSCREEN OPTIMIZER™**

*DSM Personal Care & Aroma Ingredients, Sustainability, 2019*
Personal Care & Aroma Ingredients

Continuous innovation – TILAMAR® Boost 150

TILAMAR® Boost 150

Achieving the ultimate volume is one of THE top trends in hair care – and one of the TOP desired benefits by consumers. But, it’s one of the most complicated to achieve, especially together with care properties! Based on 50 years of expertise in materials science, we have identified, out of 500 trials, a unique hyperbranched polymer offering both incredible volume and care properties with its unique mode of action.
Personal Care & Aroma Ingredients
Continuous innovation – PARSOL® ZX

PARSOL® ZX
MINERAL FUSION FOR BROAD PROTECTION

• PARSOL® ZX’s particle size ensures:
  ✓ SPF & UVA best performance
  ✓ blue light protection
  ✓ optimized sensory

• 3 new all-mineral formulations with high pigment load but also for daily care of make-up

PARSOL® ZX
When it comes to sun care, consumers are familiar with mineral UV-filters, such as Zinc Oxide. This is interesting because we know that high familiarity often correlates with high levels of trust. With PARSOL® ZX Zinc Oxide grade, DSM has combined high SPF protection, excellent UVA performance and blue light protection in one mineral UV-filter.
Key innovations

Personal Care & Aroma Ingredients
Continuous innovation – PEPHA®-AGE

PEPHA®-AGE

STIMULATES SKIN’S OWN DEFENSE AGAINST BLUE LIGHT

✓ Proven efficacy against blue light induced skin hyperpigmentation (-30%) and irritation (-25%)
✓ Prevents the skin premature aging by reducing ROS level (-35%) and carbonylated proteins (-60%)
✓ Protects the fibroblasts viability and boosts the collagen synthesis (+34%)

Skin benefits:
✓ Reduces skin damage caused by sun light
✓ Offers even skin tone
✓ Minimizes the appearance of ageing after exposure to blue light and UV

PEPHA®-AGE

Many consumers have started to make the link between blue light and potential harm to skin, but there is still a need for more information and scientific evidence. Specialized in the development and manufacturing of active ingredients of natural origin, pioneering researchers at DSM have already identified potential in the sustainable freshwater alga Scenedesmus rubescens, a unique cell with developed self-defense capabilities. In the form of the bioactive PEPHA®-AGE, the algae has been shown to stimulate skin’s own defense against the negative impact of blue light and UV radiation. Now, to prove its efficacy further, DSM has carried out two new studies.
**Personal Care & Aroma Ingredients**

*Continuous innovation – EPIBIOME BEAUTY™*

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**EPIBIOME BEAUTY™**

*THE NEW LEVEL OF SKIN WELL-BEING!*

- EPIBIOME™ BEAUTY combines our expertise in CORNEOCARE®, which builds a strong epidermal barrier, with the skin microbiome.
- For the first time in one clinical study, DSM scientists demonstrated the seen and unseen: the complex relationship between normal, dry or oily skin, and its microbiome.
- In total, more than 200 different bacteria species were identified - predominantly
  - *CUTIBACTERIUM ACNEIS* - an important gatekeeper that influences sebum production.
  - *STAPHYLOCOCCUS EPIDERMIDIS* - a keystone for healthy skin.
  - *CORYNEBACTERIUM KROPPENSTEDTI* - a novel target for the control of skin redness.

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**EPIBIOME BEAUTY™**

DSM is a key player in microbiome gut health solutions. We offer a wide range of products within the probiotic, prebiotic, and enzyme sectors. We are also recognized industry leaders in epidermal science, especially in relation to the skin barrier – the home of the skin’s microbiota. By combining our expertise and knowledge in microbiology and epidermal science, we can create new innovative skin microbiome solutions.
BRIGHT SCIENCE. BRIGHTER LIVING.™