



SIMPSSN™ DHHB

UV-A Filter INCI Name:
Diethylamino Hydroxybenzoyl Hexyl Benzoate
(DHHB)

**Oil Soluble UV-A Filter and Absorber Active
Ingredient for Pharmaceutical Topical
Preparations and Cosmetic Formulations**

Product Instruction Sheet
(PIS)



SIMP GROUP

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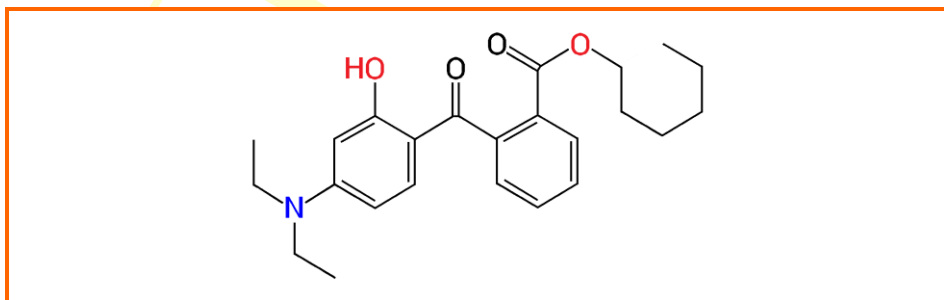
SIMPSSN™ DHHB

Oil Soluble UV-A Filter and Absorber Active Ingredient for Pharmaceutical Topical Preparations and Cosmetic Formulations

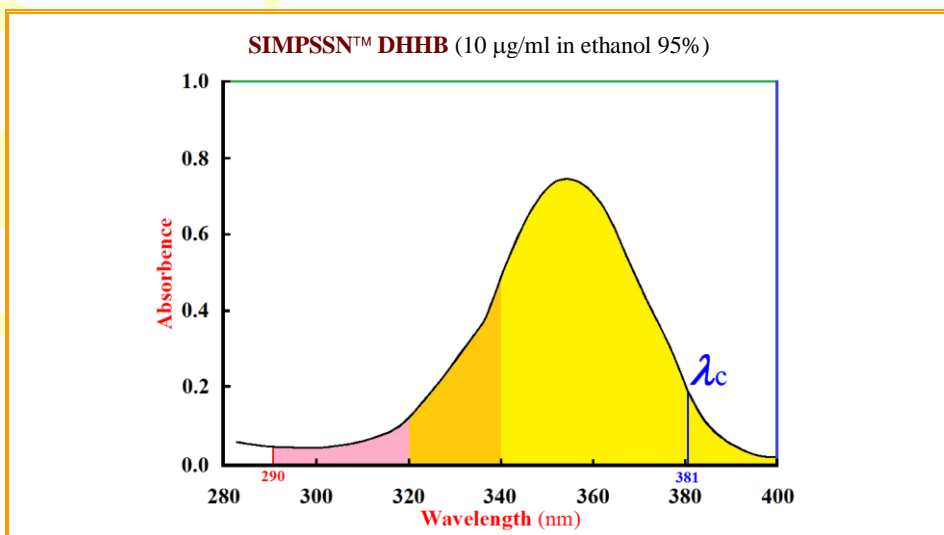
Product Information

Product Name:	SIMPSSN™ DHHB	(ON: SIMPSSN™ UVA-550)
INCI Name:	Diethylamino Hydroxybenzoyl Hexyl Benzoate (DHHB)	
Chemical Name:	Benzoic acid, 2-(4-Diethylamino-2-hydroxybenzoyl)-, hexylester. Or 2-(4-Diethylamino-2-hydroxybenzoyl)-benzoic acid hexylester.	
CAS No:	302776-68-7	
EINECS No:	443-860-6	
Molecular formula:	C ₂₄ H ₃₁ NO ₄	
Molecular weight:	MW = 397.51 g/mol	

Chemical Structure:



UV Absorption spectrum:



Definition, Properties, Benefits and Applications

Description: **SIMPSSN™ DHHB** is a stable **UV-A** absorber and it has very good solubility in most organic oils and solvents. It is yellow liquid that crystallizes upon storage. It remelts easily without any decomposition by heating it up to approx. 70-80°C.

EU-Functions: **UV FILTER**
(INCI) **UV ABSORBER** {Cosmetics - CosIng [EC Regulation (v.2)] 2017}.

Solubility and Compatibility: **SIMPSSN™ DHHB** is easily soluble in a wide range of cosmetic oils and solvents. Highly compatible with other organic **UV** absorbers and inorganic TiO₂, it is easy-to-use in the formulations.

Stability: As a **UV-A** absorber and filter, **SIMPSSN™ DHHB** is stable against photodecomposition. The minimum storage time for **SIMPSSN™ DHHB** is two years in the originally sealed containers.

Applications: **SIMPSSN™ DHHB** is a stable **UV-A** absorber and widely used in the following:

- Cosmetics sunscreen products and pharmaceutical tropical preparations.
- As the important ingredient in the skin lightening formulations on whitening and reducing age spots.
- Photo stabilizer in many formations of cosmetic, pharmaceutical and household products.

In skin protection: **UV** radiation is responsible for various physiological effects in the skin, as a result of its high energy content. These effects include sunburn, the premature appearance of wrinkles, i.e. accelerated ageing of the skin and, with frequent intensive exposure, an increased risk of skin cancer. **SIMPSSN™ DHHB** and other **SIMPSSN™ UV filters** provide vital protection for the skin against these harmful effects of **UV** radiation. They are now increasingly being used not only in sun preparations but also in other skin cosmetics such as day creams.

The use of **SIMPSSN™ DHHB** and other **SIMPSSN™ UV filters** to protect the skin is subject to legislation in many countries. The concentrations of **UV** filters in sun preparations depend on the desired degree of protection, measured in terms of the sun protection factor (**SPF**) and (**PFA**). Commonly, organic **UV** filters are combined with micro pigments in products with a high **SPF** and (**PFA**). They can also be used together with radical scavengers, e. g. sodium ascorbyl monophosphate, vitamin E or vitamin E acetate which provide additional passive sun protection.

The combination of **SIMPSSN™ DHHB** with other **SIMPSSN™ UV filters** in the personal care formulations is recommended.

Protecting the hair:

Both the ultraviolet and visible components of sunlight have tangible effects on the hair in that they bleach it and make it brittle. As has been demonstrated in studies, it is possible to provide protection against these effects with UV filters. **SIMPSSN™DHHB** and the Broad-band filters such as the **SIMPSSN™ BP-3**, **SIMPSSN™ BP-4**, **SIMPSSN™ BEMT** and **SIMPSSN™ UVAB filters** (**SIMPSSN™ MBBT-N**) are particularly suitable and can be used in hair-care products such as gels, setting lotions, normal and gloss hair sprays.

Protecting sensitive products:

UV filters can be used in cosmetics to protect the colorants against fading, to improve the stability of fragrance oils and active constituents against oxidation and to stabilize the viscosity of gels and shampoos. It is always necessary to add a UV filter if the cosmetic product is exposed to UV radiation, as is the case when the packaging is transparent. The protection of products usually requires concentrations of 0.05-0.5%, rather less than for skin protection. In these concentrations, **SIMPSSN™DHHB** and other **SIMPSSN™ UV filters** are generally not subject to legislation (though such legislation as exists must be observed), i.e. all the **SIMPSSN™ UV filters** can, in principle, be used to protect products against UV radiation.

Important:

It is strongly recommended that **SIMPSTB™ WOSD-850**, **SIMPSTB™ UVAB-680 series products (Photostabilizers)** are much more suitable to protecting the sensitive products in formulations both water and oils soluble.

Use level:

(National regulations have to be observed) ≤ 10 %

(W/W)

Mostly: 2-5%

In sunscreen formulations (**SPF** 4-15, **PA++**): 1.0-2.0%.

In sunscreen formulations (**SPF** 15-30, **PA++**): 2.0-4.0%.

In sunscreen formulations (**SPF** ≥30, **PA+++**): 4.0-6.0%.

In skin lightening & minimizing age spots formulations: 2.0-4.0%.

As a photo stabilizer in formulations: 0.1-0.5% .

Remark:

Although these data and information have been prepared with the utmost possible care, we reserve the right to make changes due to product improvement and other considerations.

Toxicological Information

Toxicological Information:

The **SIMPSSN™ DHHB** has been toxicologically assessed for its suitability in cosmetic preparations. On the basis of information at our disposal and provided that the recommended concentrations and fields of application are adhered to, there is no evidence of any toxicological risk associated with their use.

Acute toxicity:

LD₅₀ /Oral / rat: ≥ 2000 mg/kg (BW)

Sensitization:

Primary skin irritation / rabbit / **SIMP** test: non-irritant

Primary mucous membrane irritation / rabbits' eyes / **SIMP** test: non-irritant

Skin:

Practically non-irritating to rabbit skin (10% in corn oil).

Other Information:

Phototoxicity: Nonphototoxic (10% in ethanol).

Safety:

SIMPSSN™ DHHB can be safely handled without any irritation caused to the skin at recommended use level. Read and understand the **Material Safety Data Sheet (MSDS)** before using or handling this product.

Technical Information

Properties & Specification:

Appearance:	Yellowish solid or / and liquid with faintly characteristic odor. (RT)	
Identity:	IR and UV spectrum	Conforms
Purity:	≥ 98.0	% (W/W)
Melting point:	≥ 53.0	°C
Acid value:	≤ 0.1	mg KOH/g
Color:	4.0-6.0	(Gardner)
Solubility:	Soluble in cosmetic oils and alcohols, insoluble in water	
Log POW:	≥ 6.0 (Octanol / Water partition coefficient)	

Note:

The properties and specification in detail also can be seen on **TDS** ('**Technical Data Sheet**') of **SIMPSSN™ DHHB**. A '**Technical Data Sheet**' (**TDS**) of the product is available upon requirement.

“Product Specification or Quality Standards” — Please see the **COA** (**Certificate Of Analysis**) from the product **SIMPSSN™ DHHB** of the **SIMP**, and / or **order on agreement!**

The Quality of the product **SIMPSSN™ DHHB** meets the requirements from the **STSC** [**STSC** = 《**Safety and Technical Standards for Cosmetics**》 Version 2015, **China**] and / or **EU** and the like.



Formulation Guideline with SIMPSSN™ DHHB

Solubilization & Emulsification:

Emulsification at higher temperature:

To solubilize **SIMPSSN™ DHHB** by adding it directly into the oil phase and heating to permitted and needed.

Soluble in cosmetic oils.

For cold process: solubilize **SIMPSSN™ DHHB** in the most cosmetic oil.

Safety and Registration Status

REGULATIONS

SIMPSSN™ DHHB [INCI Name: Diethylamino Hydroxybenzoyl Hexyl Benzoate (**DHHB**)] is approved world-wide. Concentration maximum varies according to local legislation.

Approval status:

Max. amounts: (W/W)

EU	China	Australia	USA	Japan
+ (10%)	+ (10%)	+ (10%)	—	+ (10%)

+ = Approved as a sunscreen agent (with max. concentration).

China

According to the **STSC** [**STSC** = 《Safety and Technical Standards for Cosmetics》 Version 2015, **China**] **SIMPSSN™ DHHB** [Diethylamino Hydroxybenzoyl Hexyl Benzoate (**DHHB**)] is permitted as **UV-filter** in a maximum authorized concentration of 10%.

EU

According to the EEC Cosmetic Directive, **SIMPSSN™ DHHB** [Diethylamino Hydroxybenzoyl Hexyl Benzoate (**DHHB**)] is permitted as **UV-filter** in a maximum authorized concentration of 10%.

USA

SIMPSSN™ DHHB has been approved in most countries (except for the pending **US** approval).

SIMPSSN™ DHHB [Diethylamino Hydroxybenzoyl Hexyl Benzoate (**DHHB**)] is approved for use in Europe by the European Union's 's Scientific Committee for Cosmetic Products & Non-Food Products. It is also approved in China, Canada by Heath Canada, in Australia, Brazil, South Africa, the Asian states and other countries.

But it is not approved for use in the **USA** by the Food and Drug Administration.

Conditions of use and warning which must be printed on the label:



Other Information

Packaging: Drums of net: 25kg/drum capacity. *or order on agreement !*

Storage: Store in tightly-closed containers under normal conditions (RT).

Stability: **SIMPSSN™ DHHB** should be stored in the original sealed containers protected from light and humidity in a clean place at a temperature below 30°C. In order to avoid secondary microbial contamination, following opening, containers should be handled with special care. If stored under the recommended conditions, **SIMPSSN™ DHHB** remains stable for 2 years.

Shipping / Handling: No restrictions. See **Material Safety Data Sheet (MSDS)**.

Order Information

- A. Product Trade Name:** **SIMPSSN™ DHHB**
- B. Package:** Net: 25kg /carton (drum)
or order on agreement !

TDS & MSDS The ‘**Technical Data Sheet**’ (**TDS**) and ‘**Material Safety Data Sheet**’ (**MSDS**) of the product also is available on requirement.

Different reference formulations with **SIMPSSN™ DHHB** are available and can be sent on request.

Remark

Although these data and information have been prepared with the utmost possible care, we reserve the right to make changes due to product improvement and other considerations.

Contact us and credit:

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Advice:

The information and statements presented herein, while not guaranteed, were prepared by technical personnel and, to the best of our knowledge and belief, is true and accurate as of the date hereof.

Before using one of these products of **SIMP** GROUP COMPANIES, read, understand and comply with the information and precautions in the **Product Instruction Sheet (PIS)**, the **Technical Data Sheet (TDS)**, the **Material Safety Data Sheets (MSDS)**, label and other literature about the product. No warranty, representation or guarantee, express or implied, is made regarding accuracy, performance, stability, reliability or use. This information is not intended to be all-inclusive, because the manner and conditions of use, handling, storage and other factors may involve other or additional safety or performance considerations. Users should undertake sufficient verification and testing to determine the suitability for their own particular purpose of any information, products or vendors referred to herein. **NO WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS MADE.** Nothing herein is to be taken as permission, inducement or recommendation to practice any patented invention without a license.

Note:

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According to
《Safety and Technical Standards for Cosmetics》(STSC) Version 2015, China.
And Regulation (EC) No. 1907/2006

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