



SIMPSSN™ BP-3

(INCI Name: **Benzophenone-3**)

**Oil Soluble UVBA Filter and Absorber Active
Ingredient for
Cosmetic and Pharmaceutical Topical
Formulations**

**Product Instruction Sheet
(PIS)**



SIMP GROUP

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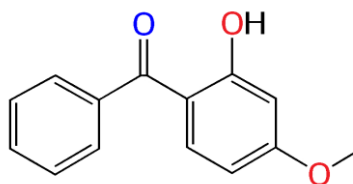
SIMPSSN™ BP-3

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

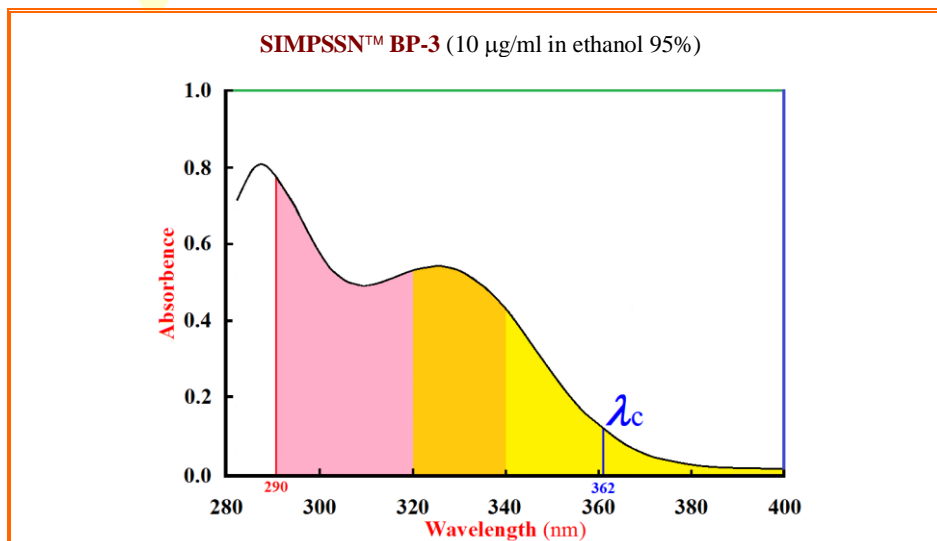
Product Information

Product Name:	SIMPSSN™ BP-3
INCI Name:	Benzophenone-3 (BP-3) [Oxybenzone (INN)]
USP Name:	Oxybenzone
Chemical name:	2-Hydroxy-4-methoxybenzophenone; 2-Benzoyl-5-methoxyphenol (2-Hydroxy-4-methoxyphenyl)phenyl-methanone;
Synonyms:	2-Hydroxy-4-methoxybenzophenone; Benzophenone-3; Oxybenzone (USP)
CAS No.:	131-57-7
EINECS No.:	205-031-5
Formula:	C ₁₄ H ₁₂ O ₃
Molecular Weight:	MW = 228.25 g/mol

Structural formula:



UV Absorption spectrum:



Definition, Properties, Benefits and Applications

Description: **SIMPSSN™ BP-3 (Benzophenone-3)** is a light-yellow oil-soluble powder. It is a benzophenone derivative. **FDA** Category-1 sunscreen.

EU-Functions:
(INCI)

UV FILTER

UV ABSORBER {Cosmetics - CosIng [EC Regulation (v.2)] 2017}.

Benefits:

In cosmetics and personal care products, **SIMPSSN™ BP-3 (Benzophenone-3)** is used mostly in the formulation of bath products, makeup products, hair products, sunscreens and skin care products, nail polishes and enamels products as the **UV** filter ingredients.

The Food and Drug Administration (**FDA**) has approved the use of **Benzophenone-3** as safe and effective, over-the-counter (**OTC**) sunscreen ingredients. When used as a sunscreen ingredient in the United States, Benzophenone-3 is called Oxybenzone, and may be used at concentrations **up to 6 %**.

SIMPSSN™ BP-3 is a secondary **UV-B** absorber with activity in the **UV-A** region. Provides supplemental **UV** protection and boosts **SPF** activity. U.S. approved use level: up to 6%. **E.U.** and **China** approved use level: up to 10%. Use level in combination with other sunscreen actives: 2.0 - 6.0%. Approval Status: Globally approved.

SIMPSSN™ BP-3 is a broad-band filter and can therefore also be used in day creams to prevent premature ageing of the skin and to protect the lips.

Solubility:

SIMPSSN™ BP-3 is insoluble in water.

Soluble in most organic solvents

As it is soluble in polar oils such as isopropyl myristate, Capric Triglyceride, C₁₂ - C₁₅ alcohols benzoate, and PEG-7 Glyceryl Cocoate, Cetearyl Octanoate are particularly suitable.

Non-polar oils such as liquid paraffin are less suitable as **SIMPSSN™ BP-3** can crystallize out as a result of supersaturation after prolonged storage.

Solubility of SIMPSSN™ BP-3 in different oils (solvents) at 20°C

Solvent	Concentration	Solvent	Concentration
Water	< 0.0037 g/l	Propylene Glycol	approx. 1 %
Glycerin	< 0.01 %	Liquid paraffin	approx. 1.5 %
Ethanol	6.0 %	Isostearyl stearate	7.0 %
Joboba oil	6.0 %	Isostearyl neopentanoate	8.0 %
Olive oil	9.0 %	Isopropyl myristate	11.0 %
Peanut oil	9.0 %	IPM	12.0 %
Decyl Oleate	9.0 %	Capric Triglyceride	14.0 %
Isopropanol	10.0 %	Isopropyl stearate	9.0 %
Butanol	10.0 %	C ₁₂₋₁₅ Alkyl Benzoate	15.0 %
Aceton	>20 %	PEG-7 Glyceryl Cocoate	17.0 %
Chloroform	>20 %	Triethyl Citrate	>20 %

Note: These values are taken out of Technical Data Sheets or Material Safety Data Sheets.

Applications:

The **SIMPSSN™ BP-3** is used in a large number of cosmetics to protect the skin or the hair, the product itself, particularly the colorant, the fragrance or the active ingredient against the harmful effects of **UV** radiation.

SIMPSSN™ BP-3 is a broad-band **UV** filter, i. e. it absorbs both in the **UV-A** (320-340 nm) and the **UV-B** (280-320 nm) ranges.

As an oil-soluble **UV** filter, **SIMPSSN™ BP-3** is an ingredient for almost every cosmetic preparations, including emulsions, oils, gels, lipsticks, nail varnishes etc. This also applies for the pigments and the like.

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™ BP-3** 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™ BP-3** 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**). Commonly, organic **UV** filters are combined with micro pigments in products with a high **SPF**. They can also be used together with radical scavengers, e. g. sodium ascorbyl monophosphate, vitamin E or vitamin E acetate which provides additional passive sun protection.

The combination of **SIMPSSN™ BP-3** 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™ BP-3** and the Broad-band filters such as the **SIMPSSN™ BP-3**, **SIMPSSN™ BP-4** and **SIMPSSN™ UVAB filters** 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** filters 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™ BP-3** 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 series products (Photostabilizers)** are much more suitable to protecting the sensitive products in formulations both water and oils soluble.

Use level: (W/W) **(National regulations have to be observed)** ≤ 10 %.

Mostly in sun care formulations: 2-8%.

The concentration recommended is 2-5%.

As the Photostabilizer to protect the sensitive products in formulations:

0.05-0.5%; generally: 0.1-0.3%.

REGULATIONS:

SIMPSSN™ BP-3 is approved world-wide. Concentration maximum varies according to local legislation.

Approval status:

	EU	China	Australia	USA	Japan
Max. amounts: (W/W)	+ (6%)	+ (10%)	+ (10%)	+ (6%)	+ (5%)

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

SIMPSSN™ BP-3 [INCI Name: Benzophenone-3 (**BP-3**)] is approved for use in Europe by the European Union's Scientific Committee for Cosmetic Products & Non-Food Products. It is also approved in China, Canada by Health Canada, in Australia, Brazil, South Africa, the Asian states and other countries.

It is approved for use in the **USA** by the Food and Drug Administration. It's permitted in Japan.

Toxicological Information

Toxicology:

The **SIMPSSN™ BP-3** 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: ≥ 12800 mg/kg (BW)

LD₅₀ / oral / mouse: ≥ 7400 mg/kg (BW)

Sensitization:

Primary skin irritation / rabbit / **SIMP** test: Non-irritant.

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

Safety:

SIMPSSN™ BP-3 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.



Product Technical Information

Properties & Specification:

Appearance:	Pale yellow to yellowish fine crystalline powder; Almost odorless or very weak characteristic odor.	
Assay:	≥ 98 (InC: ≥ 99)	% (W/W; GC/HPLC)
Melting Point:	≥ 62	°C
Density:	1.34	g/cm ³ (25°C)
Bulk density:	~ 400	kg/m ³ (25°C)
Loss on dry:	≤ 0.5%	% (55°C/V:0.1bar)
Log POW:	~3.7 (Octanol / water partition coefficient)	

Note:

The properties and specification in detail also can be seen on **TDS** ('**Technical Data Sheet**') of **SIMPSSN™ BP-3**. 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™ BP-3** of the **SIMP**, and / or **order on agreement !**

The Quality of the product **SIMPSSN™ BP-3** meets the requirements from the **STSC** [**STSC** = 《**Safety and Technical Standards for Cosmetics**》 Version 2015, **China**] and / or **EU** and the like.

Other Information

- Package:** Drums of net: 25-kg / drum capacity. *or order on agreement !*
- Storage:** The drums in which **SIMPSSN™ BP-3** is stored should be kept tightly closed in a light resistant, dry and cool place.
- Stability:** The minimum storage time for the **SIMPSSN™ BP-3** in the original sealed containers is at least 2 years.
- Shipping / Handling:** National legislation. No restrictions.
See **Material Safety Data Sheet (MSDS)**



Order Information

A. Product Trade Name: SIMPSSN™ BP-3

B. Package: Net: 25kg /carton (drum) lined a PE bag.
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™ BP-3 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:

SIMP GROUP

Shanghai SIMP Biotechnology Co., Ltd.

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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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