



# SIMPSSN™ MBC

(INCI Name: **4-Methylbenzylidene Camphor/4-MBC**)

**Oil Soluble UV-B Filter and Absorber Active Ingredient for Cosmetic and Pharmaceutical Multiple Formulations**

## **Product Instruction Sheet** (**PIS**)



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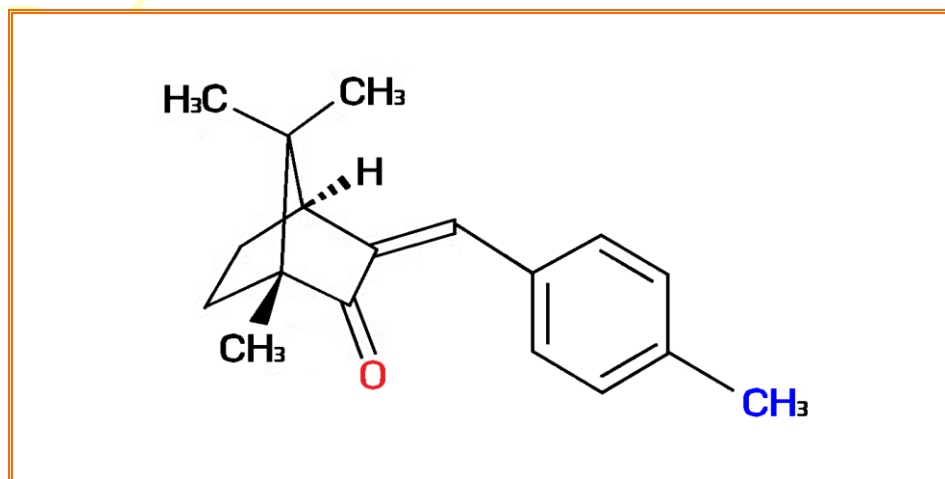
# SIMPSSN™ MBC

**Oil Soluble UV-B Filter and Absorber Active Ingredient for Cosmetic and Pharmaceutical Multiple Formulations**

## Product Information

<b>Product Name:</b>	<b>SIMPSSN™ MBC</b>
<b>INCI Name:</b>	4-Methylbenzylidene Camphor ( <b>4-MBC</b> )
<b>USP Name:</b>	Enzacamene
<b>Chemical name:</b>	3-(4-Methylbenzylidene)-dl-camphor <i>or</i> 3-(4'-Methyl) benzylidene-bornan-2-one
<b>IUPAC Name:</b>	(3E)-1,7,7-Trimethyl-3-[(4-methylphenyl)methylene]-2-norbornanone
<b>Synonyms:</b>	<b>4-MBC</b> ; 1,7,7-Trimethyl-3-(4-methylbenzylidene)bicyclo[2.2.1]heptan-2-one; 3-(p-Methylbenzylidene)camphor; 4-Methylbenzylidenecamphor ; Methylbenzylidenecamphor; p-Methylbenzylidenecamphor. <b>MBC</b> .
<b>CAS No:</b>	36861-47-9 / 38102-62-4
<b>EINECS No:</b>	253-242-6
<b>Formula:</b>	C <sub>18</sub> H <sub>22</sub> O
<b>Molecular Weight:</b>	MW = 254.37 g/mol

**Structural formula:**



## Definition, Properties, Benefits and Applications

**Description:** **SIMPSSN™ MBC (Enzacamene)** belongs to the category of classic **UV-B** filters, It is a useful **UV** filter additive for cosmetics and sun care products.

**SIMPSSN™ MBC** can be incorporated in sunscreens, day care products as well as skin lightening products formulations.

**EU-Functions:**  
**(INCI)**

**UV FILTER**

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

**Benefits:**

- **SIMPSSN™ MBC** is a highly effective and oily soluble **UV-B** absorber offering additional absorption in the short-wave **UV-A** spectrum. Maximum absorption is at 299 nm.
- Suitable for a wide variety of cosmetic applications.
- Combinations with other **UVB** absorbers such as **SIMPSSN™ OSC**, **SIMPSSN™ OMC** are useful when very high Sun Protection Factors are desired.
- When **SIMPSSN™ MBC** is used in combination with the **UVA** absorbers **SIMPSSN™ DHHB**, **SIMPSSN™ BMDM** or other **UVAB filters** **SIMPSSN™ MBBT-N** or Zinc Oxide, broad spectrum protection can be achieved.
- The oil soluble **UVB** filter is ideal for the formulation of water-resistant sunscreen products.
- Moreover **SIMPSSN™ MBC** can improve the photostability of Butyl Methoxydibenzoylmethane (**SIMPSSN™ BMDM**).
- **SIMPSSN™ MBC** is a safe and effective **UV-A/UV-B** absorber. Safety and efficacy studies are available on request.

**Very stable:** **SIMPSSN™ MBC** is very stable in all environment, polar or non polar because their active groups are hydrogenbonded intramolecularly. Their electrons are therefore less available for interaction with other ingredients in a formula or biological substrates on the skin.

**Note:** When contemplating the use of **SIMPSSN™ MBC** in combination with other **UV** absorbers, existing patents or patent applications should be considered.

**Application:** **SIMPSSN™ MBC** is an organic camphor derivative that is used in the cosmetic industry for its ability to protect the skin against **UV**, specifically **UV-B** radiation. It is an excellent **UV-B** absorber. Its concentration maximum varies according to local legislation. The oil soluble **UV-B** filter is ideal for the formulation of water-resistant sunscreen products. It is an excellent **SPF** booster widely used with other **UV** absorbers. **SIMPSSN™ MBC** is often found in sunscreen preparations having **SPF** factors greater than 30+. However, **UV** filters are seldom used in isolation in a formulation but rather jointly in a harmonious and efficacious protection system covering the spectrum from **UV-B** to **UV-A**.

**Use level:** (National regulations have to be observed)  $\leq 4\%$ .  
(W/W)

Generally, concentration used: 1-4%.

The concentration recommended is 2-3%.

As the Photostabilizer to protect the sensitive products in formulations:

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

## Toxicological Information

### Toxicological Information:

The **SIMPSSN™ MBC** 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:** LD<sub>50</sub> / oral / rat :  $\geq 6000$  mg/kg (BW)

LD<sub>50</sub> / oral / mouse :  $\geq 5000$  mg/kg (BW)

### Sensitization:

Primary skin irritation / rabbit / 4% in oil / **SIMP** test: Non-irritant

Primary mucous membrane irritation / rabbits' eye Irritation: slightly-irritant

**Local effects:** Eye: slightly-irritating (rabbit)

**Skin:** Practically non-irritating to rabbit skin (4 % corn oil).

**Sensitization:** Non- sensitizer to guinea pig skin.

**Human RIPT:** Non-irritating / Non-sensitizing (4% corn oil).

**Other Information:** Phototoxicity: Nonphototoxic (4% in ethanol).

### Safety:

**SIMPSSN™ MBC** 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:**

<b>Appearance:</b>	White to pale crystalline or crystalline powder, weak characteristic odor.	(RT)
<b>Identification:</b>	Conforms to <b>IR</b> and <b>UV</b> absorption. (QB/USP)	
<b>Assay:</b>	≥ 98.0	% (W, HPLC)
<b>Melting point:</b>	≥ 66.0	°C
<b>Boiling point:</b>	371.9	°C (at 760 mmHg)
<b>Flash point:</b>	≥ 168	°C
<b>Log POW:</b>	≥ 4.95 (Octanol / water partition coefficient)	

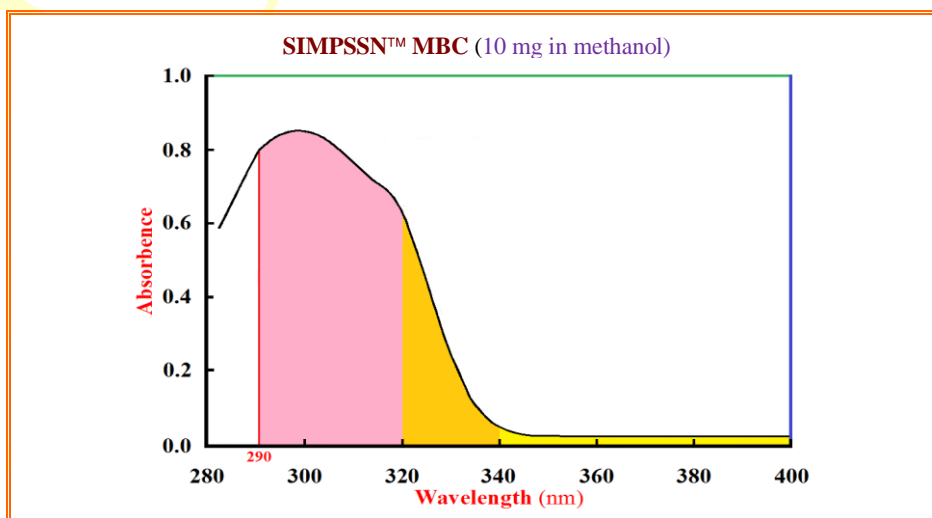
**Note:**

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

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

**UV Absorption spectrum:**



**SIMPSSN™ MBC** and **SIMPSSN™ HMS** are the ideal choice for boosting and reaching higher **SPF** in conjunction with other popular **UVA** filters like **SIMPSSN™ DHHB**, **SIMPSSN™ BMDM** and **UVAB** filters like **SIMPSSN™ BP-3** and **SIMPSSN™ MBBT-N** etc.

**SIMPSSN™ MBC** is a **UV-B** filter with a high absorptivity that is approved for use in all the main types of sun protection product (O/W and W/O emulsions, gels, and aerosols) in the **EU**, **CHINA** and other countries. It is not only stable to light but also capable of stabilizing butylmethoxy-dibenzoylmethane. Relevant patents must be respected. See Approval status.

**Note:**

When contemplating the use of **SIMPSSN™ MBC** in combination with other **UV** absorbers, existing patents or patent applications should be considered.

**Solubility:**

**SIMPSSN™ MBC** is insoluble in water.

Readily soluble in ethanol, the usual cosmetic oils and most organic solvents.

Solubility of SIMPSSN™ MBC in different solvents at 20°C	
<i>Solvent</i>	<i>Concentration</i>
Methanol	Miscible
Ethanol	25 %
Isopropanol	25 %
Diisopropyl Adipate	23 %
Dipropylene glycol	25 %
C12-15 Alkyl Benzoate	30 %
Decyl oleate	25 %
Hexyl laurate	20 %
Isopropyl myristate	25 %
Diethylhexyl 2,6-Naphthalate	22 %
Mineral Oil	9 %
Castor Oil	20 %
Glycerin	12 %
Caprylic Capric Triglyceride	16 %
1,3 Butylene Glycol	1.5 %
2-Methyl-1,3-Propanediol	1.0 %
Propylene glycol	4 %
Water	immiscible

Solubility of SIMPSSN™ MBC in different UV filters at 20°C	
<i>Solvent (UV Filters)</i>	<i>Concentration</i>
<b>SIMPSSN™ OMC (UV-B Filter)</b> (INCI Name: Ethylhexyl Methoxycinnamate)	24%
<b>SIMPSSN™ IMC (UV-B Filter)</b> (INCI Name: Isoamyl p-Methoxycinnamate)	25%
<b>SIMPSSN™ OCR (UV-B Filter)</b> (INCI Name: Octocrylene)	25%
<b>SIMPSSN™ OSC (UV-B Filter)</b> (INCI Name: Ethylhexyl Salicylate)	25%
<b>SIMPSSN™ HMS (UV-B Filter)</b> (INCI Name: Homosalate)	45%
<b>SIMPSSN™ DHHB (UV-A Filter)</b> (INCI Name: Diethylamino Hydroxybenzoyl Hexyl Benzoate)	40%

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



## Formulation Guideline with SIMPSSN™ MBC

**Guide for Formulations:**

**SIMPSSN™ MBC** is a white to light yellow powder. It is not approved for use in **OTC** sunscreen products in the **USA**.

**An extra boost to getting high SPF:**

**SIMPSSN™ MBC** is an excellent **UV-B** absorber, insoluble in water. It is an excellent SPF booster widely used with other **UV** absorbers. **SIMPSSN™ MBC** is often found in sunscreen preparations having **SPF** factors greater than 35. However, **UV** filters are seldom used in isolation in a formulation but rather jointly in a harmonious and efficacious protection system covering the spectrum from **UVB** to **UV-A**. **SIMPSSN™ OMC** and **SIMPSSN™ OSC** are the ideal choice for boosting and reaching higher SPF in conjunction with other popular **UVA** filters like **SIMPSSN™ BMDM**, **SIMPSSN™ DHHB** and **UVAB** filters like **SIMPSSN™ BP-3** and **SIMPSSN™ MBBT-N**.

**Added value for sunscreen formulas:**

An **UV** filter is often chosen if it has further desirable properties above **UV** protection. **SIMPSSN™ MBC** score well by contributing to the non-water solubility of sun care products and can also improve sensory profile by providing emolency to the formulas.

**REGULATIONS**

**SIMPSSN™ MBC** is approved world-wide. Concentration maximum varies according to local legislation.

**Approval status:**

**Max. amounts:**  
(W/W)

EU	China	Australia	Canada	USA	Japan
+ (4 %)	+ (4 %)	+ (4 %)	+ (4 %)*	-----	-----

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

**SIMPSSN™ MBC** [INCI Name: 4-Methylbenzylidene Camphor (**4-MBC**)] 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.

But it is not approved for use in the **USA** by the Food and Drug Administration. It's not permitted in Japan.

## Other Information

**Package:**

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

**Storage:**

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

**Stability:**

The minimum storage time for the **SIMPSSN™ MBC** in the original sealed containers is at least 2 years.

**Shipping / Handling:**

No restrictions. See the **Material Safety Data Sheet (MSDS)**.





## Order Information

- A. **Product Trade Name:** SIMPSSN™ MBC
- 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™ MBC 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

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General Editor: Z.M.Jiang / Dec. 2020

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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.





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**Note**

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

General Editor: Z.M.Jiang / Dec.2020 revised from the SIMP

