

Butyl Methoxydibenzoylmethane



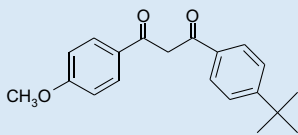
Definition	Organic UV-A filter which absorbs the UV-A radiation (wavelengths between 320-400 nm) and protects the skin effectively from skin ageing
Chemical name	4-tert-Butyl-4-Methoxydibenzoylmethane
Trade name	Chem 1789
CAS No.	70356-09-1
EINECS No.	274-581-6
INCI name	Butyl Methoxydibenzoylmethane
CN code	2914 5000
Synonyms	Butyl methoxydibenzoylmethane; Avobenzone [USAN:INN]; Parsol 1789 IUPAC: 1-(4-Methoxyphenyl)-3-(4-tert-butylphenyl)propane-1,3-dione

Producer CHEMSPEC CHEMICALS PVT. LTD., India



Kyowa Hakko Europe GmbH
Daichi Fine Chemical Division

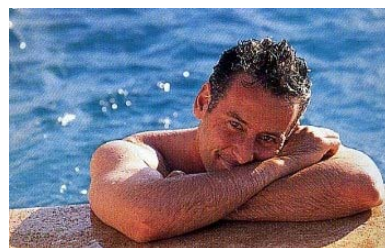
SPECIFICATION*

Chem .Name:	4-tert. Butyl-4-methoxydibenzoylmethan	
Chemical structure		
Empirical formula	C ₂₀ H ₂₂ O ₃	Molecular weight 310.39
Appearance	light tan (off white to pale yellow), crystalline powder	
Odour	weakly aromatic	
Identification		
IR	conform	
UV	conform	
Melting point	81-86°C	
Loss on drying	not more than 0,5%	
Chromatographic Purity		
individual impurity	not more than 3,0%	
total impurities	not more than 4,5%	
Assay	95% to 105%	

*meets the quality requirements of the current USP Monograph for Avobenzone

Other Physico-Chemical Properties

Function	UV-A filter
Solubility	Insoluble in water, soluble in ethanol
UV Specific Extinction (Ethanol)	between 1100 to 1180 at 357+/-2nm



Storage and Packaging

Storage	Store at 15°C to 40°C. Store according to state and local regulations away from incompatible substances. Incompatibilities are Oxidizers (strong): Fire and explosion hazard. To be stored in steel, polyethylene, enamel sealed, impervious to light, cool and dry and preferably in full container. Stable under normal temperatures and pressures.
Standard packaging	25 kg PE-bag in cardboard drum
Expiry date	2 years after manufacturing date

General function

Butyl Methoxydibenzoylmethane is an essential UV-A filter, which has a very high efficacy even at lower concentrations. It provides distinct UV-A protection in all varieties of cosmetic applications.

UVA radiation (wavelengths between 320nm - 400nm) penetrates down to the dermal layers of the skin. It stimulates tanning and pigmentation but relates also to skin aging.

Furthermore UV-A may act in an indirect way by creating free radicals and reactive oxygen species. In consequence, an efficient sunscreen should not only prevent sunburn (UV-B rays) but also minimize the accumulation of all radiation induced damages in the skin which eventually enhance the risk of fatal alterations like skin aging. So sun care or daily care products should not only contain UV-B filter but also a very important part is the add-on of UV-A protection to complete a high and safety prevention of skin damages.

Formulating

Butyl Methoxydibenzoylmethane can be used in combination with UV-B filters to provide broad spectrum protection or for its exclusive use in almost all kinds of cosmetic applications like

- Sun care
- Baby sun care
- Daily skin care
- Decorative cosmetic with sun protection

The application of Butyl Methoxydibenzoylmethane with other UV-B filters may have synergistic effects on the SPF value.



Recommended use levels according to local regulations:

Europe	up to 5%
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For incorporation Butyl Methoxydibenzoylmethane should be added into the oil phase of a cosmetic composition. It is soluble in some liquid UV-B filters and polar oil components like

- Octocrylene
- Octyl Methoxycinnamate
- Homosalate
- Butylene Glycol Dicaprylate/ Dicaprate
- C12-C15 Alkyl Benzoate

Compatibility of ingredients with Butyl Methoxydibenzoylmethane

Ions of heavy metals may induce colored complexes. This can be avoided by using EDTA as complexing agent. Stearates and Aluminium, Zinc or Magnesium salts, as well as formaldehyde donating preservatives may induce precipitations. Avoid these combinations.

Literature: Gerd Kindl, Wolfgang Raab: Licht und Haut (1998), world wide web: Merck homepage, www.fda.gov/ohrms/dockets/dailys/00/Sep00/090600/cp00001_attachment_03.pdf, www.roche.com

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Kyowa Hakko Europe GmbH
Daiichi Fine Chemical Division

Am Wehrhahn 50
40211 Düsseldorf / Germany

Tel: +49 (0)211 - 175 45 0
Fax: +49 (0)211 - 175 45 447

e-Mail: dfc@kyowa.de
Website: www.kyowa.eu/daiichi