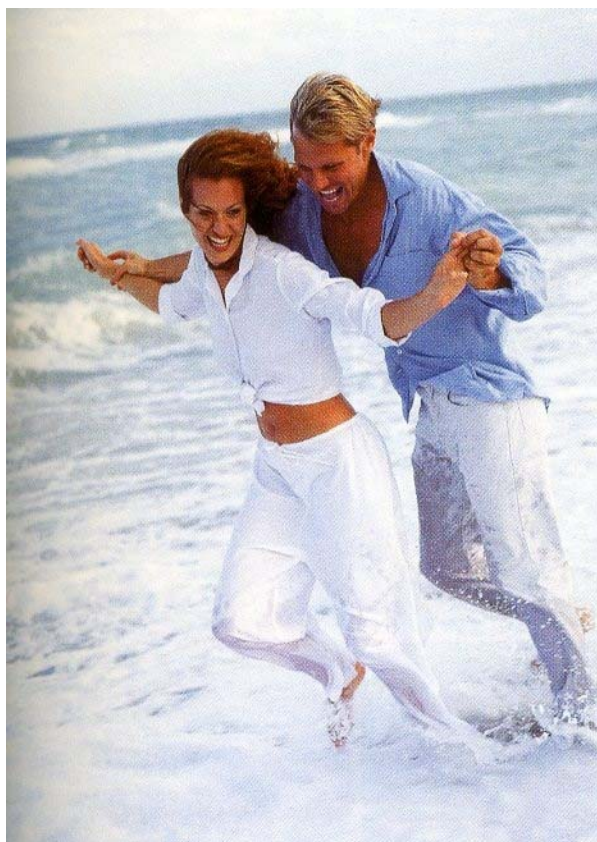


# Phenylbenzimidazole Sulfonic Acid

**Definition**

UV-B filter, that absorbs the dangerous UV light between 280-320 nm to protect the skin from sunburn and cancer

**Chemical name**

2-Phenylbenzimidazole-5-sulfonic acid

**Trade name**

Chemsol HS

**CAS No.**

27503-81-7

**EINECS No.**

248-502-0

**INCI name**

Phenylbenzimidazole Sulfonic Acid

**CN code**

2933 9980

**Synonyms**

2-Phenylbenzimidazole-5-Sulfonic acid  
Ensulizole (USA), Eusolex 232 (Merck)  
Neo Heliopan Hydro (Symrise), PBSA

**Producer**

CHEMSPEC CHEMICALS PVT. LTD., India

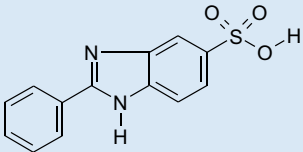
Chemspec



Kyowa Hakko Europe GmbH

Daiichi Fine Chemical Division

## SPECIFICATION\*

Chem. Name:	2-Phenylbenzimidazole-5-sulfonic acid	
Chemical structure		
Empirical formula	$C_{13}H_{10}O_3N_2S$	Molecular weight 274.3
Appearance	White to pale beige crystalline powder	
Solubility (in NaOH)	Clear completely dissolved, no particles	
Identification	conform	
IR	conform	
UV Specific Extinction E	1% 1cm	920-1000 at $302 \pm 2$ nm
Loss on drying	not more than 2%	
Assay	98% - 102%	

\*meets the quality requirements of the current USP Monograph for Ensulizole

## Other Physico-Chemical Properties

Function	UV-B filter
Odour	None to faint
pH value (20°C )	5.0 (1 g / l suspension in water)



## Storage and Packaging

Storage	Protect from light, store at 15°C to 40°C.
Standard packaging	30 kg packed in double polythene bags in fibre drums.
Expiry date	2 years from date of manufacturing in unopened original container under normal storage conditions

## General function

Phenylbenzimidazole Sulfonic Acid is a solid water-soluble UV-B filter. It may cause synergistic effects on SPF in combination with oil soluble sunscreens.

UV-B radiation affects especially the epidermal layer of the skin, where it causes the well known sun burn (erythema). Further on it induces damages on the DNA and suppresses the immune response of the skin. Frequent and intense expose to UV-B rays enhances the risk of fatal mutations eventually leading to skin cancer. Consequentially using sun care products, when you expose your skin to the sun is essential for a healthy and beautiful appearance.

Phenylbenzimidazole Sulfonic Acid can be used for all kind of cosmetic applications like sun care and daily skin care. Due to its water-solubility it fits perfectly for sun care without oil or exceeding contents of oil. This puts the opportunity to develop sun care or skin care with UV protection with light skin feeling.

Recommended dosage according to local regulations:

Europe                      up to 8%



## Formulating

Solve Phenylbenzimidazole Sulfonic Acid in the water phase of a cosmetic preparation at a pH-value of around 7. Acidic conditions (pH <6.5) in aqueous solutions of Phenylbenzimidazole Sulfonic Acid cause precipitation.

A minimum pH of 6.8 - 7.0 in the final product ought to be ensured to avoid recrystallisation. In case of gel formulations: Incorporate Phenylbenzimidazole Sulfonic Acid into water, neutralize with suitable salt (Triethanolamine, NaOH, or Tromethamol) and add the mixture only to neutralized gel.

## Compatibility with other ingredients

Phenylbenzimidazole Sulfonic Acid is compatible with almost all cosmetic ingredients. Keep in mind, that due to its properties as electrolyte it may influence the viscosity of formulations; especially gel formulations.

**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](http://www.fda.gov/ohrms/dockets/dailys/00/Sep00/090600/cp00001_attachment_03.pdf), [www.roche.com](http://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](mailto:dfc@kyowa.de)  
Website: [www.kyowa.eu/daiichi](http://www.kyowa.eu/daiichi)