

**LEBENSMITTEL-CHEMISCHE GESELLSCHAFT**  
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 CHEMIKER -  
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**Data sheets to evaluate the efficacy of active ingredients in cosmetic products**

## Chamomile

### Definition of terms

Chamomile generally refers to extracts of the lipophilic and hydrophilic constituents of the flowers of *Chamomilla recutita* (formerly *Matricaria chamomilla*). The following extracts are used:

Raw material	CAS No.	INCI name [1]
(Lipophilic) extract	84082-60-0	Chamomilla Recutita Extract*
(Water vapour) distillate	8002-66-2	Chamomilla Recutita Oil* Chamomilla
Aqueous extract		Recutita Water

\*The International Nomenclature of Cosmetic Ingredients (INCI) names have not yet been published in the Official Journal of the European Communities.

Extracts of Roman chamomile (*Anthemis nobilis*, according to the INCI) differ in composition from the chamomile oil of *Chamomilla recutita* [5]. Equating these extracts with "chamomile" is therefore not justified.

### Active ingredients [5, 7, 8, 13]

According to [7] and [13], the effectiveness of chamomile results from the interaction of the following ingredients:

lipophilic components	hydrophilic components
(-)- $\alpha$ -Bisabolol	Apigenin
Bisabolol oxides A and B	Apigenin-7-glucoside
En-In-Dicycloether	
Matricin (Prochamazulene)	

The quality and composition of chamomile extracts depend entirely on the type of extraction process [2, 9, 10, 13]. In addition, the spectrum of ingredients in plant extracts can vary significantly due to various influencing factors (e.g. variety, climate, location), making the use of standardised extracts recommended [9]. According to [9], the following ingredients are suitable for standardisation: (-)- $\alpha$ -bisabolol, ene-in-dicycloether, and apigenin or apigenin-7-glucoside. It should be noted that the stability of these individual ingredients differs. In addition to classic extraction methods, supercritical carbon dioxide is also commonly used [9, 13].

#### Remarks:

- Chamomile extract contains (-)- $\alpha$ -bisabolol, while synthetically produced bisabolol (( $\pm$ )- $\alpha$ -bisabolol) is present as a racemate and, according to [4], exhibits only approximately 50% of the efficacy of the naturally occurring component.
- The blue-coloured chamazulene does not occur naturally in chamomile; rather it is formed from the labile matricin in chamomile extracts obtained through distillation [2, 3].
- Synthetically produced dimethyl-isopropyl-azulene (guaiazulene) is also used under the INCI name "guaiazulene", however it should not be regarded as a substitute for chamazulene. According to Nürnberg et al. [12], there is a lack of controlled studies and scientifically analysable evidence to support the therapeutic benefits of guaiazulene for the claimed applications.

#### Use in cosmetic products

Chamomile extracts are used in cosmetic products for their soothing, deodorising, and antibacterial properties. They are therefore favoured in cleansing and care products, particularly for babies, sun protection products, and after-shave products.

It is also commonly used as a fragrance component and to lighten hair (in aqueous extracts).

Chamomile is known to consumers as a versatile medicinal plant from folk medicine. They also expect effective concentrations in cosmetic products, along with corresponding claims. However, no specific information on this is available in the literature regarding cosmetic products.

For externally applied medicinal chamomile rinses, the relevant active ingredient contents in the ready-to-use preparation can be determined, for example, from the dosage recommendations in [5] or from the formulation details in the Red List 2000 for balneotherapeutics [6]. Cosmetically relevant concentrations can be derived from these.

If extracts containing only lipophilic or only hydrophilic components are used, the advertising claims must be adjusted accordingly.

If chamomile is used exclusively for fragrance characterisation, this must be clearly indicated (e.g. fragrance note: chamomile).

If individual chamomile ingredients (e.g. bisabolol) are used, labelling or claims referring to "chamomile" are not justified.

**Note:** The general instructions and recommendations in this data sheet series must be followed, along with the applicable legal standards.

**Literature:**

- [1] Opinion on the 1st update of the inventory of ingredients employed in cosmetic products adopted by the SCCNFP (Stand 28.06.2000); [www.europa.eu.int/comm/dg24/](http://www.europa.eu.int/comm/dg24/)
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- [9] Ness, A., Schmidt, P.C.; DAZ 135, 3598 (1995)
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