



**indena**<sup>®</sup>

INDUSTRIA

DERIVATI

NATURALI



PERSONAL CARE

FOOD & FLAVOURS

# LICORICE DERIVATIVES

The plant of **licorice** is a legume related to beans and peas and derives its name from the word “liquirice”, the ancient Greek for “sweet root”. Its sweet compound is **Glycyrrhizin**, a compound 50 folds sweeter than sucrose, responsible for the medicinal qualities of licorice. Glycyrrhizin and its salts may be used in the **food and flavours** sector as sweeteners and in the **personal care** sector in mouthwashes or toothpastes, or most frequently in the form of its hydrolized triterpene derivative **Glycyrrhetic acid** as soothing agent.

The ingredients described herein are offered for consideration for use in personal care and food products. The information provided describes historical use, ingredient activity and other information that may be relevant to their use in such products. How each ingredient would contribute to a particular product would be formulation specific. Furthermore please note that this documentation is available for various countries all over the world and hence it may contain statements not applicable to your country.

- The root of licorice, *Glycyrrhiza glabra*, has been known for long for its sweet taste: in fact it contains Glycyrrhizin which is a potent sweetener and is also known as Glycyrrhizic acid. When this compound is hydrolyzed, its triterpenic derivative Glycyrrhetic acid may be used for its soothing characteristics as a lenitive compound in skin care applications, while the ammonium or potassium salts of Glycyrrhizic acid are potent sweeteners as well.
- Dipotassium glycyrrhizinate has also several applications in the soothing area.

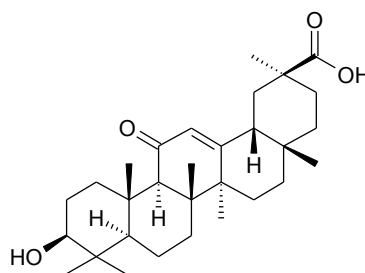
## 18 $\beta$ -GLYCYRRHETINIC ACID

### CHARACTERISTICS

ASSAY	$\geq 98.0 \leq 102.0\%$ of 18 $\beta$ -glycyrrhetic acid by HPLC referred to the anhydrous substance <span style="color: #FFC000;">■</span> <span style="color: #C08060;">■</span>
FORM	white / off white crystalline powder <span style="color: #FFC000;">■</span> <span style="color: #C08060;">■</span>
LEVEL OF USE	0.5 - 3% <span style="color: #C08060;">■</span>
SOLUBILITY*	soluble in 96% ethanol, propylene glycol, ethoxydiglycol
INCI/CTFA	18 $\beta$ -glycyrrhetic acid <span style="color: #C08060;">■</span>
CAS	471 - 53 - 4 <span style="color: #C08060;">■</span>

### PLUS

- PURE MOLECULE
- SOOTHING TOPICAL AGENT
- ESTABLISHED TRADITIONAL TOPICAL USE, CIR REVIEWED
- FRESH NOTES, NATURAL FLAVOUR



## 18 $\beta$ -GLYCYRRHETINIC ACID PHYTOSOME®

### CHARACTERISTICS

ASSAY	$\geq 27.0 \leq 31.0\%$ of 18 $\beta$ -glycyrrhetic acid by HPLC <span style="color: #FFC000;">■</span> <span style="color: #C08060;">■</span>
FORM	white / off white powder <span style="color: #FFC000;">■</span> <span style="color: #C08060;">■</span>
LEVEL OF USE	0.5 - 3% <span style="color: #C08060;">■</span>
SOLUBILITY*	soluble in ethoxydiglycol, IPM, C10-18 triglycerides, C12-15 alkyl benzoate, triticum vulgare (wheat germ oil), TCC
INCI/CTFA	lecithin (syn. phosphatidylcholine), 18 $\beta$ -glycyrrhetic acid <span style="color: #C08060;">■</span>
CAS	8002 - 43 - 5 (lecithin), 471 - 53 - 4 (18 $\beta$ -glycyrrhetic acid) <span style="color: #C08060;">■</span>

### PLUS

- PROPRIETARY DELIVERY SYSTEM
- IMPROVED FORMULABILITY
- OIL SOLUBLE
- CLINICALLY VALIDATED TOPICAL USE



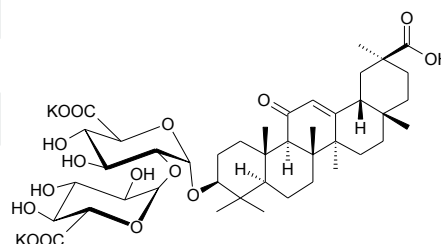
## DIPOTASSIUM GLYCYRRHIZINATE

### CHARACTERISTICS

ASSAY	$\geq 96.0 \leq 102.0\%$ of dipotassium glycyrrhizinate by spectrophotometry <span style="color: #FFC000;">■</span> <span style="color: #C08060;">■</span>
FORM	white / yellowish-white powder <span style="color: #FFC000;">■</span> <span style="color: #C08060;">■</span>
LEVEL OF USE	up to 1% <span style="color: #C08060;">■</span>
SOLUBILITY*	freely soluble in water
INCI/CTFA	dipotassium glycyrrhizate <span style="color: #C08060;">■</span>
CAS	68797 - 35 - 3 <span style="color: #C08060;">■</span>

### PLUS

- FREELY WATER SOLUBLE
- PURE MOLECULE
- CIR REVIEWED





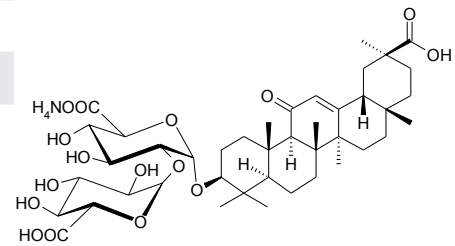
## GLYCAMIL® (MONO AMMONIUM GLYCYRRHIZINATE)

### CHARACTERISTICS

ASSAY	≥98.0 ≤102.0% of monoammonium glycyrrhizinate by potentiometry <span style="color: yellow;">■</span> <span style="color: orange;">■</span>
FORM	white / yellowish-white powder <span style="color: yellow;">■</span> <span style="color: orange;">■</span>
LEVEL OF USE	0.01 – 0.05% <span style="color: orange;">■</span>
SOLUBILITY*	slightly soluble in water, soluble in acidic or basic diluted solutions
INCI/CTFA	ammonium glycyrrhizinate <span style="color: orange;">■</span>
CAS	53956 - 04 - 0 <span style="color: orange;">■</span>

### PLUS

- PURE MOLECULE
- CIR REVIEWED
- POTENT SWEETENER, ORAL CARE APPLICATIONS



## LICORICE

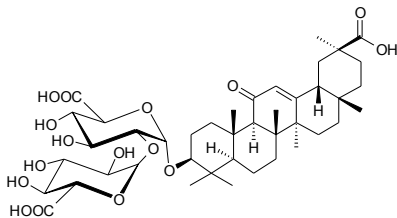
### CHARACTERISTICS

ASSAY	≥5.0 ≤6.2% of glycyrrhizic acid by HPLC <span style="color: yellow;">■</span> <span style="color: orange;">■</span>
FORM	brownish powder, sweet taste <span style="color: yellow;">■</span> <span style="color: orange;">■</span>
LEVEL OF USE	0.1 – 3%
SOLUBILITY*	soluble in water
INCI/CTFA	glycyrrhiza glabra (licorice) root extract <span style="color: orange;">■</span>
CAS	84775 - 66 - 6 <span style="color: orange;">■</span>

### PLUS

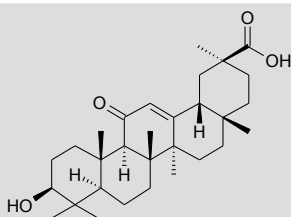
- SUITABLE FOR FLOWERING FRESH NOTES IN FOOD&FLAVOUR APPLICATIONS
- WATER SOLUBLE

## CHEMICAL SYNONIMS OF LICORICE COMPOUNDS



Glycyrrhizin is also known as glycyrrhizic acid, or glycyrrhizinic acid, being all these denominations referring to the same compound.

IUPAC name: (3β, 18β)-30hydroxy-11,30-dioxolean-12-en-3-yl 2-O-β-D-glucopyranosiduronic acid. The different salts of glycyrrhizin may thus be defined as glycyrrhizates, or glycyrrhizates. For example, dipotassium glycyrrhizinate is also known as dipotassium glycyrrhizate. (Mono) ammonium glycyrrhizinate is also known as (mono) ammonium glycyrrhizate.



When glycyrrhizin is hydrolyzed, the resulting aglycone is 18β-glycyrrhetic (or glycyrrhetic acid), also known as enoxolone (INN).

IUPAC name: (3β, 18β)-30-hydroxy-11,30-dioxolean-12-en-3-yl 2-O-β-D-glucopyranosiduronic acid

## LEGENDA

- RELEVANT INFORMATION FOR FOOD&FLAVOURS APPLICATION
- RELEVANT INFORMATION FOR PERSONAL CARE APPLICATION



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