

# LICORICE DERIVATIVES COSMETIC APPLICATIONS



# Our History

*...a story of growth*

**2009**

**MAFCO** takes full ownership of Joint Venture.

**MAFCO** establishes a Middle East sales office in Dubai, U.A.E.

**2004**

**MAFCO** establishes a Joint Venture in Zhangjiagang Free Trade Zone (China).

**2012**

**MAFCO** acquires Shanghai Fanzhi factory and office in China.

**1986**

**MAFCO** acquires the **EVD** factory and office in Gardanne France.

**1880**

**CARENOU Y TUR** produced licorice extracts in Saragosse and France.

**1963**

**CAR**, **ZAN** and **RICQLES** joined to create **EVD**.

**1976**

**W.RUITENBERG** acquires the majority of the assets of **EVD** by buying shares from **RICQLES-ZAN** company.

**1850**

Edward MacAndrews and William Forbes started the MacAndrews and Forbes Company in Turkey. Since 1981 the Company has been known as **MAFCO LLC**.

**1903**

**MAFCO** establishes a factory and office in Camden, New Jersey (USA). This location is still the world headquarters today.

**1970**

**MAFCO** develops the **Magnasweet®** line of products for broader use in the food and beverage industries.

# Selective isolation & Licorice Constituents

Licorice Root

Licorice Extract  
GRAS & FDA  
21 CFR 184.1408

Ammoniated Glycyrrhizin (AG)  
GRAS & FDA  
21 CFR 184.1408

Glycyrrhizin Acid (GA)

Monoammonium Glycyrrhizinate (**MAG**)  
GRAS & FDA 21 CFR 184.1408 – FEMA#2528

Di-Potassium Glycyrrhizinate (DPG)

Tri-Sodium Glycyrrhizinate (TSG)

Di-Sodium Glycyrrhizinate (DSG)

# Our Business

MAFCO is the  
world leader in  
licorice extract  
& derivative  
products



MAFCO supplies  
Magnasweet® to  
over 600  
customers across  
51 countries



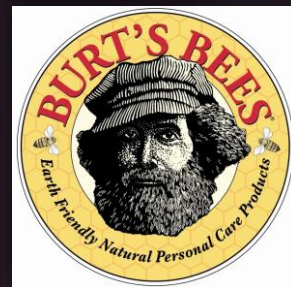
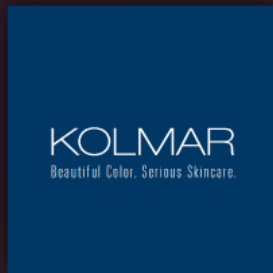
MAFCO spans  
the entire  
range of  
licorice root  
extracts and  
extract-derived  
products



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# Selected Customers





# Pure Derivatives of Glycyrrhiza for Cosmetic



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# Use in Hypo-Allergenic Eye Products



Glycyrrhizin can be formulated  
in hypo-allergenic products  
such as:



eye shadows



mascara



eye make up removers



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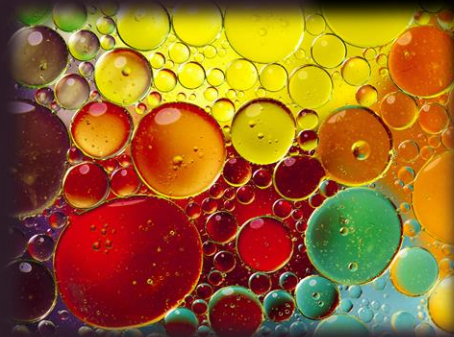


# Enhance Emulsion Stability

✂ Monoammonium Glycyrrhizinate (MAG) and Dipotassium Glycyrrhizinate (DPG) decrease interfacial tension thus they are surface active.

✂ They aid to stabilize emulsions and foams.

✂ The critical micella concentration is approximately  $2-3 \times 10^{-4}$  mol/L.



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# Enhance Emulsion Stability

🪵 Centuries of use have proven glycyrrhizic acid compounds to be safe and effective.

🪵 Subacute toxicity studies showed no toxicity when licorice was administered.

🪵 Acute toxicity was found to be 308 mg/kg glycyrrhetinic acid.



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# Products List

- ✂ Dipotassium Glycyrrhizinate (DPG)
- ✂ 18-beta Glycyrrhetic Acid – Enoxolone
- ✂ Stearyl Glycyrrhetinate Acid (STG/SGA)
- ✂ Glabridin 40%
- ✂ Monoammonium Glycyrrhizinate (MAG)
- ✂ Glycyrrhizic Acid (GA)



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# *Dipotassium Glycyrrhizinate (DPG)*

✂ A potent calming agent that has also absorption properties.

✂ Improves skin tone and visible reduces the appearance of skin discoloration.

✂ Helps to hydrate, cool, calm and reduce the appearance of redness in flush or stressed skin, and is very effective in improving dry and sensitive skin.

✂ Sebum regulating properties inhibit excessive release of skin lipids through the sebaceous gland.



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# Dipotassium Glycyrrhizinate (DPG)



Neutrogena Anti  
Oxidant Age Reverse  
Night Cream



Neutrogena Anti  
Oxidant Age Reverse  
Eye Cream



Neutrogena Healthy  
Skin Anti-Wrinkle  
Intensive Eye Cream



Neutrogena Anti  
Oxidant Age Reverse  
Day Lotion SPF20



Sally Hansen Creme  
Hair Remover



Pond's Clear Solutions  
Overnight Blemish  
Reducers, Maximum  
Strength



Neutrogena Norwegian  
Formula Age Shield  
Hand Cream



Black Opal After Shave  
Relief Lotion With Bio-  
Hydroxy Complex



Sally Hansen Instant  
Cuticle Remover  
Maximum Strength



# 18-Beta Glycyrrhetic Acid

## Enoxolone

✂ It is widely used in skin cosmetics of super quality, which can moisturize skin and prevent skin from darkening, due to it's beauty bleaching properties.



Effective applications:

- Anti-aging creams,
- Facial moisturizer
- Facial treatment,
- Facial cleansers the ability to calm visible skin irritation

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# 18-Beta Glycyrrhetic Acid Enoxolone



Clinique Comfort on  
Call Allergy Tested  
Relief Cream



Estee Lauder Re-Nutriv  
Intensive Lifting Mask



Estee Lauder Re-Nutriv  
Revitalizing Comfort  
Eye Creme

# *Stearyl Glycyrrhetinate Acid (STG/SGA)*

✂ Consists of Glycyrrhizic Acid to which stearyl alcohol has been ester bonded.

✂ Compared with Glycyrrhizic Acid, more rapidly soluble in oils such as olive oil, cottonseed oil, mineral oil, polyethylene glycol, stearyl alcohol and petroleum jelly.



✂ On the market there are a lot of products such as: anti-itch/rash creams, around eye creams, damaged skin treatment and moisturizers containing STG/SGA. effective in hydrating and soothing visible skin irritation.

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# Stearyl Glycyrrhetinate Acid (STG/SGA)



Boscia Jujube  
Salva Stick



Bioré Cleanse Deep  
Cleansing Pore Strips



Clinique Pore Minimizer  
Instant Perfector  
Invisible Deep



Neutrogena Extra  
Gentle Cleanser



Neutrogena Kids  
Sunblock SPF 30



Dove Face Care Sensitive  
Essentials Night Cream  
Fragrance Free



Dove Face Care Sensitive  
Essentials Day Lotion  
Fragrance Free



Clinique Pore  
Minimizer Instant  
Perfector Invisible Light



Clinique Comforting  
Cream Cleanser



Dove Face Care Sensitive  
Essentials Day



Dove Sensitive  
Essentials Night Cream  
Fragrance Free



Estee Lauder  
Maximum Cover,  
Camouflage Makeup



# *Glabridin 40%*

- ✂ Glabridin based extract is a natural extract derived from licorice root of Glycyrrhiza.
- ✂ Glabridin imports whitening effects because decreases the production of melanin.
- ✂ The extract containing Glabridin is highly non-polar and soluble in oil based systems. Thus, it is necessary to incorporate this product in the final formulation with the maximum absorption properties.
- ✂ The Glabridin 40% are compatible with a wide range of personal care product ingredients and have very good solubility under a wide pH range. They can be incorporated in oil based skin care products.

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# Glabridin 40%



White Moon

Brightens, Whitens & Tightens



Skin Tech

Blending/Bleaching Cream



Trio A Glabridine  
Depigmenting Emulsion



Derma Bright  
Skin Lightening Treatment



Noreva – Trio D  
Depigmenting and Evening  
Treatment

# Monoammonium Glycyrrhizinate

✂ Monoammonium Glycyrrhizinate (MAG) is a white to yellow powder odourless



✂ It can be used as off-flavour masking and flavour extender in oral care products (e.g. lip balms).

✂ Also it can be used to give sweetness and act as a smoother in toothpastes and mouthwashes.

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# Monoammonium Glycyrrhizinate

Clean label solutions for masking off-flavors in oral care:



Lip balms (off-flavors masking) —————>

Magnasweet® MM100F recommended

- Dosage of 1 – 4%
- Extends flavors and sweetness



Mouthwashes (as sweetener) —————>

Magnasweet® MM100 recommended

- Dosage of 0.003 – 0.05%
- Extends flavors, give sweetness and act as a smoother



Toothpaste —————>

Magnasweet® MM100 recommended

- Dosage of 0.003 – 0.05%
- Extends flavors, give sweetness and act as a smoother

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# Glycyrrizic Acid (GA)

✂ Glycyrrhizic Acid is a triterpenoid molecule obtained from licorice. It has the appearance of a white powder and it is practically odorless.

✂ It is soluble in ethanol, glycerine and glycols.



✂ It could be used in: skin care and make-up.

✂ It helps to improve skin elasticity, penetration enhancer, moisturizer and hydrater. Also it helps to calms irritation.

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# Dosage Racommendations

## Dipotassium Glycyrrhizinate (DPG)

Skin care products	0.2 – 2.0%
Lotions, after sun products	0.5 – 1.0%
Sebum control	0.5 – 1.0%

## Stearyl Glycyrrhetinate (STG/SGA)

Lotions, after sun products	0.05 – 0.5%
Skin care products	0.05 – 0.5%
Skin preparations	0.05 – 0.5%

## Monoammonium Glycyrrhizinate (MAG)

Lip balms –Leave on	1.0 – 4.0%
Oral Products	0.003 – 0.05%

## 18-Beta Glycyrrhetic Acid - Enoxolone

Skin preparations	0.1 – 1.0%
Skin care products	0.1 – 1.0%
Lotions, after sun products	0.1 – 1.0%

## Glabridin 40%

Skin whitening	0.02 – 0.04%
DPG absorption	0.3 – 0.5%

## Glycyrrhizic Acid (GA)

Skin care products	0.05 – 0.1%
Make-up products	0.05 – 0.1%

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