

Saja Hamed, Ph.D

#### October 15 is Global Handwashing Day







## History

- Salt (Chinese, Egyptians, Greeks)
- Manufacture of Soap:
- 2800 BC in ancient Babylon: boil fats with ashes and water
- Greek: Strigil to scrape off the oil and dirt also used clay and sand





- Roman lived in a water-rich area
- They built in aqueducts to bring clean water and bathing become very popular

## **Ancient Roman Legend**

- Soap name originated from Mount Sapo (Rome) where burnt animal were sacrified
- Rain washed a mixture of melted animal fat and wood ashes down into the clay soil along Tiber river
- Women found that this clay mixture made their washes cleaner with much less effort





#### After the fall of Rome

- Bathing declined
- Poor sanitary
- Hygiene related diseases
- Black death of the 14 century
- the Plague
- the deaths of an 75 to 200 million people
- In Europe from 1347 to 1351
- Personal cleanliness become popular again in the 17<sup>th</sup> century Saia Hamed, Ph.D



In medieval times the soaps that were made in northern Europe by the action of wood-ash lyes on animal fats and fish-oils were soft soaps of unpleasant odour. They were used for cleaning textiles and clothes, and it is difficult to say whether it was widely used for personal washing. Personal cleansing by using hard soap was not a common practice in Europe and there is no reason to suppose much improvement in these matters before the middle of the eighteenth century.[5]

Syria was renowned for its hard soap, which was pleasant to use for toilet purposes. Archaeological excavations found soap works dating from the eighth century. [6] Geographers of the tenth century reported that Nabulus in Palestine was prominent in its soap exports. [7] Soap was manufactured in the other Mediterranean Arab-Islamic lands including Muslim Spain where olive oil was abundant. In 1200 AD Fez alone had in it 27 soap manufacturers. [8] In the thirteenth century, hard soap was imported by Europe from the Arab lands of the Mediterranean and was shipped across the Alps to northern Europe via Italy. [9]

No clear European description of how soap was made has survived from the mediaeval period. The earliest is contained in *The Secrets of Master Alexis of Piedmont*, written about 1547.[10]

In Arabic literature although we find short recipes in the early alchemical treatises of al-Razi yet until recently the only known detailed description was that of al-Antaki (seventeenth century)[11]. In this Brief Note we are presenting a newly discovered text from the thirteenth century describing soap making. It is given in Al-mukhtara` fi funun min al-suna` (Inventions from the Various Industrial Arts) [12] that was compiled by King al-Muzaffar Yusuf ibn `Umar ibn `Ali ibn Rasul (d. 694/1295) of Yemen. Since this description is for a Yemeni practice where olive oil is not produced, sesame oil is used instead.

#### **Hand Sanitizers**

- Although the public belief is that hand sanitizers may replace hand washing, the CDC recommends that hand sanitizers should not be used in place of soap and water but only as adjunct
- The first concerns about the importance of hand sanitizers as part of the infection control arose in mid-1800s

# Hand Sanitizers (alcohol based and non-alcohol based)

- Savior of mother
- Prof. Ignaz Semmelweis (Hungarian obstetrician
- Childbed fever
- Two departments
- Ward 1 for doctors and 2 for Midwives
- Ward 1was high in death incidence
- Ordered hand washing in a chlorine solution before examining women
   The Program Dedicated to Ignaz Semmelweis

who wished to save many lives with simple Hand washing





#### Skin Cleansers

- Skin cleansers are used to remove dirt, make up, environmental pollution, germs, and other type of soilage from the skin
- Facial cleansers
- Bath and shower products
- Hand cleansing products:
  - -Hand sanitizers

# What is the dirt that has to be removed?

## The skin becomes soiled with various solid particles which are stuck to it by the sebum:

- Skin scales: which have become loosened but not fallen away
- 2. Dust
- 3. **Soot:** fine particles of carbon from smoke
- 4. Salt and urea: left on the skin after the evaporation of sweat
- 5. Bacteria
- 6. Residues of cosmetics and make-up that were applied onto the skin
- 7. Other substances carried in the air, which vary depending on the geographical location and the environment

# What is the dirt that has to be removed?

- All of the mentioned substances stick to the thin, oily layer on the surface of the skin
- Water is repelled by the oil → Washing with water is not sufficient to cleanse the skin
- Soap or detergents are needed to remove the oily layer that contain the dirt

## Removal of grease from the skin:

## There are three ways of removing grease from the skin:

- Emulsify it with a soap or surfactant
   (example of products contain surfactants:
   shower gels, shampoos and cleansing lotions)
- Dissolve it with more oil: cleansing cream and body oils remove grease by dissolving it in oil
- 3. Absorb it with an absorbent material: Some cleansing masks is made from oil-absorbent powders such as kaolin

### 1.Soap as a cleanser:

- Soap is made by reacting animal and vegetable fats and oils with alkali
- Hard soap = sodium salt of fatty acids that are derived from either animal or vegetable sources
- Sodium stearate
- Soft soap (liquid soap)= potassium salt of fatty acids
- Soap name originates from Roman Legend
- History

## 1.Soap as a cleanser:

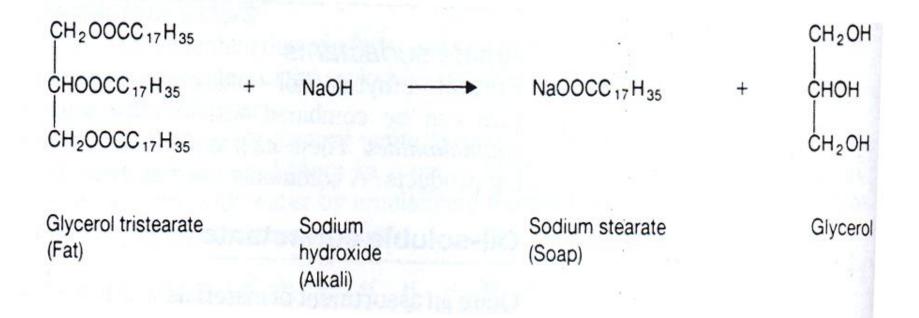
## Soft soap (liquid soap)



#### **Hard soap**

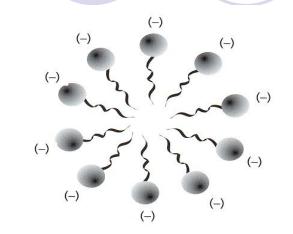


## Synthesis of soap:

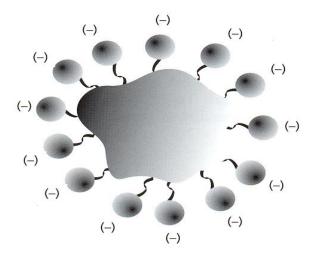


## How does soap work?

The soap particles 'coat' the fat droplets in which the dirt is embedded, and allowed them to be washed off the skin with water



A soap micelle.



A micelle coating a fat droplet.

## Disadvantages of regular soap:

- 1. In hard water they form a scum of an insoluble soap:
- Tap water (hard water) contains calcium and magnesium
- Soap + hard water -> Calcium and magnesium salts of fatty acids are formed
- Calcium and magnesium salts of fatty acids = salts that are not soluble ->
  - (a) stick on the skin surface and (b) may lead to irritation

## Disadvantages of regular soap:

in hard water they form a *scum* of an *insoluble* soap when they react with the substances in the water which make it hard:

CaSO<sub>4</sub> + 2C<sub>17</sub>H<sub>35</sub>COONa 
$$\rightarrow$$
 (C<sub>17</sub>H<sub>35</sub>COO)<sub>2</sub>Ca + Na<sub>2</sub>SO<sub>4</sub>  
Calcium sulphate Sodium stearate Calcium stearate Sodium (Water hardness) (soap) (Scum) sulphate

## Disadvantages of regular soap:

2. Because they are salts of a weak acid
(the fatty acid) and a strong alkali they
have a high pH (pH= 9-10)→ higher than
skin pH (pH= 4-6.5) → may cause skin
irritation

#### 2. Surfactants as cleansers:

- Water is not effective as a cleanser for greasy surfaces
- It is repelled by the greasy surface
- The surfactant is a molecule composed of two parts: part of the molecule likes water and part likes oil.
- With a surfactant the water will spread over the greasy surface and wet it

### 2. Surfactants as cleansers:

- Surfactants are used widely in cosmetic and toiletries formulations for their detergency, foaming, conditioning, solubilization and emulsification properties
- The selection of a surfactant for a cosmetics should take into account the functions to be fulfilled (detergency, emulsification, foam quality, mildness for skin, skin feel..etc)



 They contain polar (hydrophilic) and nonpolar (hydrophobic) regions in the same molecule

 The non-polar portion is usually a long chain (straight or branched) hydrocarbon



- The hydrophilic and hydrophobic parts of the molecules must be of comparable "strength"
- If the strength of either part overwhelms the other, the substance will have little or no surfactant property
- e.g. ethanol is strongly hydrophilic that it is completely water soluble
- e.g. stearic acid molecule is too hydrophobic which makes it insoluble in water

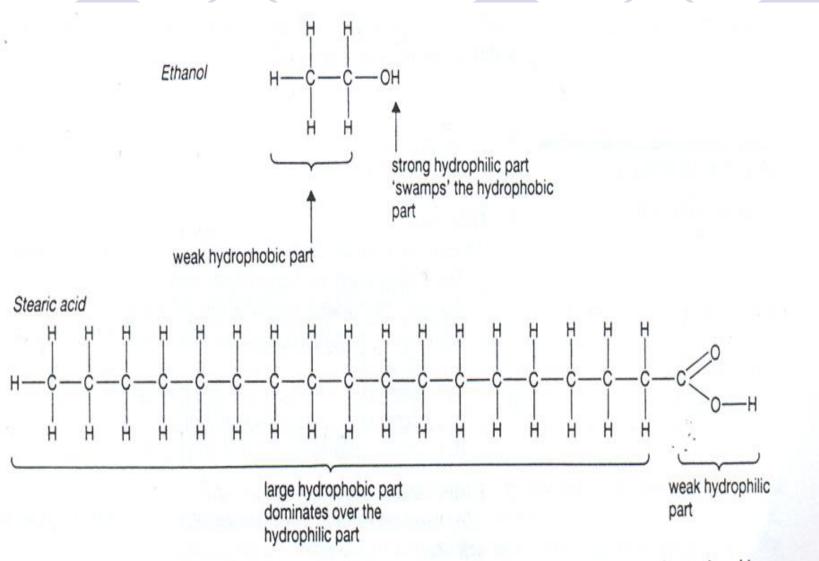


Figure 7.11 Comparison of the surfactant properties of ethanol and stearic acid

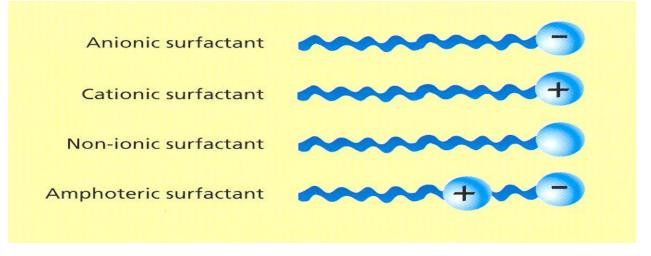
#### 2. Surfactants as cleansers:

Synthetic soaps (Soapless soap)
Made of surfactants (surface-active agents)

- May be in solids or liquids form
- There are four group of surfactants:

The nature of each group is determined by its chemical

charge:



Note: Sodium salts of fatty acids (Soap) = anionic surfactant group

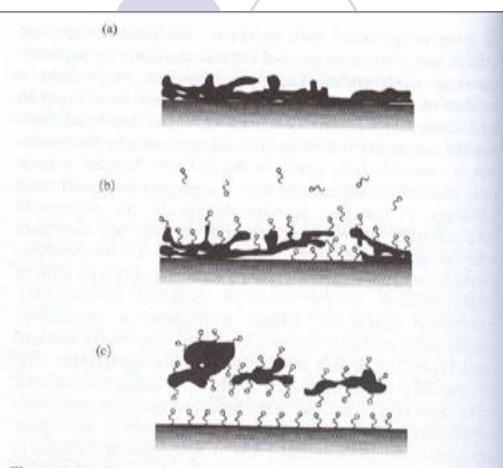


Figure 4.19 Illustrating detergent action. (a) Surface covered with greasy dirt. (b) Detergent is added to the solution. The surfactant molecules reduce adhesion of dirt to the surface when they are deposited with their hydrophobic tails on the solid surface or dirt particle. The dirt particles are thus more readily removed by mechanical action. (c) Dirt particles are held as a suspension by an adsorbed layer of surfactant. [The Estate of Irving Geis]

#### **Detergent:**

- Agent to remove dirt
- Many different detergent
- (mild, strong, ionic, nonionic)
- depending on type of dirt and surface

### Three properties of the detergent are essential:

- it must wet the surface
- It must displace dirt from the surface
- It must sollubilize the dirt in solution

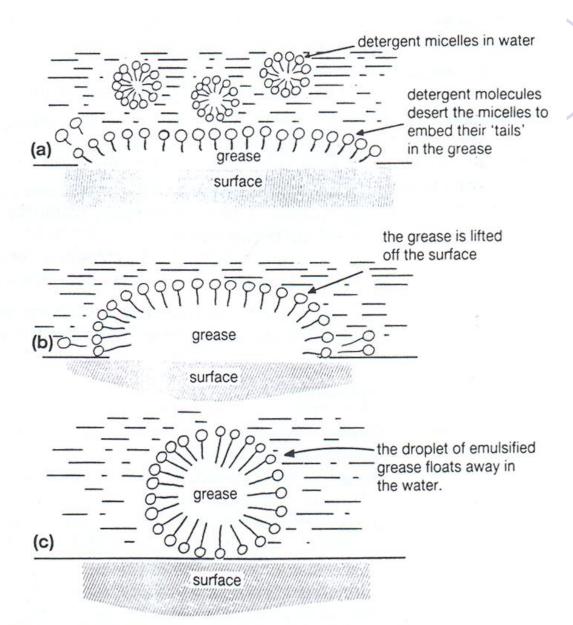


Figure 7.13 The cleansing action of a detergent

### The cleansing action of a detergent

- Cleansing process:
- 1. Wetting: the detergent reduces the surface tension of water so it is able to spread over and wet the greasy surface
- Emulsification: the detergent molecules embed their hydrophobic/lipophilic "tail" in the grease and gradually rise it off the surface
- 3. Rinsing: rinsing with clean water washes away the emulsified grease and loosened dirt to leave the surface clean
- The emulsification of the grease is helped by:
- a. Warm water to melt the grease and help it form into droplets
- Certain amount of agitation to move away the droplets of emulsified grease and bring fresh detergent to the surface to emulsify the next layer of grease

#### Surfactant classes

- Anionic
  - Sulfates, phosphates, carboxylates.
- Cationic
  - Quaternary ammonium salts
- Zwitterionic or Amphoteric
  - Amino Propionates, glycinates
- Nonionic
  - Ethoxylates

### ANIONIC SURFACTANTS

- SODIUM  $C_{12-15}$  PARETH-15-SULFONATE  $CH_3(CH_2)_{11-14}$ - $(OCH_2CH_2)_{15}$ - $SO_3$ Na A DETERGENT

#### CATIONIC SURFACTANTS

HEXADECYL(CETYL) TRIMELTHYL AMMONIUM BROMIDE

#### Cationic surfactant

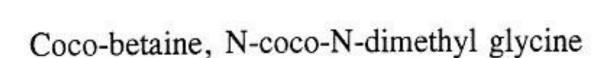
- Quaternary ammonium compounds
- Not good cleansers or emulsifiers and they do not foam well
- Valuable as:
- Conditioners for hair and textile fibers
- Have a bactericidal action (cetrimide is used in antiseptic/disinfectant products such as Savlon)

## AMPHOTERIC SURFACTANT

- In acidic conditions it is a cationic
- In alkaline conditions it is an anionic cocoamphoglycinate

```
O CH2CH2OH | RC - NH CH2CH2 - N + H | CH<sub>2</sub>COO -
```

## **Betaines**



$$CH_3$$
  
 $CH_3(CH_2)_{10} \rightarrow N^{\pm}CH_2COO^{-}$   
 $CH_3$ 

Betaines are used in baby shampoo and also used to build lather and viscosity in lauryl sulfate based shampoos.

## NONIONIC SURFACTANTS

SORBITAN ESTERS: Tweens, Spans

There are no incompatibility problems with other ingredients

#### Classification of Surfactants by functionalities (Table)

Table 1. Classification of Surfactants by Functionalities

Phosphate Esters Polyethylene Glycols Polyprovlene Glycols	Imadazolines Imadazoline Quats Lower Alcohol Ethoxylates	Fatty Acid Ethoxylates Glycerol Esters Higher Alcohol Ethoxylates	Amphoterics Benzyl Quats Block Co-polymers	Alkylphenol Ethoxylates Amine Ethoxylates Amine Oxides	Alkanolamides (2:1) Alkanolamide Ethoxylates Alkylaryl Sulphonates	Alcohol Alkoxylates Agricultural Surfactants Alkanolamides (1:1)	Chart 1 PRODUCT CLASSES
							RELEASE AGENTS
•			•		•		EMULSIFIERS
*	+	*	+				DETERGENTS
• • •						•	LUBRICANTS
	* *	* *			•		SOFTENERS
	•		•		•		WETTING AGENTS
			* *	• •	+		LEVELING AGENTS DISPERSANTS
	•		•	•			DISPERSANTS
			*		+		CORROSION INHIBITORS
	+		•				SOLUBILIZERS
* *						290	COUPLING AGENTS
	•			•			FOAMING AGENTS
						+	FOAM STABILIZERS
			•				DISINFECTANTS

#### **Functions**

- The most commonly desired properties for surfactants in cosmetic formulations include:
- Detergency
- Foaming
- Conditioning
- Solubilization
- emulsification

#### **Functions**

- Anionic surfactants is commonly chosen where detergency is the main consideration
- Amphoteric, also detergent, tend to be milder than anionics and thus more suitable for primary detergents in "mild" cleansing formulation
- Nonionics provide very poor foaming. They are most commonly used as solubilizers
- Cationics tend to be irritating at very low levels. Because their positive charge makes them substantive to damaged skin and hair, they are generally used as conditioners

#### Surfactants uses:

- In kitchen detergents
- In shampoos
- In bath and shower cleansers
- In facial cleansers





#### 2. Surfactants as cleansers:

 Dove soap is not actually soap but a synthetic surfactant bar (synthetic soap).

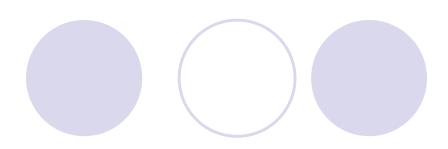


## Advantages of synthetic soaps (Surfactants):

 Usually cause less skin irritation than regular soap (depend on formulation and way of use)

 The pH of the synthetic soaps can be adjusted to that of normal skin by the addition of citric acid or lactic acid

## Lather and foam: How a foam forms



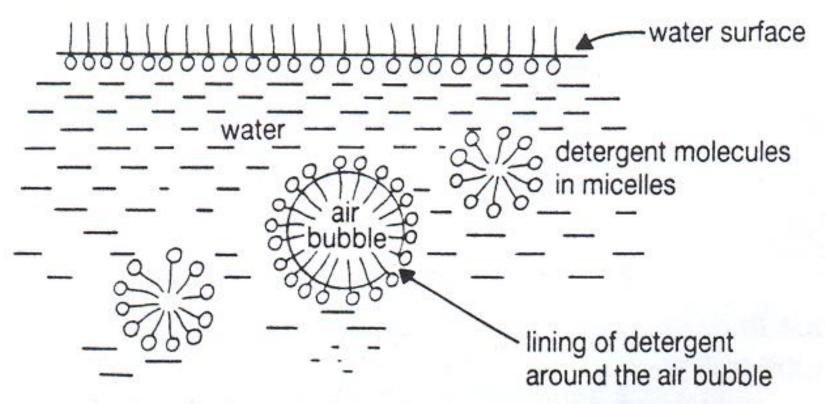


Figure 7.14 The formation of a detergent bubble

#### Lather and foam:

- Lather plays little or no part in the actual cleansing action of a surfactant
- In the following applications lather is not preferable:
- (a) In floor washing: the lather from a highlathering detergent cannot be washed away easily → special 'low-lather products are available

### Lather and foam:

- (b) In an automatic washing machine:
- The 'wash' stage of the program uses a high concentration of detergent in a small amount of water
- If a high-lathering detergent is used all the water will be incorporated in the foam leaving none to do actual washing
- A 'low-lather' detergent specially designed for automatic machine must be used

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- Useful purpose:
- 1. As an indicator that detergent activity remains
- 2.A foam may hold the cleanser on the surface. e.g. soap and water on the face or shampoo on the head
- A psychological indicator of cleansing power

# What does soap and cleansers contain other than the active ingredient?

- Moisturizers
- Preservatives
- Coloring agents
- Fragrances
- Antibacterial substances
- Substances that alter the pH (e.g. citric acid)
- Other ingredients

# What does soap and cleansers contain other than the active ingredient?

#### Moisturizers:

- Soaps and cleaners tend to remove the oily layer on the skin surface
- It removes both the oil containing the dirt particles and some of the natural oily layer and lipids on the skin → skin dryness and irritation
- Moisturizing agents such as: glycerin, lanolin, and various vegetable fats are added to counteract the drying effect of soap

#### **Hints:**

The action of soap and rinsing with water remove moisturizers from the skin surface

if you have a tendency to dry skin > Do not rely on the use of soaps containing moisturizers

Use moisturizing creams or lotions after washing with soap

- Soaps for use on oily skin contain either minimal amounts or no moisturizing agents
- Oily skin and someone with acne 

   need for moisturizing soap unless for acne
   if you use irritating product
- Dry skin → use soap with moisturizer

#### Transparent soap:

- Contain a higher concentration of glycerin
- The high glycerin content gives the soap its transparent appearance
- Considered mild soap





#### Antibacterial substances:

- 'antibacterial soaps' usually contain antibacterial substances such as triclosan
- Some of these substances remain on the skin surface after washing and inhibit the growth of bacteria
- Uses:
- Prevent body odor
- For acne (contain benzoyl peroxide as an antibacterial agent)
- For infection of hair follicles
- Following exposure to dirt or any source of contamination

#### Other ingredients:

- Such as vitamins and a variety of natural ingredients
- These additives are of no documented medical value

#### Hints:

(a) Soap is in contact with the skin for a brief period only and (b) those additives would be quickly washed off the skin

- 'Mild'/hypoallergenic soap:
- (a) For people with sensitive skin and for infants
- (b) Usually contain no fragrances and coloring agents
- C) Usually contain certain type of surfactant from the betaine group (amphoteric surfactants) that are known to be relatively mild and do not tend to cause stinging of the skin or eyes

## Soaps versus Soapless (Surfactant) cleansers

#### **Differ in:**

(1) Their behavior in hard water:

#### Soap + hard water →

- fail to lather and will have no cleansing action
- and soap scum form a sticky deposit on surfaces and is difficult to rinse away

Soapless detergent (surfactant) + hard water >
form lather and will not form scum

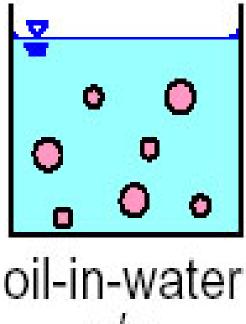
## Soaps versus soapless cleansers

(2) The pH of soapless cleansers can be adjusted to that of normal skin → cause less skin irritation

# lotions and liquid preparations for facial cleansing

#### lotions and liquid preparations for facial cleansing: oil in water emulsion

- They are composed of oils, water, and cleansing substances (surfactants)
- Oil in water emulsion: the oil is in the form of droplets and the water form the continuous phase
- Baby oil can be used as cleansers → disadvantage: difficult to remove from the skin



## lotions and liquid preparations for facial cleansing:

- oil in water emulsion
- The oil mix and dissolve the grease on the skin so that it is removed when the cream is wiped away
- Easily wiped off the skin because they are water-based
- Can be used away from bathroom situation
- The difference between a cream and a liquid emulsion is in their degree of viscosity

# lotions and liquid preparations for facial cleansing: oil in water emulsion

 Fresh-up pads or tissues: are tissues impregnated with cleansing lotion and stored in air tight containers



## What possible advantages are there in creams and liquid preparations for facial cleansing?

- Remove make up preparation more easily
- Are more appropriate for people with dry skin because they contain oils



## Cleansing cream should not be used as moisturizing cream:

- They should be removed from the skin as soon as possible since they contain surfactant that may cause skin irritation if left on the skin
- Thus, it is preferable to wash cleansing creams and emulsion with water and not just wipe them off the skin with a tissue.

## **Iotions and liquid preparations for facial cleansing: Abrasive cleansers (Scrub)**

- Abrasive cleansers are creams or emulsions designed for cleaning the face by containing tiny granules
- By massaging the cream over the face → help remove the outermost layer of the skin

#### Note:

- healthy normal skin does not require such treatment because the outermost layers of skin are normally peeling off and do not need any assistance doing so
- There is a possibility of damage to the epidermis if these abrasive cleaning rubbed vigorously (rub gently)
- This type of cleansing should not be carried out more than once a week

## Iotions and liquid preparations for facial cleansing: Solutions of surfactant in water

- No oil phase
- Useful on greasy (oily) skin
- Typical formulation:

Ingredients	Percentage
Surfactant	5%
Water	93%
Perfume, color, preservative	q.s.



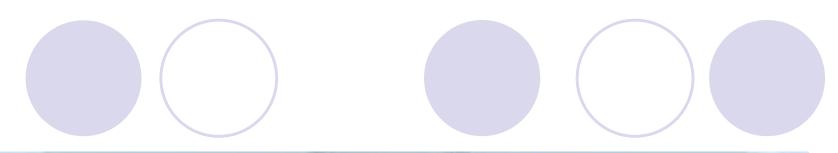












## Softsoap

Enjoy Softsoap® Fresh Breeze hand soap, with a light fresh scent, for clean and fresh hands. Utilisez le savon pour les mains Softsoap® Fresh Breeze au parfum frais et léger pour des mains propres et fraîches.

Avoid contact with eyes. In case of contact, flush with water. Éviter tout contact avec les yeux. En cas de contact, rincer abondamment à l'eau.

INGREDIENTS: aqua/water/eau, sodium laureth sulfate, cocamidopropyl betaine, sodium chloride, cocamide MEA, parfum/fragrance, sodium salicylate, sodium benzoate, citric acid, tetrasodium EDTA, sodium sulfate, polyquaternium-7, PEG-18 glyceryl oleate/cocoate, poloxamer 124, blue 1, red 33

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#### Natural Olive Oil Soap: Face, Hair & Body Bar

Our renowned Luxury Nabulsi natural olive oil soap using fully boiled ancient tradition of the famous city of Nablus for fine soap making. Our bath and beauty soap is made from base oil of olive of the holy land and Mediterranean, scented either naturally or with pure essential oils, Contains 82% fatty acid plus 15% humidity, neutral (neither alkaline nor aciditized) supremely good for moisturizing all the skin types. Vitamin E and natural glycerin are included as natural preservatives. The soap bar leaves skin soft and hair silky rich. Highly regarded for ultra-sensitive and damaged skins for its gentle and healing properties. It strengthens hair roots and help in rejuvenation of scalp cells and prevention of spilt ends. Soap is PH tested and not animal tested. Free of chemical, artificial colors and odors. Ingredients: Saponified olive oil, aqua and glycerin

صيابون نابلسي فاخر من زيت الزيتون الطبيعي باستخدام الطريقة الساخنة التقليدية القديمة نسرية ألى مدينة نابلس الشهورة عاليا كصناعة عريقة وأصيلة. صابون الاستحمام للعناية بالجمال الطبيعي. منتج من زيت زيتون الأراضي المقدسة ومنطقة البحر الأبيض اللتوسيط. ذي العطر الطبيعي أومزيج من عطورالزيوت الطبيعية. ومن خواص هذا الصابون احتوائه على أحماض دهنية أ٨٪ ورطوبة ١٥٪ متعادلاً لا قلوباً ولا حامضياً. ويعتبر الصابون الأمثل لترطيب جميع أنواع البشرة يحتوي على مادتي فيتامين E والجلسرين الواقيتين والملينتين للبشرة. الصابون ملطف ومغذي للبشرة والشعر. مثالي لذوي البشرة الحساسة والجافة نظرا لخواصة الصحية والطبيعية. يقوي جذور الشعر ويسأعد على تجديد خلايا فروة الرأس بالاضافة الى حماية أطراف الشعر من التكسير. ثم فحص ال PH و لم يتم اختباره عا الحيوانات. خالى من المواد الكيماوية والملونات والعطور الاصطناعية



- The use of mixtures of parabens: lower individual levels and higher preservative efficacy
- Summary of main findings:
- CIR initially reviewed the safety of most commonly used parabens in 1984 and concluded that they were safe for use in cosmetics at levels up to 25% (typically used in lesser than 1%)

In the early 21<sup>st</sup> Century the CIR reexamined the safety of parabens due to increasing concerns regarding safety. A study in 2004 linked parabens to breast cancer based on animal experiments (estrogen like properties of parabens). The study has sever limitation and rejected by most cancer research organizations

- Studies have shown that even the most potent paraben (butyl paraben) produces an estrogen like activity 10,000-100,000 times weaker than the that naturally produced estrogen
- In 2006 CIR concluded that there is no need to change its original conclusion from 1984

• In 2011 the European Commission's Scientific Committee on Consumer Safety (SCCS) also investigated the safety of parabens. It concluded that methylparaben and ethyl paraben were safe at current levels (0.4% if used alone or 0.8% if used in combination

- It recommended that the levels of propylparaben and butylparaben (the two most potent parabens) should be reduced so that the sum of their individual concentration does not exceed 0.19%
- As for other parabens, it stated that human risk cannot be evaluated due to lack of data

- In Denmark, the government introduced a ban on 15-3-2011 against the use of propyl and butylparaben in cosmetic products aimed at children under 3 years old.
- The Danish ban triggered a new SCCS assessment which led to a ban on parabens in leave on products for the nappy area in children under 6 months old

• Although no studies have confirmed the potential risk of using parabens on human health, the claims that they can cause breast cancer and endocrine disruption have been widely spread, forcing cosmetic manufacturers to remove this ingredients from their formulations.



#### EU bans five parabens, restricts triclosan in cosmetics

10 April 2014 / Europe, Personal care

The European Commission has amended Annex II of the EU cosmetic Regulation, adding five parabens to the list of substances prohibited in cosmetic products.

#### They are:

- » isopropylparaben;
- » isobutylparaben;
- » phenylparaben;
- » benzylparaben; and
- » pentylparaben.

The Commission amendment, which was published in the Official Journal, also restricts triclosan to a maximum concentration of 0.2% in mouthwashes, and 0.3% in other cosmetic products such as toothpastes, handsoaps and face powders.

Finally, hydroxybenzoic acid and its salts and esters (other than the esters of isopropyl, isobutyl, phenyl, benzyl and pentyl) are limited to a maximum concentration of 0.4% as acid for a single ester in ready for use preparation and 0.8% for mixtures of esters.

Manufacturers of cosmetic products which do not comply with the new rules can still market them in the EU until 30 October. All products circulating on the market will have to comply from 30 July 2015.

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### Ingredients causing safety concerns: Triclosan

- Antibacterial in personal care products (cleansing, deodorant, toothpaste)
- Not clearly demonstrated that triclosan is clinically beneficial for patients.
- Studies have found that triclosan does not have any added benefit over nonantibacterial hand soaps in reducing bacterial counts on hands

# Ingredients causing safety concerns: Triclosan

- Differences were seen only if the hands were washed for a longer time with soap containing relatively higher concentrations of triclosan
- A further concern is that it may contribute to development of antimicrobial resistance → burden as well as high cost in healthcare
- May have hormonal effects

# Ingredients causing safety concerns: Triclosan

 Triclosan is currently under the radar of the FDA which is reevaluating its safety and efficacy in antibacterial cleansing product

# FDA FINALLY BANS TOXIC TRICLOSAN

After years of research and countless consumer complaints, the FDA has banned triclosan because its risk outweighs reward.

why its bad

**Allergies** 

alters the bacterial flora on the skin and within the stomach, leading to sensitivity and allergies

**Hormone Problems** 

changes testosterone and thyroid blood levels, hinders estrogen receptors

Cancer

turns into dangerous cancer causing dioxins when broken down in the body



FamilyHealthChiropractic.com

On September 9, 2016, the United States Food and Drug Administration (FDA) banned the incorporation of triclosan and 18 other antimicrobial chemicals from household soap products and the next year prevented companies from using triclosan in over-the-counter health care antiseptic products without premarket review.

These decisions were made after manufacturers failed to provide the FDA conclusive proof that triclosan was safe and effective in light of research suggesting concern over hormonal effect and the potential long-term public health risk triclosan use presents.

- also known as Sodium dodecyl sulfate,
   Sodium Lauryl Sulfate
- Irritative ingredient may cause dermatitis
- May irritate the eyes and mucous membranes
- Used as a positive control in studies evaluating the irritation potential of chemicals
- Heavily disposed on the skin and hair follicles which may lead to damage and hair loss

Concerns:

Potential penetration through the skin Comedogenic potential Carcinogenicity???

#### SO

The safety of SLS has been reviewed by EPA, CIR Expert Panel (1983,2005) and



- Major findings:
- Studies on rat skin found heavy deposition of SLS on the skin surface and in hair follicles. It has been reported that 1-5% SLS produced significant number of comedones in rabbits

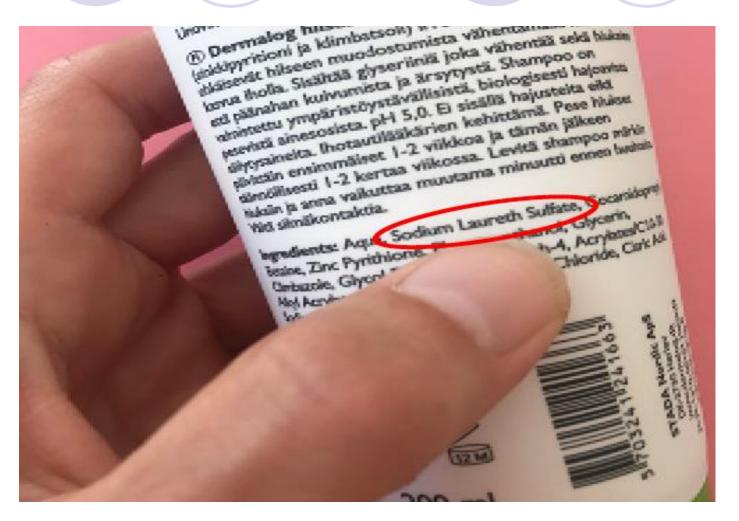
- Animal studies did not show SLS to be carcinogenic, however, it has been shown that it causes sever epidermal changes to the area of the skin to which it was applied
- SLS can cause skin irritation in some users. This effect is dependent on the level and duration of exposure



 SLS appears to be safe when used for short periods of time followed by thorough rinsing off the skin surface

 In leave-on products, concentrations should not exceed 1%

#### Sodium Laureth Sulfate (SLES)



# Ingredients causing safety concerns: Microbeads

- Tiny particles used in scrubs
- Can be natural or synthetics (plastics)
- Plastics beads lead to environmental concerns
- Travel through wastewater system→ go through preliminary treatment screens and enter oceans

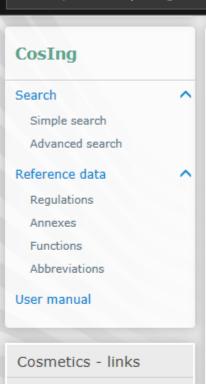
**Ingredients:** 

Aqua / Water, Cyclopentasiloxane, Isohexadecane, Argania Spinosa Oil / Argania Spinosa Kernel Oil, Benzyl Alcohol, Benzyl Salicylate, Butyl Methoxydibenzoylmethane, CI 60725 / **Violet 2, Decyl Glucoside, Dipotassium Phosphate, Disodium EDTA**, Ethylhexyl Methoxycinnamate, Geraniol, Haematococcus Pluvialis / Haematococcus Pluvialis Extract, Hexylene Glycol, Limonene, Linalool, Pentaerythrityl Tetra-Di-T-Butyl Hydroxyhydrocinnamate, Polyaminopropyl Biguanide, Potassium Phosphate, Sodium Chloride, Parfum / Fragrance



# https://ec.europa.eu/growth/tools-databases/cosing/index.cfm?fuseaction=search.results

https://ec.europa.eu/growth/tools-databases/cosing/index.cfm?fuseaction=search.details\_v2&id=75413



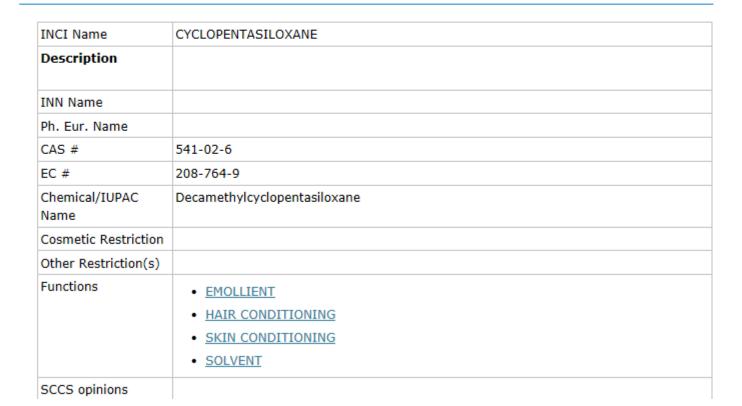
News

Events

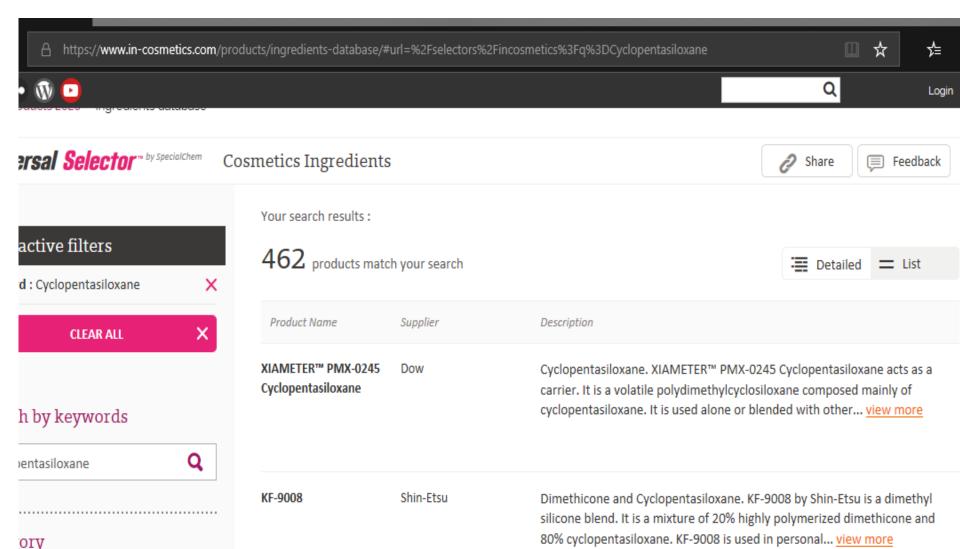
Contracts and grants

**Public consultations** 

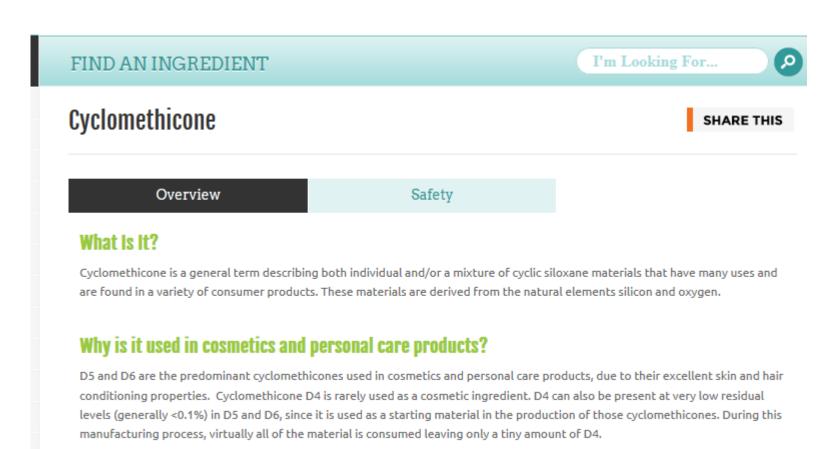
#### Ingredient: CYCLOPENTASILOXANE



#### https://www.incosmetics.com/products/ingredientsdatabase/



#### https://cosmeticsinfo.org/search/node/ Cyclopentasiloxane



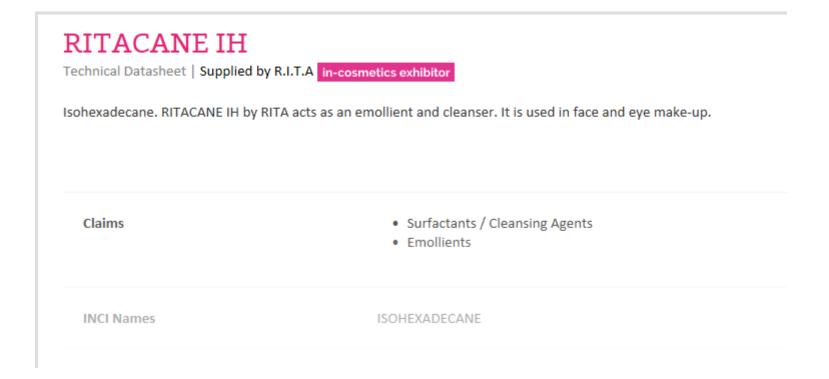
Cyclomethicone ingredients are used in cosmetic products where eventual complete evaporation of the siloxane carrier fluid is desired. In this way they are useful for products like decorants and antiperspirants that peed to coat the skin but not remain tacky.

# https://ec.europa.eu/growth/tools-databases/cosing/index.cfm?fuseaction=search.details\_v2&id=34654

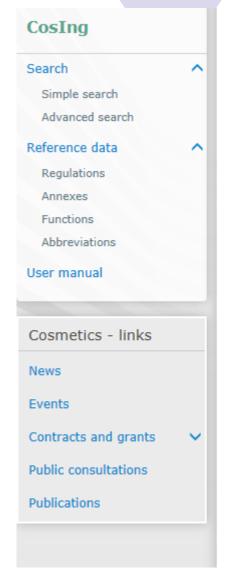
#### Ingredient: ISOHEXADECANE 7/2

INCI Name	ISOHEXADECANE
Description	Hydrocarbons, C4, 1,3-butadiene-free, polym., tetraisobutylene fraction, hydrogenated
INN Name	
Ph. Eur. Name	
CAS #	93685-80-4
EC #	297-628-2
Chemical/IUPAC Name	
Cosmetic Restriction	
Other Restriction(s)	
Functions	EMOLLIENT     SKIN CONDITIONING     SOLVENT

#### https://www.in-cosmetics.com/products/ingredients-database/#url=%2Fproduct%2Fi-rita-ritacane-ih



#### https://ec.europa.eu/growth/tools-databases/cosing/index.cfm?fuseaction=search.details\_v2&id=28326

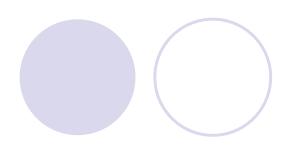


#### Substance : Benzyl salicylate ங

Substance	Benzyl salicylate
CAS #	118-58-1
EC #	204-262-9
Name of Common Ingredients Glossary	BENZYL SALICYLATE
INN/ISO/AN	
Regulation	(EC) No 1223/2009
Regulated By	2003/15/EC
Other Directives/Regulations	
Annex/Ref #	III/75
Product Type, body parts	
Maximum concentration in ready for use preparation	
Other	The presence of the substance must be indicated in the list of ingredients referred to in Article 19(1)g when its concentration exceeds: -0.001% in leave-on products -0.01% in rinse-off products







#### **Ingredients**

Water, Glycerin, PEG-200
Hydrogenated Glyceryl Palmate,
Butylene Glycol, Sodium Lauroyl
Sarcosinate, Acrylates/Steareth-20
Methacrylate Copolymer, PEG-7
Glyceryl Cocoate, Sodium Laureth
Sulfate, Phenoxyethanol, Masking
Fragrance, Panthenol, PEG-60
Hydrogenated Castor Oil, Disodium
EDTA, Methylparaben





- https://ec.europa.eu/growth/toolsdatabases/cosing/index.cfm?fuseaction=a pp.welcome
- https://www.incosmetics.com/products/ingredientsdatabase/
- Cosmeticsinfo.org
- https://www.cir-safety.org/ingredients

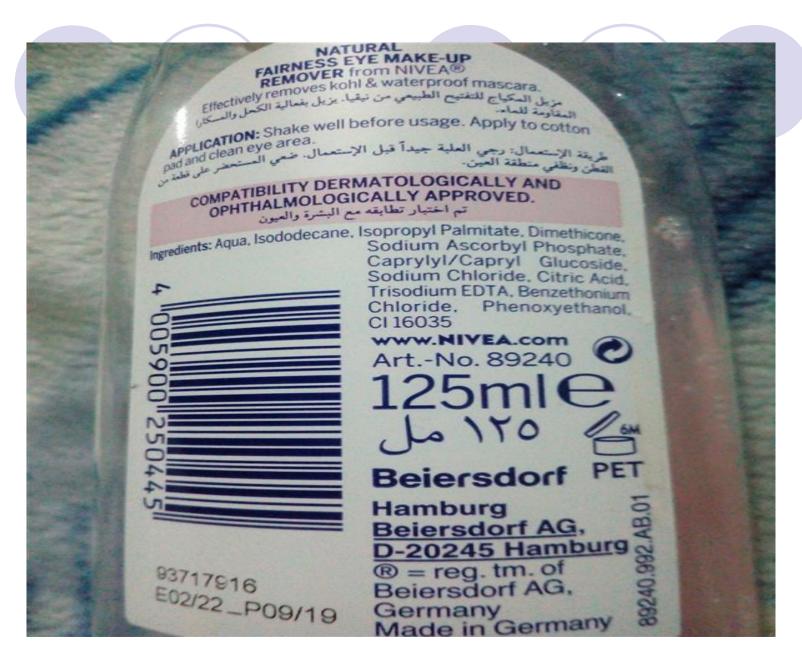


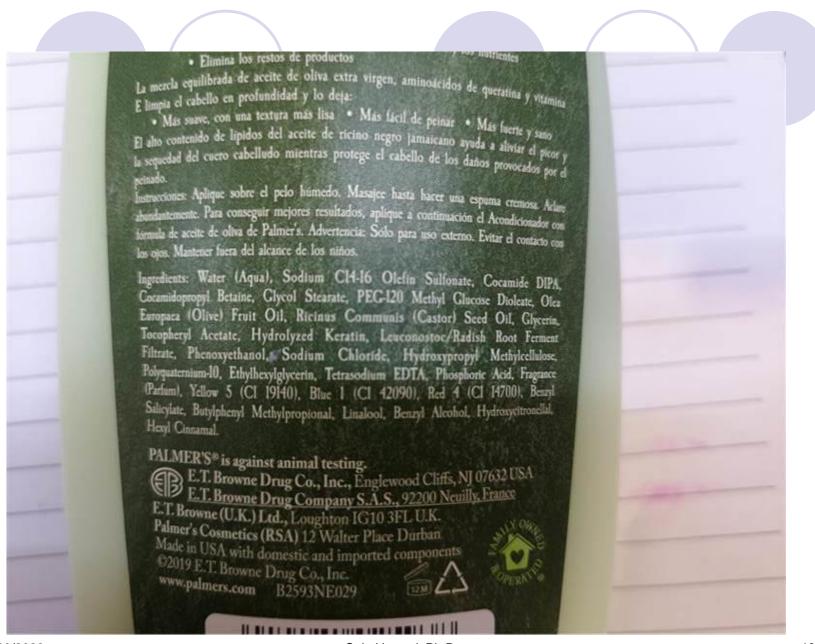














PHARMACIST KENAN ALPAY

The Bio Balance Product Philosophy is developed by pharmacist Kenan Alpay and backed by his more than 30 years of pharmacy experience.

#### DERMASOOTHE"

Thanks to its effective combination of Bisabolol and an Amino Acid Complex, the delicate soothing effect of Dermasoothe gel helps improve the skin's natural barrier function and reduces redness, stinging and sensitivity.

Its selected active ingredients – Panthenol, Vitamin E, Glycerin, Allantoin and Aloe Vera – help restore lost moisture to calm and soothe sensitive skin.

The soap and oil-free formula gently cleanses deep down into pores by removing dirt, impurities and makeup.

The soft foam rinses off easily, leaving behind no residue to clog pores.

#### **OUR ACTIVE INGREDIENTS**

BisabololAllantoin

Givcerin

- · Amino Acid Complex
- Panthenol

- Aloe Vera Extract
- Vitamin E

#### **HOW TO USE**

Use daily. Wet hands and face. Massage gently onto face and neck twice a day. Rinse thoroughly with lukewarm water and pat dry with a soft towel.

WARRAINGS. For external use only. Avoid eye contact. If eye contact occurs this thoroughly with water. Keep out of reach of children. Do not indest.

Keep the product cool, dry place and away from direct sunlight. Keep the lid tightly closed.

TESTED DERMATOLOGICALLY





Saja Hamed, Ph.D. PAYA

www.biobalance.com.tr







