How to Make Skin Cleansers

When talking about skin cleansers most people are then thinking of bar products, either based on soap or synthetic detergents (syndets). However, there are now a large variety of other types of skin cleansing products that represent other types of usage and vary greatly from market to market depending on patterns of cleansing habits or also makeup usage.

When classifying skin cleansers one has to consider many factors including their physical nature, chemistry, functionality, and last but not least, the various "soils" on the skin that need to be cleansed such as, for example, sebum, residue from moisturizers, or waterproof makeups. The following table gives a short overview of the various types of skin cleansers.

Classification of Skin Cleansers

Cleansers are ranked based on their chemistry and functionality. On top (oils) are cleansers that are most gentle to skin, have emollient properties and are oleophilic. At the low end (bar soaps) are cleansers that show highest cleansing activity, have foaming and astringent properties and are hydrophilic.

1. Oils (mineral oil, natural oils)
2. Water-in-oil lotions / creams
3. Oil-in-water lotions / creams (non-foaming)
4. Oil-in-water lotions / creams (mild-foaming)
5. Fatted bar soaps
6. Alcohol-water solutions
7. Bar soaps, liquid detergents, scrubs

Oils (water-free, oily cleansers)

Mineral oils, petroleum jelly, vegetable oils and esters are typically used as non-drying skin cleansers for removal of waterproof make-up and oil-soluble soils such as sebum and residues from moisturizers. The disadvantage of these cleansers is that they are not readily rinsible. Nowadays, more sophisticated products contain esters or oil-soluble surfactants to make the product less greasy, more rinsible, and more pleasant. In addition, oil-cleansers are also often formulated as thicker solutions (gels) which are easier to spread and can be tissued off.

Typical Formula of an Oil-Cleanser

	Wgt. %
• Triglyceride (capric/caprylic)	12 %
• Mineral oil / vegetable oil	6 %
• O/W emulsifier (e.g. polysorbate 80)	82 %

Water-in-Oil Emulsions: Cold Creams

W/O-emulsion creams and lotion formulas are usually typified by cold cream. Cold creams leave behind a moisturizing film, but are generally not rinsible and are considered greasy and need to tissued off the skin. However, cold creams can now be formulated to become more rinsible by adding specific, non-ionic emulsifiers.

Typical Formula of a W/O Cream

	Wgt. %
• Ester emollient (e.g. decyl oleate)	12.5 %
• White beeswax	12 %
• Mineral oil /vegetable oil	56 %
• Borax	0.5 %
• Water	19 %

Melt beeswax on a steam bath, add oil and ester and continue heating until the temperature reaches 70°C. Dissolve borax in water, warmed to 70°C, and gradually add the warm solution of the melted mixture, stirring rapidly and continuously until it has congealed. Pour into jars at 50°C and cool.

Oil-in-Water Emulsions: Cleansing Milks

Non-foaming O/W emulsions with greater than 50% water phase are typically referred to as cleansing milks. The primary cleanser is a surfactant (e.g. coco betaine) supplemented by an non-ionic or anionic emulsifier. Cleansing milks differ from moisturizing lotions in that they generally have less water, more surfactants, and higher levels of a secondary, W/O- emulsifier (e.g. sorbitan stearate).

Typical Formula of an O/W Lotion

Phase A	Wgt. %
• Water	56.2 %
• Xanthan gum	0.4 %
• Coco betaine	25 %
• EDTA	0.4 %
• Paraben-DU	0.6 %
Phase B	
• Sorbitan stearate	3 %
• Ceteareth-20	3 %
• Cetyl alcohol	2 %
• PEG-7 glyceryl cocoate	3 %
• Sulfosuccinate	3 %
• Stearic Acid	3 %
Phase C	
• Fragrance	0.4 %

Dissolve xanthan gum in water, heat to 65°C. Add coco betaine, paraben-DU and EDTA. Premix phase B and heat to 65°C. Add B to A with good mixing. Cool to 45°C. Add fragrance.

Astringents and Toners

Astringents and toners have a very specific formulations. They are hydroalcoholic solutions with alcohol content of 20-70%. They often contain an emollient or humectant to decrease their defatting of the skin. Toners are generally used on oily skin and/or to make the skin clean in perparation for the use of a moisturizer.

Typical Formula of an Astringent

	Wgt. %
• Water	50.9 %
• Ethyl alcohol	40 %
• Glycerin	4 %
• Sorbitol (70%)	2 %
• Menthol	0.1 %
• Witch Hazel Extract	3 %
• Fragrance / Color	q.s.

Dissolve menthol in alcohol. Add fragrance, water and other ingredients. Blend at room temperature.

Scrubs and Exfoliating Creams

Scrubs contain particulate materials in order to remove loose flakes of the horny layer of the skin and to polish the skin. There are a large variety of such particles which typically are from natural sources (e.g. crushed walnut shells, seeds from various plants), but can also be synthetic (e.g. polyethylene beads). The newest, most sophisticated exfoliant are tiny beads made of pure Jojoba. They are less harsh, non-occlusive and non-commedogenic. Typically, exfoliant particles are incorporated into O/W emulsions (if non-foaming) or gentle pastes (if foaming).

Typical Formula of a Scrub Cream

Phase A	Wgt. %
• Jojoba oil	20 %
• Decyl oleate	10 %
• Sorbitan stearate	4 %
• Ceteareth-20	3 %
• Glyceryl oleate	1 %
Phase B	
• Water	54.5 %
• Paraben-DU	0.5 %
Phase C	
• Fragrance	2 %
• Jojoba Pearls	5 %

Heat A to 70oC. Heat phase B to 75oC. Add phase B to A with stirring and cool to 40oC. Add phase C and mix thoroughly.

Sources:
Williams D.F. Chemistry & technology of the cosmetics and toiletries industry. Chapman & Hall, page 116-122

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