



HOW TO FORMULATE A SHAMPOO?

Personal care requires a range of products for maintaining good hygiene. For cleaning and washing hairs, shampoo comes to the rescue. Supermarket aisles are full of options of different shampoo but when you analyze, all these shampoo products have a similar list of ingredients.

It has been expected that the global market of shampoos might reach up to \$1.48 Billion by the year 2024 (1). So, if you are interested in starting a small-scale shampoo manufacturing business, you can get the advantage of this booming market. To start, you need to have an understanding of what shampoo is made of you and what are its different uses. We will discuss different types of shampoos and how to cater to different hair needs.

What is a Shampoo?

Shampoos are cosmetic products generally in solution form designed for a particular reason, cleaning of hairs. Surfactants are the main ingredient of shampoo. They can surround the oil molecules so that they can be rinsed off later with water. The simplest form of a formulation is the solution. Therefore, if you are just starting in personal care products, shampoos are the easiest to start with as you just need to mix all the ingredients (2).

What are the main ingredients of a Shampoo?

The majority of shampoos have the following main ingredients in different proportions:

1. Water: Almost 80% of the shampoo is made up of deionized water, often listed on the product as “aqua” or “aqua” (3).

2. Surfactants: Also known as detergents are the main cleansing ingredient of shampoo and make up 10 to 20% of it. Examples of commonly used surfactants include sodium Laureth sulfate, sodium lauryl sulfate, ammonium Laureth sulfate, and ammonium lauryl sulfate. Decyl Glucoside and Lauryl Glucoside are used in herbal preparations (4).

3. Foaming agents: They make up 5 to 10% of the shampoo and are added to aid the surfactants. Additionally, they make lather or foam. Cocamidopropyl Betaine is present in many of the shampoo formulations (1).

4. Conditioners: 2-in-1 shampoos come with the benefit of both cleansing and conditioning the hairs. Silicones, polymers, and quaternary agents are normally used to give moisturizing effects and also lessens the harsh effects of the surfactants. The conditioning agents are present in a quantity of 0 to 1%. Commonly used silicones are Cyclomethicone and dimethicone, polymers are guar hydroxypropyltrimonium chloride, and polyquaternium-10, and the quaternary agent is Quaternion 80 (5).

5. Thickeners: the thickness of the shampoo can be increased with the use of secondary detergents or with the addition of salts. Cellulose polymer and synthetic polymers are also used as thickening agents (2).

6. Preservatives: To avoid shampoos from getting any bacterial growth preservatives are added into the formulation. The most common preservatives are parabens (methylparaben, or propylparaben), 1,3-dimethylol-5,5-dimethyl (DMDM) hydantoin, Quaternium-15, sodium benzoate, or formaldehyde. These are present in a quantity of 0.001-1% (5).

7. pH adjusters: Citric acid is commonly used to maintain the pH of shampoos at an acidic level (less than 5.5) because the negative charge on the hair reacts with acids and results in smooth hair (1).

8. Opacifiers: These agents give shampoos a gloss and pearlescent appearance. Glycol Distearate is used in very small quantities to achieve this look (5).

Types of Shampoos:

Although the main function of shampoo is to clean hairs but more often, shampoos are manufactured keeping in mind to serve additional functions as well.

1. Clarifying Shampoos: This shampoo is designed for those people who usually have a heavy build-up of grease and oil and other hair styling products like hair spray in their hair. The formulation has a high quantity of heavy surfactants to get rid of excess oil in the hairs (6).

2. Anti-Dandruff Shampoos: The focus of these types of shampoos is more on the scalp than on the hair itself. It contains ingredients that have antimicrobial and antifungal activities along with soothing properties. The common ingredients used are salicylic acid or willow bark extract, aloe vera powder, and tea tree oil (7).

3. Dry Shampoos: Although they are called shampoos, their main function is to absorb excess oil from the hair instead of cleansing the hair. Therefore, dry shampoos also differ in their composition and formulation as well. The formulation of dry shampoos usually consists of absorbents like starch, talc, or Kieselguhr and it does not require any water. These dry shampoos come in handy when you need to go out and do not have time to wash your hairs (8). Liquid shampoos are not your only option. Many companies now make dry shampoos too. These types of shampoo were originally used in hospitals and medical facilities to clean the hair of patients in comas and those who could not get out of bed.

Dry shampoos come in powder and aerosol form. Apply it to the roots and massage in with your fingers. It absorbs the natural oils that your hair produces and leaves behind a nice scent that hides odors like cigarette smoke and cooking smells.

4. Everyday Shampoos: These shampoos are formulated keeping in view the need of individuals to wash hairs daily. Washing hairs daily with a clarifying shampoo although cleanse the hairs but also make them frizzy, brittle, and easy to break. Therefore, these everyday shampoos contain mild surfactants that clean the hair without stripping them off their natural oils daily (9).

5. Detangling Shampoos: The formulation contains conditioners that triple as emulsifiers, detanglers, and conditioning agents. Ingredients used in the detangling formulation are Behentrimonium methosulfate, guar hydroxypropyltrimonium chloride, Cetrimonium chloride, Cetrimonium bromide, and Behentrimonium chloride (10).

6. Organic Shampoos: Most of the shampoos available are formulated with synthetic chemicals like silicones, parabens, sulfates which can cause allergies and irritation and can make skin sensitive. A better alternative is to formulate shampoos with 100% organic ingredients like essential oils and organic botanicals. These organic shampoos contain extracts from the plants that are not harsh on the hairs and scalp and helps in making hairs stronger. Natural surfactants are used in organic shampoos like coco glucoside obtained from coconut oil and fruit sugars (9,11).

7. Keratin Shampoo Can be used for limp locks and dull or lifeless hair. They are specifically designed to boost volume; these shampoos contain natural and chemical ingredients that restore protein to your hair. This gives you the appearance of stronger and thicker hair. It is also a good choice for dry or damaged hair too.

8. Moisturizing Shampoo Dry hair can occur because of genetics, heat damage or because of the products that you use. Moisturizing shampoos get your hair all the moisture it needs. These shampoos may have a light and refreshing scent, but unscented products are also available. With more moisture, your hair will look shinier and feel silkier.

9. Chelating Shampoo Chelating shampoo is one of the more unique products you might come across. Swimmers often use chelating shampoo because it reduces the damage that chlorine does to their hair. Chlorine can bleach the hair and weaken the follicles, which causes the hair to break off. Chelating shampoo is also a good choice for those with hard water. Chelating shampoos remove minerals and chemicals to make your hair look and feel healthier.

10. Shampoo and Conditioner Products that boost volume and deliver the moisture that hair needs. A dime-size dollop of the shampoo and conditioner hydrates and cleanses your hair.

The Takeaway

Starting a small-scale shampoo business is not impossible in this modern era. All you need is to make understanding how all the ingredients of the shampoo perform their function and they interact with each other. You can easily find several shampoo formulations on the internet to start with. You can also hire a freelance cosmetic chemist to get more ideas about different formulations. Similarly, ingredients can be sourced online as well. If you are just beginning, it is better to source ingredients in smaller quantities.

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