

Shampoo

Hair shampoos are highly formulated products based on a limited range of cosmetically acceptable surface active agents, plus conditioning agents, pearling agents, antimicrobials, colours and fragrance.

There are a number of possible ingredients that may be used in hair shampoos. The most widely used basic ingredients, by the names used in that industry are as follows;

- Methylparaben Preservative
- Lauramide DEA Foam stabiliser
- Hydrolysed Animal Protein Conditioner/stabiliser
- Propylparaben Preservative
- Cocamide DEA Foam booster
- Ammonium lauryl sulphate Detergent
- Sodium lauryl sulphate Detergent
- Triethanolamine lauryl sulphate Detergent
- Propylene glycol Coupling agent
- Sodium laureth sulphate Detergent
- Glycol stearate Thickener/pearling agent
- Hydroxypropyl methyl cellulose Thickener
- Quaternium-15 Conditioner
- Imidazolidinyl urea Antimicrobial
- Amphoteric-2 Detergent/conditioner
- DMDM Hydantoin Antimicrobial
- Panthenol Vitamin source

Physical properties

Shampoos are typically viscous liquids, either clear or opaque (pearlised), containing 20–40% solids, adjusted to approximately pH 5.5. Most, but not all, have viscosities in the ratio of 500–1500 centipoise.

End Uses

A hair shampoo may be defined as a detergent specifically formulated for the washing of hair, and packaged in a user-convenient form. Typically, a shampoo must clean well, rinse easily, impart gloss to the hair, minimise tangle and not damage the hair structure, or the scalp or the eyes. These requirements severely restrict the range of primary detergents able to be used by the formulator, as illustrated by the above ingredients list.

The cosmetic aspects of shampoos provide considerable scope to the formulator, and fashion

requirements may further extend this scope. At the other end of the spectrum, a safe and functional shampoo may be as simple as a mixture of triethanolamine lauryl sulphate and lauramide DEA. The fatty alcohol sulphates and their corresponding ethoxysulphates provide all of the primary dermatological and eye irritancy requirements. Medicated shampoos generally use similar base ingredients as vehicles for the specific medicant. Shampoos for infants are formulated with particular emphasis on minimal eye irritancy and skin mildness. A limited range of proprietary ingredients are used to meet these needs.

Production process

Shampoos are manufactured by simple blending in a stirred vessel, sometimes equipped with low pressure steam heating coils. Vessels are typically constructed from stainless steel, although glass-lined vessels are still used in some processes.

Ingredients are weighed or metered incrementally into the mixing vessel, with thorough mixing between each addition. A moderate amount of heat is used to reduce the viscosity and so facilitate ease of mixing.

Some pearling agents are waxy solids at ambient temperature and require melting in a drum oven or

similar before use. Demineralised water is most commonly used in order to minimise contamination of the product.

No further processing is required after blending, and the product may be packed off directly from the mixing vessel.

In some segments of the industry, one manufacturer may produce a shampoo base which is sold to, and

further processed by, the formulator. Typically, this second level processing will involve only the addition

of water, colour and fragrance. Proprietary and/or therapeutic ingredients may also be added at this stage.

Environmental impact

No by-products are produced during the manufacture and there are no emissions likely to occur. Washing out the blending vessel will produce an effluent which will contain some shampoo. Since all

reputable manufacturers of these products use fully biodegradable surface active agents, the washout

effluent will offer the same environmental impact as normal household effluent.

Large manufacturers of these products usually subject their washout effluent to a primary sewage treatment process, thereby biodegrading the surfactants before discharge to drain.

Handling

Storage and transport

Hair shampoo is not defined as a dangerous good by the Australian Code for transport of dangerous

goods by road and rail.

No special precautions are required. Keep containers closed at all times and check regularly for leaks.

Spills

Hair shampoo is slippery when spilt. To avoid any accidents, clean up immediately and wear protective

equipment to prevent skin and eye contamination. Contain the product using sand or soil. Use absorbent (soil, sand, vermiculite or other inert material) and wash area down with excess water.

Safety data

Health effects

Short term exposure to hair shampoo by all routes is considered to be practically non-harmful.

Skin

Contact with skin can however result in mild irritation whilst repeated or prolonged skin contact may lead

to irritant contact dermatitis.

Eyes

Hair shampoo can be an eye irritant.

Use **KazmisBotanicalSoftShampoo**, one of the Best formulated.

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