Saltwater soap

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Saltwater soap, also called **sailors' soap**, is a potassium-based soap for use with seawater. Inexpensive common regular commercial soap will not lather or dissolve in seawater (or also "hard water" from calcium) due to high levels of sodium chloride in the water. Similarly, common soap does not work as well as potassium-based soap in hard water where calcium replaces the sodium, making residual insoluble "scum" due to the insolubility of the soap residue. To be an effective cleaning agent, soap must be able to dissolve in water.[1]

Ordinary soap is a salt of a fatty acid.[2] Soaps are mainly used as surfactants for washing, bathing, and cleaning. Soaps for cleansing are made by treating vegetable or animal oils and fats with a strongly alkaline solution. Fats and oils are composed of triglycerides; three molecules of fatty acids are attached to a single molecule of glycerol.[3] The alkaline solution, which is often called lye (although the term "lye soap" refers almost exclusively to soaps made with sodium hydroxide), brings about a chemical reaction known as saponification. In this reaction, the triglyceride fats are first hydrolyzed into free fatty acids, and then these combine with the alkali to form crude soap: a combination of various soap salts, excess fat or alkali, water, and liberated glycerol (glycerin).[3]

Saltwater soaps use potassium salts as found naturally in plant ashes (hence the element name "potassium" as derived from the term "potash", for the ashes left in a pot after burning wood or other plant materials), instead of the sodium salts found in commercial lye. Potassium is a natural metal element similar to sodium but more active. Similarly to sodium, potassium also can react with long fatty acid tails to make soap molecules. Potassium soaps dissolve and make salt water soap work better than sodium in salt waters such as in seawater.

In places that do not have freshwater or need to conserve freshwater, cleaning can be done with the use of salt water and saltwater soap.

See also

- Evaporator (marine)
- Navy shower
- Potassium hydroxide
- Potash
- Elephant toothpaste
- Saponification value
- Lithium soap
- Murphy Oil Soap
- Potassium carbonate
- Feldspar

References

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2. IUPAC. "*IUPAC Gold Book – soap* (http://goldbook.iupac.org/S05721.html)" *Compendium of Chemical Terminology*, 2nd ed. (the "Gold Book"). Compiled by A. D. McNaught and A. Wilkinson. Blackwell Scientific Publications, Oxford (1997). XML on-line corrected version: created by M. Nic, J. Jirat, B. Kosata; updates compiled by A. Jenkins. ISBN 0-9678550-9-8. doi:10.1351/goldbook (https://dx.doi.org/10.1351%2Fgoldbook). Accessed 2010-08-09
3. Cavitch, Susan Miller. *The Natural Soap Book*. Storey Publishing, 1994 ISBN 0-88266-888-9.