

Company: ChemEverse

CEO: Anshika Agrawal

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Chemical Formula: $\text{CH}_3(\text{CH}_2)_{11}(\text{OCH}_2\text{CH}_2)_2\text{OSO}_3\text{Na}$

Chemical Name: Sodium Laureth 2-Sulphate

Use case:

Uses:

- SLES is used in many cosmetic products for their cleaning and emulsifying properties
- SLES in herbicides, is used as a surfactant to improve absorption of the herbicidal chemicals and reduces time the product takes to be rainfast, when enough of the herbicidal agent will be absorbed.

Alternatives:

- Sodium lauroyl sarcosinate
- Sodium dodecyl sulfate
- Sodium myreth sulfate
- Sodium pareth sulfate

Advantage over alternatives:

- SLES produces **richer and more stable foam**, making it more effective in cleansing and personal care applications.
- SLES is **milder on the skin and eyes** compared to Sodium Dodecyl Sulfate (SLS), which is known to cause stronger irritation.
- SLES is **more widely produced and cheaper** than Sodium Myreth Sulfate, making it the preferred choice in mass-market products.
- SLES has a **better biodegradation rate**, reducing its long-term environmental persistence compared to Sodium Pareth Sulfate.

Magnitude of imports in India

- Sodium Lauryl Ether Sulphate worth \$342,803 has been imported.
- Average import price for sodium lauryl ether sulphate was \$1.27.
- Sodium Lauryl Ether Sulphate were imported from 6 countries

- India was the largest exporter of sodium lauryl ether sulphate accounting for 66.03% of the total imports of sodium lauryl ether sulphate
- Malaysia was the second largest exporter of sodium lauryl ether sulphate accounting for 16.32% of the total imports of sodium lauryl ether sulphate
- The month of Jan 2014 accounted for highest number of import shipments

Economic feasibility:

Input Raw Materials:

1. Dodecyl alcohol/Lauryl alcohol ($C_{12}H_{26}O$) or fatty alcohol ethoxylate ($C_{12}H_{25}(OCH_2CH_2)_2OH$)
2. Ethylene oxide (C_2H_4O)
3. Sulfur trioxide (SO_3) or Chlorosulfonic acid (HSO_3Cl)
4. Sodium hydroxide solution ($NaOH$, ~50 wt%)

Raw material cost distribution:

1. **Dodecyl Alcohol ($C_{12}H_{26}O$)** - 510.6 g at **205 rupees per kg**, costs **104.673** rupees
2. **Ethylene Oxide (C_2H_4O)** - 241.5 g at **75 rupees per kg**, costs **18.1125** rupees
3. **Sulfur Trioxide (SO_3)** - 219.4 g at **75 rupees per kg**, costs **16.455** rupees
4. **Sodium Hydroxide (50% solution)** - 219.2 g at **42.5 rupees per kg**, costs **9.316** rupees

Adding up we obtain the input cost to be 148.5565 rupees per kg.

Product selling price is 330 Rupees per kg.

Selling Price = 330 Rupees/kg

Raw Materials Cost Price = 148.5565 Rupees/kg

Profit = 181.4435 Rupees / kg

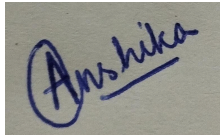

References:

- https://en.wikipedia.org/wiki/Sodium_laureth_sulfate
- <https://www.zauba.com/import-sodium-lauryl-ether-sulphate-hs-code.html>

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List the contributions of each author:

- Tushar Jain and Rounak Mishra carried out the market research for chemical trade data.
- Tushar Jain prepared the use case.
- Rounak Mishra looked at economic feasibility.

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