

Sodium Lauryl Sulfate



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What is sodium lauryl sulfate?

Sodium lauryl sulfate (SLS) is widely used in a range of industrial and domestic applications. Applications most relevant in terms of public exposure include its use as a cleansing agent in toothpastes and shampoos, a food additive (thickener and emulsifier), and a dispersing agent in creams, lotions and pharmaceutical preparations.

Can sodium lauryl sulfate affect my health?

The major hazard associated with SLS is that it can cause irritation to the skin and eyes, the severity of which is concentration-related. This is a common finding with most detergents and is related to their capacity to disrupt cell membranes.

Studies conducted in animals demonstrate that if eyes are not irrigated following exposure to preparations containing 10% SLS, damage to the eye may result. Therefore, if products containing SLS get into the eyes, the eyes should be rinsed immediately with clean water.

In animals, dermal exposure to SLS at concentrations ranging from 0.5 to 21% also produces irritation. At concentrations in excess of 10%, if SLS remains in contact with the skin for prolonged periods, moderate to severe skin irritation may result. Repeated exposure to SLS may cause dermatitis in susceptible individuals.

Occupational exposure to aerosols containing high levels of SLS in the air may produce irritation to the upper respiratory tract. However, this type of exposure would not be expected to result from the use of domestic products.

Although ingestion of SLS may result as a consequence of swallowing toothpaste or mouthwash, the level of SLS used in these products is low. On the basis of its acute toxicity in animals, a human would need to be exposed to a dose equivalent to approximately 50 to 100 grams of SLS to cause death. For death to occur, a person would need to ingest approximately 5 to 10 kilograms of toothpaste containing 1% SLS or 25 to 50 kilograms of mouthwash containing 0.2% SLS. While non-lethal effects would most likely occur at lower doses, no adverse effects would be expected to occur at the low levels at which SLS is used in such products.

Although widely used, there is no information on the potential for SLS to cause cancer or reproductive and developmental effects in humans. However, on the basis of studies conducted in animal and bacterial cells, SLS is not considered to damage genetic material.

How can I be exposed to sodium lauryl sulfate?

It is difficult to obtain information on the extent to which SLS is used in domestic products. However, information obtained from one leading supplier suggests levels commonly used in toothpastes, mouth rinses, and soap would not normally exceed 1.5%, 0.2% and 0.5% of the respective products.

Information provided by the Cosmetic Toiletry and Fragrance Association of Australia suggests that in those products where a high level of detergent is normally used (shower gels and shampoos), the chemically related compound, sodium laureth sulfate (SLES) is preferred to be used. Industry experience suggests that SLES has less potential to produce irritation than SLS.

SLS is an approved food additive in the Australian Food Standards Code, but information on the extent of its use for this purpose in Australia is not available.

Regulation

Sodium lauryl sulfate is not a scheduled poison in Australia. As stated above, it is an approved food additive in the Australian Food Standards Code.

Conclusion

The risk that SLS presents to human health is related to the level of SLS in the product and how the product is used. In products containing relatively high levels of SLS, such as shampoo, prolonged exposure would not be expected to

occur and skin irritation would be unlikely. In other products such as toothpaste, the level of SLS is considerably lower, and although the membranes in the mouth and gastrointestinal tract would come in contact with low levels of SLS, the exposure would be transitory, and unlikely to cause irritation. As with any domestic product, if use of the product is thought to produce an adverse effect, such as irritation, continued use of that product would not be advisable.

For more information, contact your local public health network



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