

Benzenesulfonic acid, 4-C10-13-sec-alkyl derivatives, and Benzenesulfonic acid, C10-13-alkyl derivatives, sodium salts

This Product Safety Summary is intended to provide a general overview of the chemical substance in the context of ICCA Global Product Strategy. The information in the Summary is basic information and is not intended to provide emergency response, medical or treatment information.

1. Chemical Identity

Names: Benzenesulfonic acid, 4-C10-13-sec-alkyl derivatives (HLAS) and Benzenesulfonic acid, C10-13-alkyl derivatives, sodium salts (NaLAS)

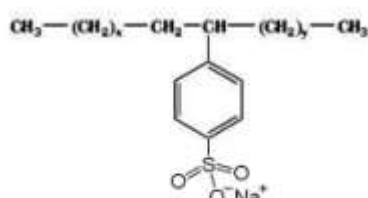
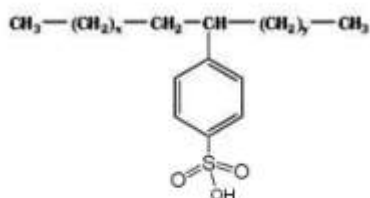
Chemical names (IUPAC): Benzenesulfonic acid, 4-C10-13-sec-alkyl derivatives, and Benzenesulfonic acid, C10-13-alkyl derivatives, sodium salts

CAS number(s): HLAS: 85536-14-7; NaLAS: 68411-30-3

Structure:

HLAS

NaLAS



2. Use and Applications

HLAS and NaLAS are active ingredients in household and personal care products. The following P&G relevant uses were submitted for registration under REACH:

- HLAS: Washing and cleaning products
- NaLAS: Washing and cleaning products

3. Physical/Chemical Properties

Phys/Chem Safety Assessment:

| Property | Value |
|----------|--|
| Form | Organic substance of Unknown or Variable composition, Complex reaction products or |



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| Property | Value |
|---|--|
| | Biological materials (UVCB) |
| Physical state | HLAS: Liquid; NaLAS: Solid (powder) |
| Colour | HLAS present a brown colour |
| Odour | HLAS has a characteristic odour |
| Melting/boiling point | HLAS – Melting: 279.5 °K HLAS – Boiling: 462.2 °K (at 102.1 kPa) |
| Flammability (optional) | Non-flammable |
| Explosive properties | Not explosive |
| Self-ignition temperature | HLAS: 380-410 °C |
| Vapour pressure | HLAS: 0.38-2.89 x10 ⁻⁸ Pa at 25°C (from structural surrogates with closest range of alkyl chain length) |
| Mol weight | HLAS: 312.0 NaLAS: 334.0 |
| Water solubility | Miscible in water |
| Flash point | 196.9 °C at 101.3 kPa |
| Octanol-water partition coefficient (LogK _{ow}) | HLAS LogP _{ow} = 3.2 at 23 °C NaLAS LogP _{ow} = 3.32 (room temperature) |

4. Human Health Safety Assessment

Human Health Safety Assessment

➤ **Consumer**

Exposure can result from household washing activities with cleaning formulations containing HLAS/NaLAS. Consumers will not come into contact with harmful levels of HLAS/NaLAS, as the substances are generally used at low concentrations in cleaners and other household products.

➤ **Worker**

Exposure can occur either in a HLAS/NaLAS manufacturing facility or in the various industrial or consumer product manufacturing facilities that use HLAS/NaLAS. Those working with HLAS/NaLAS in manufacturing operations could be exposed during maintenance, sampling, testing, or other procedures. Each manufacturing facility should have a thorough training program for employees and appropriate work processes and safety equipment in place to limit unnecessary exposure. Workers should follow the recommended safety measures in the Extended Safety Data Sheet (eSDS).

| Effect Assessment | Result |
|---|--|
| Acute Toxicity (Oral/inhalation/dermal) | HLAS and NaLAS are not expected to be toxic through dermal or inhalation acute exposures. Both substances have low toxicity by oral exposure. Swallowing large amounts may cause injury. |



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| Effect Assessment | Result |
|---|---|
| Irritation/corrosion (Skin/eye/respiratory tract) | HLAS is considered highly irritating after prolonged skin contact and moderately irritating after contact with the eye. NaLAS is considered moderately to severely irritating after prolonged skin contact and causes irreversible effects after exposure to the eye. |
| Sensitization | Based on available data, HLAS and NaLAS are not considered human sensitizers. |
| Toxicity after repeated exposure (Oral/inhalation/dermal) | Prolonged skin contact is unlikely to result in absorption of harmful amounts. Repeated oral exposure data on NaLAS indicate no adverse effect within expected exposure range and therefore HLAS is not expected to be harmful based on a category approach. No data are available by the inhalation route. |
| Genotoxicity/mutagenicity | Not mutagenic |
| Carcinogenicity | Not considered carcinogenic based on available repeated oral exposure data. |
| Toxicity for reproduction | No data are available for HLAS. However, no significant effects on reproduction or development were observed in animals exposed to NaLAS and therefore, based on a category approach HLAS is not expected to have reproductive toxicity. |

5. Environmental Safety Assessment

Environment Safety Assessment

Both HLAS and NaLAS compounds are moderately toxic in water. HLAS and NaLAS will be released to air or water via their use in soaps, coatings or cleaning products, etc. However, both compounds are readily biodegradable, and the compounds will be extensively removed by sewage treatment plants. Part of the LAS entering sewage treatment plants is adsorbing to the sewage sludge, and will be incinerated or disposed off on agricultural soil with the sludge. Levels released in the environment (water and soil) are likely to be below the chronic toxicity levels, and biodegradation of residues continues to take place in the environment.

| Effect Assessment | Result |
|-------------------|------------------|
| Aquatic Toxicity | Moderately toxic |



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| Fate and Behaviour | Result |
|---------------------------|--|
| Biodegradation | HLAS and NaLAS are readily biodegradable |
| Bioaccumulation potential | The bioaccumulation potential is low, as demonstrated in bioconcentration tests and observed from monitoring in biota. Metabolism of LAS inside the organisms may account in part for the low bioaccumulation. |
| PBT/vPvB conclusion | HLAS/NaLAS do not exhibit PBT or vPvB properties |

6. Exposure

Consumer

The most likely route of human exposure (workers and consumers) to HLAS and NaLAS is through dermal contact. The greatest potential of HLAS/NaLAS consumer exposure may be from pretreatment of laundry, due to direct hand and forearm contact with concentrated product formulations. To some extent, consumer exposure can also occur as a result of use of washing and cleaning products as intended.

Worker exposure can occur in HLAS/NaLAS manufacturing facilities or the industrial facilities where the substances are used. Since these types of activities are mainly undertaken in closed systems, exposure is fairly low. Higher worker exposures are likely in industrial or professional applications of end products containing the substances (use in textile and leather finishing products).

The exposure of consumers to HLAS and NaLAS in end products is at safe levels. Laundry pretreatment tasks may occasionally result in mild irritation, which is easily avoided by prompt rinsing of the hands in water. However, workers who might come in contact with the non formulated, undiluted substances should follow the safety measures recommended in eSDSs, as the non formulated, undiluted substances can cause severe skin irritation and eye damage.

Environment

In industrial, professional and consumer uses, releases to the environment occur mostly to the waste water treatment plants, through the use of laundry and cleaning products. While both HLAS and NaLAS can be considered moderately toxic to aquatic organisms, normal production and use results in release to waters that are processed through wastewater treatment facilities, where much of the substances are removed. In addition, the relatively rapid biodegradation of these substances in the environment is likely to keep aquatic concentrations below levels where toxicity would occur. Exposure of soils occurs via the use of sewage sludge on land, but LAS also degrades rapidly in soils.



7. Risk Management Recommendations (for manufacturing plant workers)

I. Protection

Eye/Face Protection: Tightly fitting safety goggles

Skin Protection: Protective suit

Hand Protection: The choice of an appropriate glove does not only depend on its material but also on other quality features, which differ from one producer to another. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Be aware that in daily use the durability of a chemical resistant protective glove can be notably shorter than the break through time measured according to EN 374, due to the numerous outside influences (e.g. temperature). Gloves suitable for permanent contact: Material: butyl-rubber; Break through time: ≥ 480 min; Material thickness: ≥ 0.7 mm. Gloves suitable for splash protection: Material: Nitrile rubber/nitrile latex; Break through time: ≥ 30 min; Material thickness: ≥ 0.4 mm.

Respiratory Protection: No personal respiratory protective equipment is normally required. In inadequately ventilated areas, where workplace limits are exceeded, where unpleasant odours exist or where aerosols are in use or smoke and mist occur, use self-contained breathing apparatus or breathing apparatus with a combined filter (e.g. A-P2 or ABEK-P2), in compliance with EN 141.

Ingestion: Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

II. Engineering Controls

Ventilation: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

8. EU REACH Status

These substances have been registered under the European REACH Regulation EC/1907/2006.

9. Classification and Labeling

Under GHS substances are classified according to their physical, health and environmental hazards. The hazards are communicated via specific labels and the eSDS. GHS attempts to standardize hazard communication so that the intended audience (workers, consumers, transport workers, and emergency responders) can better understand the hazards of the chemicals in use.

Classification and labelling of **HLAS** according to EU CLP/GHS:

Acute Oral Tox. 4 (Hazard statement: H302: Harmful if swallowed)

Skin Corr. 1B (Hazard statement: H314: Causes severe skin burns and eye damage)

Signal word: Danger

Hazard pictogram:

GHS05: Corrosion



GHS07: Exclamation mark



Hazard statements:

H302: Harmful if swallowed

H314: Cause severe skin burns and eye damage

Classification and labelling of **NaLAS** according to EU CLP/GHS:

Acute Oral Tox. 4 (Hazard statement: H302: Harmful if swallowed)

Skin Corr. 2 (Hazard statement: H315: Causes skin irritation)

Eye Dam. 1 (Hazard statement: H318: Causes serious eye damage)

Signal word: Danger

Hazard pictogram:

GHS05: Corrosion



GHS07: Exclamation mark



Hazard statements:

H302: Harmful if swallowed

H315: Causes skin irritation

H318: Causes serious eye damage

10. Contact Information

For further information on this substance or product safety summaries in general, please contact us via email at reachfhc.im@pg.com or visit our website at

<http://www.pgproductsafety.com/productsafety/icca-gps.shtml>

Additional information on the ICCA global product strategy can be found here: <http://www.icca-chem.org/en/Home/ICCA-initiatives/global-product-strategy/>

11. Date of Issue

Date of issue: 30/03/2012

Revision #: -

12. Disclaimer

The information contained in this Safety Summary is provided in utmost good faith and has been based on the best information currently available (i.e. the EU REACH Registration dossier). All endpoint data presented in this paper refer to the active ingredient (i.e. concentrated/undiluted substance), unless otherwise noted. This document is NOT intended to be comprehensive or to replace information found in the corresponding Material Safety Data Sheet (SDS). When handling the material in plants, SDS should be used and not this summary. This document may be subject to additional legal terms and conditions set out in the internet disclaimer, http://www.pg.com/en_US/terms_conditions/index.shtml.