



31 July 2024

## Chemical profile

# Linear alkylbenzene sulfonates

### Summary

- The chemicals are a group of linear alkylbenzene sulfonates (LAS) that are used in high volumes in Australia as surfactants in various domestic and cleaning products.
- Chemicals in this group are expected to be of low risk to the environment.
- The chemicals in this group are a priority for scheduling under the [Industrial Chemicals Environmental Management Standard](#) (IChEMS) due to their high-volume usage in Australia.

### Introduction and use of Linear alkylbenzene sulfonates in Australia

Linear alkylbenzene sulfonates are typically used as surfactants in a range of consumer and industrial products, such as in plastic and polymer products, automotive and furniture care products, and cleaning products.

The chemicals in this group have a use volume in the tens of thousands of tonnes per year in Australia. The surfactant concentrations vary but are typically 1-25% for consumer products and 5-25% for industrial/professional products.

### Controls under international conventions

The chemicals in this group have no obligations under international conventions.

### Chemical identity

This class of chemicals include salts of alkylbenzene sulfonic acid where the alkyl chain is linear with a length between 10 and 16 carbon atoms. These chemicals have been placed in a group as they all have similar use patterns and are expected to produce alkylbenzene sulfonate anions in the environment.

Some chemicals in the group have amine counterions to the sulfonate anion.

- **Group name:** Linear alkylbenzene sulfonates (LAS)
- **CAS registry numbers:** 27176-87-0; 121-65-3; 1322-98-1; 1331-61-9; 2211-98-5; 12068-08-5; 14356-38-8; 25155-30-0; 22967-67-5; 26264-06-2; 26836-07-7; 27177-77-1; 27479-45-4; 29061-63-0; 58089-99-9; 68081-81-2; 63428-97-7; 67952-66-3; 68411-30-3; 68442-72-8; 68584-22-5; 68584-23-6; 68584-27-0; 68910-31-6; 68910-32-7; 69669-44-9; 85480-54-2; 85480-55-3; 85480-57-5; 85536-14-7; 85995-82-0; 85995-83-1; 90194-26-6; 90194-29-9; 90194-30-2; 91696-66-1; 97467-80-6; 103818-94-6; 127184-52-5

**Table 1 – Indicative list of CAS RN included in the linear alkylbenzene sulfonates group.**

CAS Name	CAS RN
Dodecylbenzenesulfonic acid	27176-87-0
4-Dodecylbenzenesulfonic acid	121-65-3
Sodium decylbenzenesulfonate	1322-98-1
Ammonium dodecylbenzenesulfonate	1331-61-9
Sodium <i>p</i> -dodecylbenzenesulfonate	2211-98-5
Benzenesulfonic acid, dodecyl-, compound with morpholine (1:1)	12068-08-5
Benzenesulfonic acid, 4-dodecyl-, compd. with cyclohexanamine (1:1)	14356-38-8
Sodium dodecylbenzenesulfonate	25155-30-0
Benzenesulfonic acid, 2-decyl-, compd. with 4-decylbenzenesulfonate, sodium salt (1:4:4)	22967-67-5
Calcium dodecylbenzenesulfonate	26264-06-2
Dodecylbenzenesulfonic acid monoethanolamine salt	26836-07-7
Potassium dodecylbenzenesulfonate	27177-77-1
Magnesium dodecylbenzenesulfonate	27479-45-4
Benzenesulfonic acid, dodecyl-, compd. With <i>N,N</i> -diethylethanamine (1:1)	29061-63-0
Benzenesulfonic acid, 4-dodecyl-, compd. with 2-aminoethanol (1:1)	58089-99-9
Benzenesulfonic acid, mono-C <sub>10-16</sub> -alkyl derivatives, sodium salts	68081-81-2
Benzenesulfonic acid, dodecyldimethyl-, sodium salt (1:1)	63428-97-7
Benzenesulfonic acid, dodecyl-, compd. with 1,2-ethanediamine (1:?)	67952-66-3
Benzenesulfonic acid, C <sub>10-13</sub> -alkyl derivs., sodium salts	68411-30-3
Benzenesulfonic acid, dodecyl-, reaction products with ethanolamine	68442-72-8
Benzenesulfonic acid, C <sub>10-16</sub> -alkyl derivatives	68584-22-5
Benzenesulfonic acid, C <sub>10-16</sub> -alkyl derivatives, calcium salts	68584-23-6
Benzenesulfonic acid, C <sub>10-16</sub> -alkyl derivatives, potassium salts	68584-27-0
Benzenesulfonic acid, mono-C <sub>10-16</sub> -alkyl derivatives, ammonium salts	68910-31-6
Benzenesulfonic acid, mono-C <sub>10-16</sub> -alkyl derivatives, compounds with ethanolamine	68910-32-7
Benzenesulfonic acid, C <sub>10-14</sub> -alkyl derivatives, sodium salts	69669-44-9
Benzenesulfonic acid, mono-C <sub>10-13</sub> -alkyl derivatives, ammonium salts	85480-54-2
Benzenesulfonic acid, mono-C <sub>10-13</sub> -alkyl derivatives, compounds with ethanolamine	85480-55-3
Benzenesulfonic acid, mono-C <sub>10-13</sub> -alkyl derivatives, potassium salts	85480-57-5

CAS Name	CAS RN
Benzenesulfonic acid, 4-C <sub>10-13</sub> - <i>sec</i> -alkyl derivatives	85536-14-7
Benzenesulfonic acid, 4-C <sub>10-14</sub> -alkyl derivatives, compounds with ethanolamine	85995-82-0
Benzenesulfonic acid, 2( <i>or</i> 4)-C <sub>10-14</sub> -alkyl derivatives, compounds with isopropanolamine	85995-83-1
Benzenesulfonic acid, 4-C <sub>10-14</sub> -alkyl derivatives, calcium salts	90194-26-6
Benzenesulfonic acid, 4-C <sub>10-14</sub> -alkyl derivatives, compounds with ethylenediamine (1:1)	90194-29-9
Benzenesulfonic acid, 4-C <sub>10-14</sub> -alkyl derivatives, compounds with ethylenediamine (2:1)	90194-30-2
Benzenesulfonic acid, 4-C <sub>10-14</sub> -alkyl derivatives, sodium salts	91696-66-1
Benzenesulfonic acid, mono-C <sub>10-13</sub> - <i>sec</i> -alkyl derivatives, calcium salts	97467-80-6
Benzenesulfonic acid, C <sub>10-14</sub> -alkyl derivatives	103818-94-6
Benzenesulfonic acid, 4-C <sub>10-13</sub> - <i>sec</i> -alkyl derivatives, sodium salts	127184-52-5

## Hazards and risks to the environment

The [environmental risk](#) of the linear alkylbenzene sulfonates was assessed by the Australian Industrial Chemical Introduction Scheme (AICIS) as being not persistent, not bioaccumulative, and not toxic according to Australian Environmental Criteria for Persistent, Bioaccumulative and/or Toxic Chemicals.

They are classified under the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) as Aquatic Chronic Category 3 ('Harmful to aquatic life with long lasting effects') and Aquatic Acute Category 2 ('Toxic to aquatic life').

Taking into account the GHS chronic toxicity classification, the chemicals in this group, if used in Australia in accordance with the particular assessed use for the chemicals, have potential to cause harm to the environment.

## References

AICIS (2022). Linear alkylbenzene sulfonates, [Evaluation Statement \[EVA00065\]](#), 14 January 2022, Australian Industrial Chemicals Introduction Scheme.

## More information

Email [ichems.enquiry@dcceew.gov.au](mailto:ichems.enquiry@dcceew.gov.au)

Web [Industrial Chemicals Environmental Management Standard - IChEMS - DCCEEW](#)