

Name

sodium dodecyl sulfate 99% (SDS99)

Synonyms

CAS:151-21-3;Dodecyl sulfate sodium salt; Lauryl sulfate sodium salt; SDS;K12 Sodium lauryl sulfate; Laurylsulfuric acid sodium salt; Dodecylsulfuric acid sodium salt; Sodium dodecyl sulphate


Application

Pharmaceutical intermediates;biological reagents

Product info

Purity / Analysis Method	>99.0%(GC)(T)
Molecular Formula	C ₁₂ H ₂₅ NaO ₄ S
Molecular Weight	288.38
Physical State (20 deg.C)	Solid
Store Under Inert Gas	Store under inert gas
Condition to Avoid	Hygroscopic
CAS Number	151-21-3
MDL Number	MFCD00036175
EC Number	205-788-1
Appearance	White to Light yellow powder to crystal
Melting Point	207 °C
Solubility in water	Soluble
Degree of solubility in water	100 g/l

Safety & Regulations

Pictogram	
Signal Word	Warning
Hazard Statements	<p>H412: Harmful to aquatic life with long lasting effects H315: Causes skin irritation H318: Causes serious eye damage H332: Harmful if inhaled H335: May cause respiratory irritation H336: May cause drowsiness or dizziness H228: Flammable solid H302: Harmful if swallowed</p>
Precautionary Statements	<p>P501 : Dispose of contents/ container to an approved waste disposal plant. P273 : Avoid release to the environment. P260 : Do not breathe dust/ fume/ gas/ mist/ vapors/ spray. P270 : Do not eat, drink or smoke when using this product. P271 : Use only outdoors or in a well-ventilated area. P264 : Wash skin thoroughly after handling. P280 : Wear protective gloves/ eye protection/ face protection. P314 : Get medical advice/ attention if you feel unwell. P337 + P313 : If eye irritation persists: Get medical advice/ attention. P305 + P351 + P338 : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P302 + P352 : IF ON SKIN: Wash with plenty of soap and water. P332 + P313 : If skin irritation occurs: Get medical advice/ attention. P362 : Take off contaminated clothing and wash before reuse. P301 + P312 + P330 : IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. P304 + P340 + P312 : IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. P403 + P233 : Store in a well-ventilated place. Keep container tightly closed. P405 : Store locked up.</p>

Sodium dodecyl sulfate

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Sodium dodecyl sulfate
Brand : Sigma-Aldrich
CAS-No. : 151-21-3

1.4 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : For R&D use only. Not for pharmaceutical, household or other uses.

SECTION 2: Hazards identification

Summary of emergency

Rods white odorless Flammable solid., Harmful if swallowed or if inhaled., Causes skin irritation., Causes serious eye damage., May cause respiratory irritation., Toxic to aquatic life., Harmful to aquatic life with long lasting effects. Show this material safety data sheet to the doctor in attendance. After inhalation: fresh air. In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. After eye contact: rinse out with plenty of water., Immediately call in ophthalmologist., Remove contact lenses. After swallowing: immediately make victim drink water (two glasses at most)., Consult a physician. Combustible. Vapors are heavier than air and may spread along floors. Forms explosive mixtures with air on intense heating. Development of hazardous combustion gases or vapours possible in the event of fire. Violent reactions possible with: Strong oxidizing agents

2.1 GHS Classification

Flammable solids (Category 2), H228
 Acute toxicity, Oral (Category 4), H302
 Acute toxicity, Inhalation (Category 4), H332
 Skin corrosion/irritation (Category 2), H315
 Serious eye damage/eye irritation (Category 1), H318
 Specific target organ toxicity - single exposure (Category 3), respiratory tract irritation, H335
 Short-term (acute) aquatic hazard (Category 2), H401
 Long-term (chronic) aquatic hazard (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word

Danger

Hazard statement(s)

H228	Flammable solid.
H302 + H332	Harmful if swallowed or if inhaled.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H401	Toxic to aquatic life.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

Prevention

P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P261	Avoid breathing dust.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.

Response

P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
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P302 + P352

P304 + P340 + P312

P305 + P351 + P338 +
P310

P332 + P313

P370 + P378

Storage

P403 + P233

P405

Disposal

P501

IF ON SKIN: Wash with plenty of water.

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.

IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.

If skin irritation occurs: Get medical advice/ attention.

In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Dispose of contents/ container to an approved waste disposal plant.

Reduced Labeling (<= 125 ml)

Pictogram



Signal Word

Danger

Hazard statement(s)

H228

Flammable solid.

H302 + H332

Harmful if swallowed or if inhaled.

H315

Causes skin irritation.

H318

Causes serious eye damage.

H335

May cause respiratory irritation.

H401

Toxic to aquatic life.

H412

Harmful to aquatic life with long lasting effects.

Precautionary
statement(s)

none

2.3 Physical and chemical hazards

H228

Flammable solid.

2.4 Health hazards

H302

Harmful if swallowed.

H332

Harmful if inhaled.

H315

Causes skin irritation.

H318

Causes serious eye damage.

H335

May cause respiratory irritation.

2.5 Environmental hazards

H401

Toxic to aquatic life.

H412

Harmful to aquatic life with long lasting effects.

2.6 Other hazards - none**SECTION 3: Composition/information on ingredients**

Substance / Mixture : Substance

3.1 SubstancesSynonyms : Lauryl sulfate sodium salt
Sodium dodecyl sulphate

Sodium dodecyl sulfate
Sodium lauryl sulfate
Dodecyl sodium sulfate
Dodecyl sulfate sodium salt
SDS

Formula : C12H25O4S.Na
Molecular weight : 288.38 g/mol
CAS-No. : 151-21-3
EC-No. : 205-788-1

Hazardous ingredients

Component	Classification	Concentration
Sodium dodecyl sulphate		
	Flammable solids Category 2; Acute toxicity Category 4; Skin corrosion/irritation Category 2; Serious eye damage/eye irritation Category 1; Specific target organ toxicity - single exposure Category 3; Short-term (acute) aquatic hazard Category 2; Long-term (chronic) aquatic hazard Category 3; H228, H302, H332, H315, H318, H335, H401, H412 Concentration limits: 10 - < 20 %: Eye Irrit. 2, H319; >= 20 %: Eye Dam. 1, H318;	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice

Show this material safety data sheet to the doctor in attendance.

If inhaled

After inhalation: fresh air.

In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

4.4 Notes to physician

No data available

SECTION 5: Firefighting measures**5.1 Extinguishing media****Suitable extinguishing media**

Water Foam Carbon dioxide (CO₂) Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Carbon oxides

Sulfur oxides

Sodium oxides

Combustible.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire
extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Work under hood. Do not inhale substance/mixture.

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed. Keep away from heat and sources of ignition.

hygroscopic

Storage class

Storage class (TRGS 510): 4.1B: Flammable solid hazardous materials

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: KCL 741 Dermatril® L

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min
Material tested: KCL 741 Dermatril® L

Body Protection

Flame retardant antistatic protective clothing.

Respiratory protection

required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure

Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Physical state	Rods
b) Color	white
c) Odor	odorless
d) Melting point/freezing point	Melting point/range: 204 - 207 °C - lit.
e) Initial boiling point and boiling range	No data available
f) Flammability (solid, gas)	The substance or mixture is a flammable solid with the category 2.
g) Upper/lower flammability or explosive limits	No data available
h) Flash point	170 °C
i) Autoignition temperature	310.5 °C
j) Decomposition temperature	No data available
k) pH	9.1 at 10 g/l
l) Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: No data available
m) Water solubility	130 g/l at 20 °C - OECD Test Guideline 105
n) Partition coefficient: n-octanol/water	log Pow: 0.83 at 22 °C
o) Vapor pressure	0.002 hPa at 20 °C
p) Density	0.370 g/cm ³
Relative density	No data available
q) Relative vapor density	No data available
r) Particle	No data available

characteristics

- s) Explosive properties No data available
- t) Oxidizing properties none

9.2 Other safety information

Surface tension 25.2 mN/m at 23 °C

Dissociation constant 1.31 at 20 °C

SECTION 10: Stability and reactivity

10.1 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.2 Possibility of hazardous reactions

Violent reactions possible with:
Strong oxidizing agents

10.3 Conditions to avoid

Strong heating.

10.4 Incompatible materials

No data available

10.5 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - female - 977 mg/kg
(OECD Test Guideline 401)

Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Acute toxicity estimate Inhalation - 4 h - 1.51 mg/l - dust/mist

(Expert judgment)

LD50 Dermal - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 402)

Remarks: The value is given in analogy to the following substances: sodium octyl sulphate (1:1)

Skin corrosion/irritation

Skin - Rabbit

Result: Irritating to skin. - 24 h

(OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Irreversible effects on the eye

(OECD Test Guideline 405)

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

Test Type: Ames test

Test system: Escherichia coli/Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: Mouse lymphoma test

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: negative

Test Type: dominant lethal test

Species: Mouse

Application Route: Oral

Method: OECD Test Guideline 478

Result: negative

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

Inhalation - May cause respiratory irritation. - Respiratory Tract

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

11.2 Additional Information

RTECS: WT1050000

sneezing, The sodium salt of dodecyl sulfate has been reported to cause pulmonary sensitization resulting in hyperactive airway dysfunction and pulmonary allergy accompanied by fatigue, malaise, and aching. Significant symptoms of exposure can persist for more than two years and can be activated by a variety of nonspecific environmental stimuli such as automobile exhaust, perfumes, and passive smoking.

sneezing, The sodium salt of dodecyl sulfate has been reported to cause pulmonary sensitization resulting in hyperactive airway dysfunction and pulmonary allergy accompanied by fatigue, malaise, and aching. Significant symptoms of exposure can persist for more than two years and can be activated by a variety of nonspecific environmental stimuli such as automobile exhaust, perfumes, and passive smoking.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption of toxic quantities:

Tiredness

vasodilation

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Pimephales promelas (fathead minnow) - 29 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	flow-through test EC50 - Ceriodaphnia dubia (water flea) - 5.55 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test ErC50 - Desmodesmus subspicatus (green algae) - > 120 mg/l - 72 h (DIN 38412)
Toxicity to bacteria	static test EC50 - activated sludge - 135 mg/l - 3 h Remarks: (ECHA)
Toxicity to fish(Chronic toxicity)	flow-through test NOEC - Pimephales promelas (fathead minnow) - >= 1.36 mg/l - 42 d Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	flow-through test NOEC - Ceriodaphnia dubia (water flea) - 0.88 mg/l - 7 d (US-EPA)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: 95 % - Readily biodegradable. (OECD Test Guideline 301B)
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12.3 Bioaccumulative potential

Bioaccumulation	Cyprinus carpio (Carp) - 72 h (Sodium dodecyl sulphate)
	Bioconcentration factor (BCF): 3.9 - 5.3

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company.

SECTION 14: Transport information

14.1 UN number

ADR/RID: 1325

IMDG: 1325

IATA-DGR: 1325

14.2 UN proper shipping name

ADR/RID: FLAMMABLE SOLID, ORGANIC, N.O.S. (dodecyl sulphate sodium salt)

IMDG: FLAMMABLE SOLID, ORGANIC, N.O.S. (dodecyl sulphate sodium salt)

IATA-DGR: Flammable solid, organic, n.o.s. (dodecyl sulphate sodium salt)

14.3 Transport hazard class(es)

ADR/RID: 4.1

IMDG: 4.1

IATA-DGR: 4.1

14.4 Packaging group

ADR/RID: III

IMDG: III

IATA-DGR: III

14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA-DGR: no

14.6 Special precautions for user

Based on chemical properties, choose appropriate tools and conditions of transport.

Transporting tools shall be equipped with appropriate and sufficient firefighting equipment and emergency leaking installations. If transporting by road, please go along the specified route.

14.7 Incompatible materials

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulatory information

Other regulations

Please pay attention on the waste treatment should also comply with local regulations requirement.

SECTION 16: Other information

-Full text of H-Statements referred to under sections 2 and 3.

H228	Flammable solid.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.

H401 Toxic to aquatic life.
H412 Harmful to aquatic life with long lasting effects.

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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