

Safety Data Sheet

Sodium formate-d

Classification acc. to 29 CFR 1910.1200

Version number: GHS 3.0
Replaces version of: 2023-02-02 (GHS 2)

Revision: 2024-08-09

SECTION 1: Identification

1.1 Product identifier

Identification of the substance	Sodium formate-d
CAS number	3996-15-4
Alternative name(s) sodium formate-d	
Alternative name(s)	sodium formate-d
Alternative name(s)	sodium formate-d

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

Relevant identified uses	industrial uses the product is intended for research, analysis and scientific education scientific research and development product and process oriented research and development laboratory and analytical use laboratory chemical
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1.3 Details of the supplier of the safety data sheet

Zeochem AG Joweid 5, CH-8630 Rüti Switzerland	Telephone: +41 44 922 93 93 e-Mail: info@zeochem.com Website: https://www.zeochem.com
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1.4 Emergency telephone number

Poison center		
Country	Name	Telephone
Switzerland	Toxzentrum Zürich / Tox. Info Suisse	+41 44 251 51 51 / CH: 145 - 24h/7d
United States	CHEMTREC USA	+1 800 424 9300 - 24h/7d

SECTION 2: Hazard(s) identification

2.1 Classification of the substance or mixture

Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Section	Hazard class	Category	Hazard class and category	Hazard statement
A.1I	acute toxicity (inhal.)	3	Acute Tox. 3	H331

For full text of abbreviations: see SECTION 16.

2.2 Label elements

Labelling acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

- Signal word danger

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2.2.1.2 Pictograms

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Hazard statements	
H331	toxic if inhaled

Precautionary statements	
P261	avoid breathing dust/fume/gas/mist/vapors/spray
P271	use only outdoors or in a well-ventilated area
P304+P340	if inhaled: Remove person to fresh air and keep comfortable for breathing
P311	call a poison center/doctor
P321	specific treatment (see on this label)
P403+P233	store in a well-ventilated place. Keep container tightly closed
P405	store locked up
P501	dispose of contents/container in accordance with local/regional/national/international regulations

2.3 Other hazards

Hazards not otherwise classified

May be harmful in contact with skin (GHS category 5: acutely toxic - dermal).

Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) in a concentration of $\geq 0.1\%$.

SECTION 3: Composition/information on ingredients

3.1 Substances

Name of substance	Sodium formate-d
Identifiers	
CAS No	3996-15-4
Purity	$\geq 90\%$
Molecular formula	CDO ₂ Na
Molar mass	69 g/mol

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SECTION 4: First-aid measures

4.1 Description of first-aid measures

General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

Following inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. Provide fresh air.

Following skin contact

Brush off loose particles from skin. Rinse skin with water/shower.

Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart.

Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms and effects are not known to date.

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water, Foam, Alcohol resistant foam, ABC-powder

Unsuitable extinguishing media

Water jet

5.2 Special hazards arising from the substance or mixture

Deposited combustible dust has considerable explosion potential.

Hazardous combustion products

Carbon monoxide (CO), Carbon dioxide (CO₂)

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Coordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove persons to safety.

For emergency responders

Wear breathing apparatus if exposed to vapors/dust/aerosols/gases.

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6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains, Take up mechanically

Advice on how to clean up a spill

Take up mechanically.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Recommendations

Store in a dry place.

- Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation. Take precautionary measures against static discharge. Use only in well-ventilated areas. Ground/bond container and receiving equipment.

- Specific notes/details

Dust deposits may accumulate on all deposition surfaces in a technical room. The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Managing of associated risks

- Explosive atmospheres

Removal of dust deposits.

- Ventilation requirements

Keep any substance that emits harmful vapors or gases in a place that allows these to be permanently extracted. Use local and general ventilation.

- Packaging compatibilities

Only packagings which are approved (e.g. acc. to the Dangerous Goods Regulations) may be used.

7.3 Specific end use(s)

See section 16 for a general overview.

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values (Workplace Exposure Limits)											
Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m³]	STEL [ppm]	STEL [mg/m³]	Ceiling-C [ppm]	Ceiling-C [mg/m³]	Notation	Source
US	Particulates not otherwise regulated		PEL (CA)		10					dust	Cal/OSH A PEL
US	Particulates not otherwise regulated		PEL (CA)		5					r	Cal/OSH A PEL
US	particulates not otherwise classified (PNOC)		PEL		15					dust	29 CFR 1910.1000
US	particulates not otherwise classified (PNOC)		PEL	1,765						partml, dust	29 CFR 1910.1000
US	particulates not otherwise classified (PNOC)		PEL	530						partml, r, dust	29 CFR 1910.1000
US	particulates not otherwise classified (PNOC)		PEL		5					r	29 CFR 1910.1000
US	particulate not otherwise regulated		REL							appx-D	NIOSH REL

Notation

appx-D	see Appendix D - Substances with No Established RELs
Ceiling-C	ceiling value is a limit value above which exposure should not occur
dust	as dust
partml	particles/ml
r	respirable fraction
STEL	short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)
TWA	time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

Human health values

Relevant DNELs and other threshold levels				
Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	35.3 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
DNEL	10 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

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Environment values

Relevant PNECs and other threshold levels				
Endpoint	Threshold level	Organism	Environmental compartment	Exposure time
PNEC	2 mg/l	aquatic organisms	freshwater	short-term (single instance)
PNEC	0.2 mg/l	aquatic organisms	marine water	short-term (single instance)
PNEC	2.21 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
PNEC	13.4 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
PNEC	1.34 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
PNEC	1.5 mg/kg	terrestrial organisms	soil	short-term (single instance)

8.2 Exposure controls

Appropriate engineering controls

General ventilation.

Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection.

Skin protection

- Hand protection

Wear protective gloves.

- Type of material

Nitrile

IIR: isobutene-isoprene (butyl) rubber

- Breakthrough times of the glove material

>30 minutes (permeation: level 2)

- Other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.

Respiratory protection

Particulate filter device (EN 143).

Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	solid
Color	white
Odor	characteristic

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Other safety parameters

pH (value)	not applicable
Melting point/freezing point	255 – 258 °C
Initial boiling point and boiling range	not determined
Flash point	not applicable
Evaporation rate	not determined
Flammability (solid, gas)	this material is combustible, but will not ignite readily
Explosion limits of dust clouds	not determined
Vapor pressure	0 Pa at 25 °C
Density	not determined
Vapor density	this information is not available
Relative density	information on this property is not available

Solubility(ies)

- Water solubility	>1,000 g/l at 20 °C
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Partition coefficient

- n-octanol/water (log KOW)	-2.1 (pH value: 7, 23 °C) (ECHA)
- Soil organic carbon/water (log KOC)	1.49 (ECHA)
Auto-ignition temperature	>400 °C (ECHA)
Decomposition temperature	681 K (ECHA)
Viscosity	not relevant (solid matter)
Explosive properties	none
Oxidizing properties	none

9.2 Other information

Surface tension	71 mN/m (20 °C) (ECHA)
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SECTION 10: Stability and reactivity

10.1 Reactivity

Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials".

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10.2 Chemical stability

See below "Conditions to avoid".

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

There are no specific conditions known which have to be avoided.

Hints to prevent fire or explosion

The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion.

10.5 Incompatible materials

Oxidizers

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Acute toxicity

Toxic if inhaled.

GHS of the United Nations, annex 4: May be harmful in contact with skin.

- Acute toxicity estimate (ATE)

Inhalation: dust/mist >0.67 mg/l/4h

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation

Shall not be classified as seriously damaging to the eye or eye irritant.

Respiratory or skin sensitization

Shall not be classified as a respiratory or skin sensitizer.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

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SECTION 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

12.2 Persistence and degradability

Biodegradation

The substance is readily biodegradable.

Process of degradability		
Process	Degradation rate	Time
oxygen depletion	7 %	5 d

12.3 Bioaccumulative potential

Data are not available.

n-octanol/water (log KOW)	-2.1 (pH value: 7, 23 °C) (ECHA)
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12.4 Mobility in soil

Henry's law constant	0.019 Pa m ³ /mol at 25 °C
The Organic Carbon normalised adsorption coefficient	1.49 (ECHA)

12.5 Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

12.6 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) in a concentration of ≥ 0.1%.

12.7 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

Waste treatment of containers/packages

Only packagings which are approved (e.g. acc. to DOT) may be used. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

SECTION 14: Transport information

14.1 UN number

not assigned

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14.2 UN proper shipping name	not assigned
14.3 Transport hazard class(es)	none
14.4 Packing group	not assigned
14.5 Environmental hazards	non-environmentally hazardous acc. to the dangerous goods regulations
14.6 Special precautions for user	There is no additional information.
14.7 Transport in bulk according to IMO instruments	The cargo is not intended to be carried in bulk.

Information for each of the UN Model Regulations

Transport of dangerous goods by road or rail (49 CFR US DOT) - Additional information

not assigned

International Maritime Dangerous Goods Code (IMDG) - Additional information

not assigned

International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information

not assigned

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

National regulations (United States)

Toxic Substance Control Act (TSCA) substance is listed (ACTIVE)

Superfund Amendment and Reauthorization Act (SARA TITLE III)

- The List of Extremely Hazardous Substances and Their Threshold Planning Quantities (EPCRA Section 302, 304)

not listed

- Specific Toxic Chemical Listings (EPCRA Section 313)

not listed

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

- List of Hazardous Substances and Reportable Quantities (CERCLA section 102a) (40 CFR 302.4)

not listed

Clean Air Act

not listed

Right to Know Hazardous Substance List

- Cleaning Product Right to Know Act Substance List (CA-RTK)

not listed

- Toxic or Hazardous Substance List (MA-TURA)

not listed

- Hazardous Substances List (MN-ERTK)

not listed

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- Hazardous Substance List (NJ-RTK)
not listed
- Hazardous Substance List (Chapter 323) (PA-RTK)
not listed
- Hazardous Substance List (RI-RTK)
not listed

California Environmental Protection Agency (Cal/EPA): Proposition 65 - Safe Drinking Water and Toxic Enforcement Act of 1987

not listed

Industry or sector specific available guidance(s)

NPCA-HMIS® III

Hazardous Materials Identification System. American Coatings Association.

Category	Rating	Description
Chronic	/	none
Health	2	temporary or minor injury may occur
Flammability	2	material that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur
Physical hazard	0	material that is normally stable, even under fire conditions, and will not react with water, polymerize, decompose, condense, or self-react. Non-explosive
Personal protection	-	

NFPA® 704

National Fire Protection Association: Standard System for the Identification of the Hazards of Materials for Emergency Response (United States).

Category	Degree of hazard	Description
Flammability	2	material that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur
Health	3	material that, under emergency conditions, can cause serious or permanent injury
Instability	0	material that is normally stable, even under fire conditions
Special hazard		

National inventories

Country	Inventory	Status
EU	REACH Reg.	substance is listed
US	TSCA	substance is listed (ACTIVE)

Legend

REACH Reg. REACH registered substances
TSCA Toxic Substance Control Act

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15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information, including date of preparation or last revision

Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
1.1	CAS number: 3996-15-4	CAS number: 3996-15-4 Alternative name(s) sodium formate-d	yes
1.1		Alternative name(s): sodium formate-d	yes
1.3	Details of the supplier of the safety data sheet: Zeochem AG Joweid 5, CH-8630 Rüti Switzerland Telephone: +41 44 922 93 93 e-Mail: info@zeochem.com / info@zeochem.ch Website: https://www.zeochem.com	Details of the supplier of the safety data sheet: Zeochem AG Joweid 5, CH-8630 Rüti Switzerland Telephone: +41 44 922 93 93 e-Mail: info@zeochem.com Website: https://www.zeochem.com	yes
2.3		Endocrine disrupting properties: Does not contain an endocrine disruptor (ED) in a concentration of $\geq 0.1\%$.	yes
8.1		Occupational exposure limit values (Workplace Exposure Limits): change in the listing (table)	yes
12.5	Results of PBT and vPvB assessment: Data are not available.	Results of PBT and vPvB assessment: According to the results of its assessment, this substance is not a PBT or a vPvB.	yes
12.6	Endocrine disrupting properties: Not listed.	Endocrine disrupting properties: Does not contain an endocrine disruptor (ED) in a concentration of $\geq 0.1\%$.	yes
14.1	UN number	UN number: not assigned	yes
14.1	DOT: UN 2811		yes
14.1	IMDG-Code: UN 2811		yes
14.1	ICAO-TI: UN 2811		yes
14.2	DOT: Toxic solid, organic, n.o.s.		yes
14.2	IMDG-Code: TOXIC SOLID, ORGANIC, N.O.S.		yes
14.2	ICAO-TI: Toxic solid, organic, n.o.s.		yes
14.2	Technical name: Sodium formate-d		yes
14.3	DOT:		yes

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	6.1		
14.3	IMDG-Code: 6.1		yes
14.3	ICAO-TI: 6.1		yes
14.4	DOT: III		yes
14.4	IMDG-Code: III		yes
14.4	ICAO-TI: III		yes
14.7	Particulars in the shipper's declaration: UN2811, Toxic solid, organic, n.o.s., (Sodium formate-d), 6.1, III		yes
14.7	Danger label(s): 6.1		yes
14.7		Danger label(s): change in the listing (table)	yes
14.7	Special provisions (SP): IB8, IP3, T1, TP33		yes
14.7	ERG No: 154		yes
14.7	Marine pollutant: -		yes
14.7	Danger label(s): 6.1		yes
14.7		Danger label(s): change in the listing (table)	yes
14.7	Special provisions (SP): 223, 274		yes
14.7	Excepted quantities (EQ): E1		yes
14.7	Limited quantities (LQ): 5 kg		yes
14.7	EmS: F-A, S-A		yes
14.7	Stowage category: A		yes
14.7	Danger label(s): 6.1		yes
14.7		Danger label(s): change in the listing (table)	yes
14.7	Special provisions (SP): A3, A5		yes
14.7	Excepted quantities (EQ):		yes

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	E1		
14.7	Limited quantities (LQ): 10 kg		yes
14.2	UN proper shipping name	UN proper shipping name: not assigned	yes
14.3	Transport hazard class(es)	Transport hazard class(es): none	yes
14.4	Packing group	Packing group: not assigned	yes
14.7	Transport of dangerous goods by road or rail (49 CFR US DOT) - Additional information	Transport of dangerous goods by road or rail (49 CFR US DOT) - Additional information: not assigned	yes
14.7	International Maritime Dangerous Goods Code (IMDG) - Additional information	International Maritime Dangerous Goods Code (IMDG) - Additional information: not assigned	yes
14.7	International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information	International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information: not assigned	yes
15.1	Toxic Substance Control Act (TSCA): substance is listed as "ACTIVE"	Toxic Substance Control Act (TSCA): substance is listed (ACTIVE)	yes
15.1		National inventories: change in the listing (table)	yes

Key literature references and sources for data

OSHA Hazard Communication Standard (HCS), 29 CFR 1910.1200.

Transport of dangerous goods by road or rail (49 CFR US DOT). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

List of relevant phrases (code and full text as stated in section 2 and 3)

Code	Text
H331	Toxic if inhaled.

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.