

Safety data sheet

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BASF Safety data sheet according to UN GHS 4th rev.

Date / Revised: 23.11.2015

Product: **Syn-Gas**

Version: 1.0

(ID no. 30210643/SDS_GEN_00/EN)

Date of print 26.05.2024

1. Identification

Product identifier

Syn-Gas

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

Relevant identified uses: Chemical

Details of the supplier of the safety data sheet

Company:

BASF SE

67056 Ludwigshafen

GERMANY

Operating Division Petrochemicals

Telephone: +49 621 60-42151

E-mail address: sds-petrochemicals@basf.com

Emergency telephone number

International emergency number:

Telephone: +49 180 2273-112

2. Hazards Identification

Classification of the substance or mixture

According to UN GHS criteria

Press. Gas Compressed gas

Acute Tox. 3 (Inhalation - gas)

Repr. 1A (unborn child)

STOT RE (Blood) 1

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Flam. gases (incl. chem. unstable gases) 1

For the classifications not written out in full in this section the full text can be found in section 16.

Label elementsGlobally Harmonized System (GHS)

Pictogram:



Signal Word:

Danger

Hazard Statement:

H280	Contains gas under pressure; may explode if heated.
H220	Extremely flammable gas.
H331	Toxic if inhaled.
H360	May damage the unborn child.
H372	Causes damage to organs (Blood) through prolonged or repeated exposure.

Precautionary Statements (Prevention):

P271	Use only outdoors or in a well-ventilated area.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261	Avoid breathing gas.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P260	Do not breathe dust/gas/mist/vapours.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P270	Do not eat, drink or smoke when using this product.
P264	Wash with plenty of water and soap thoroughly after handling.

Precautionary Statements (Response):

P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P311	Call a POISON CENTER or doctor/physician.
P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381	Eliminate all ignition sources if safe to do so.

Precautionary Statements (Storage):

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P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
 P410 + P403 Protect from sunlight. Store in a well-ventilated place.
 P405 Store locked up.

Precautionary Statements (Disposal):

P501 Dispose of contents/container to hazardous or special waste collection point.

Labeling of special preparations (GHS):

The following percentage of the mixture consists of component(s) with unknown hazards regarding the acute toxicity: 60 - 92 %, Inhalation - gas

According to UN GHS criteria

Hazard determining component(s) for labelling: CARBONMONOXIDE

Other hazardsAccording to UN GHS criteria

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

See section 12 - Results of PBT and vPvB assessment.

3. Composition/Information on Ingredients**Substances**

Not applicable

MixturesChemical nature

gas mixture

Hazardous ingredients (GHS)

According to UN GHS criteria

methane

Content (W/W): 1 % - 20 %
 CAS Number: 74-82-8

Press. Gas Compr. Gas
 Flam. gases (incl. chem. unstable gases) 1
 H280, H220

carbon monoxide

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Content (W/W): 10 % - 30 %

CAS Number: 630-08-0

EC-Number: 211-128-3

Press. Gas Compr. Gas

Acute Tox. 3 (Inhalation - gas)

Repr. 1A (unborn child)

STOT RE (Blood) 1

Flam. gases (incl. chem. unstable gases) 1

H280, H220, H331, H360, H372

hydrogen

Content (W/W): 60 % - 90 %

CAS Number: 1333-74-0

INDEX-Number: 001-001-00-9

Press. Gas Compr. Gas

Flam. gases (incl. chem. unstable gases) 1

H280, H220

Nitrogen

Content (W/W): 0 % - 2 %

CAS Number: 7727-37-9

EC-Number: 231-783-9

Press. Gas Compr. Gas

H280

For the classifications not written out in full in this section the full text can be found in section 16.

4. First-Aid Measures

Description of first aid measures

First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position). Immediately remove contaminated clothing.

If inhaled:

Keep patient calm, remove to fresh air, seek medical attention.

On skin contact:

Thaw out frostbites under cold liquid or water, do not rub affected parts of the body, apply sterile dressings, consult a skin specialist.

On contact with eyes:

Wash affected eyes for at least 15 minutes under running water with eyelids held open.

On ingestion:

Rinse mouth immediately and then drink plenty of water, induce vomiting, seek medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

Indication of any immediate medical attention and special treatment needed

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Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote. If necessary, give oxygen.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:

water spray, dry powder, carbon dioxide

Special hazards arising from the substance or mixture

The product is combustible. Vapours may form explosive mixture with air. Cool endangered containers with water-spray.

Advice for fire-fighters

Special protective equipment:

Wear a self-contained breathing apparatus.

Further information:

Keep containers cool by spraying with water if exposed to fire. Sealed containers should be protected against heat as this results in pressure build-up. Shut off or stop source of fuel if possible. Ignition and /or flash back possible. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Avoid all sources of ignition: heat, sparks, open flame. Wear respiratory protection if ventilation is inadequate. Ensure adequate ventilation. Wind direction should be noted. Avoid contact with the skin, eyes and clothing.

Environmental precautions

Discharge into the environment must be avoided.

Methods and material for containment and cleaning up

For small amounts: Allow to evaporate.

Ensure adequate ventilation. Swirl gases/vapours/mists with water spray jet.

Reference to other sections

Information regarding exposure controls/personal protection and disposal considerations can be found in section 8 and 13.

7. Handling and Storage

Precautions for safe handling

Ensure thorough ventilation of stores and work areas.

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Protection against fire and explosion:

Vapours may form explosive mixture with air. Avoid all sources of ignition: heat, sparks, open flame.

No smoking. Prevent electrostatic charge - sources of ignition should be kept well clear - fire extinguishers should be kept handy.

Conditions for safe storage, including any incompatibilities

Further information on storage conditions: Keep container tightly closed and in a well-ventilated place. Protect from direct sunlight.

8. Exposure Controls/Personal Protection

Control parameters

Components with occupational exposure limits

74-82-8: methane

630-08-0: carbon monoxide

1333-74-0: hydrogen

7727-37-9: Nitrogen

Exposure controls

Personal protective equipment

Respiratory protection:

Wear respiratory protection if ventilation is inadequate. Self-contained breathing apparatus.

Wear respiratory protection if ventilation is inadequate. Suitable respiratory protection for lower concentrations or short-term effect: Gas filter for carbon monoxide (e. g. EN 14387 Type CO)

Suitable respiratory protection for higher concentrations or long-term effect: Self-contained breathing apparatus.

Hand protection:

Leather gloves

When there is a risk of frostbite from escaping gas, use thermally insulated gloves (EN 511).

Chemical resistant protective gloves (EN 374)

Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374):

nitrile rubber (NBR) - 0.4 mm coating thickness

Manufacturer's directions for use should be observed because of great diversity of types.

Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing.

Eye protection:

Safety glasses with side-shields (frame goggles) (e.g. EN 166)

Body protection:

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Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

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General safety and hygiene measures

Do not breathe gas. Wearing of closed work clothing is required additionally to the stated personal protection equipment. Avoid contact with the skin, eyes and clothing. Remove contaminated clothing immediately and dispose of safely.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Form:	compressed gas, under pressure
Colour:	colourless
Odour:	odourless
Odour threshold:	not determined
pH value:	not applicable
Melting point:	< -180 °C not determined, The statements are based on the properties of the individual components.
Boiling point:	< -160 °C not determined, The statements are based on the properties of the individual components.
Flash point:	Study technically not feasible.
Evaporation rate:	Value can be approximated from Henry's Law Constant or vapor pressure.
Flammability:	Extremely flammable. (other)
Lower explosion limit:	approx. 4 %(V) The product has not been tested. The statement has been derived from the properties of the individual components.
Upper explosion limit:	approx. 75 %(V) The product has not been tested. The statement has been derived from the properties of the individual components.

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Ignition temperature:	> 500 °C The product has not been tested. The statement has been derived from the properties of the individual components.
Vapour pressure:	Study scientifically not justified.
Density:	< 1,25 kg/m ³ (0 °C, 1.013 hPa) The product has not been tested., The statements are based on the properties of the individual components.
Relative vapour density (air):	not determined
Solubility in water:	partly soluble
Partitioning coefficient n-octanol/water (log Kow):	The value has not been determined because the substance is inorganic.
Self ignition:	not self-igniting
Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.
Viscosity, dynamic:	Study scientifically not justified.
Explosion hazard:	not explosive (other)
Fire promoting properties:	not fire-propagating (other)

Other information

pKA:
The substance does not dissociate.

10. Stability and Reactivity**Reactivity**

Corrosion to metals:	Corrosive effects to metal are not anticipated.
Formation of flammable gases:	Remarks: Forms no flammable gases in the presence of water.

Possibility of hazardous reactions

Substance/product can form explosive mixture with air.

Conditions to avoid

Avoid all sources of ignition: heat, sparks, open flame.

Incompatible materials

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Substances to avoid:
atmospheric oxygen, strong oxidizing agents

Hazardous decomposition products

:
No hazardous decomposition products if stored and handled as prescribed/indicated.

11. Toxicological Information

Information on toxicological effects

Acute toxicity

Assessment of acute toxicity:
Of high toxicity after short-term inhalation. The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: carbon monoxide

Experimental/calculated data:

LC50 rat (by inhalation): 2,07 mg/l 1807 ppm 4 h (similar to OECD guideline 403)

The following percentage of the mixture consists of components(s) with unknown hazards regarding the acute toxicity: 60 - 92 %

Irritation

Assessment of irritating effects:
No data available concerning irritating effects. The substance is gaseous at room temperature and pressure. Testing for this particular endpoint is technically not feasible and/or this endpoint does not represent a relevant exposure scenario.

Respiratory/Skin sensitization

Assessment of sensitization:
The chemical structure does not suggest a sensitizing effect.

Germ cell mutagenicity

Assessment of mutagenicity:
No data was available concerning mutagenic activity. The chemical structure does not suggest a specific alert for such an effect.

Carcinogenicity

Assessment of carcinogenicity:
Not evaluated

Reproductive toxicity

Assessment of reproduction toxicity:

No reliable data are available concerning reproduction toxicity. The potential to impair fertility cannot be excluded when given at maternally toxic doses. The product has not been tested. The statement has been derived from the properties of the individual components.

Developmental toxicity

Assessment of teratogenicity:

The substance caused malformations/developmental toxicity in laboratory animals. May cause harm to the unborn child. The product has not been tested. The statement has been derived from the properties of the individual components.

Specific target organ toxicity (single exposure)

Assessment of STOT single:

Based on available Data, the classification criteria are not met.

Remarks: The product has not been tested. The statement has been derived from the properties of the individual components.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

Assessment of repeated dose toxicity:

Repeated inhalation exposure to small quantities may affect certain organs.

Damages blood cells. The product has not been tested. The statement has been derived from the properties of the individual components.

Aspiration hazard

No aspiration hazard expected.

12. Ecological Information

Toxicity

Assessment of aquatic toxicity:

Study scientifically not justified.

Persistence and degradability

Assessment biodegradation and elimination (H₂O):

The product is highly volatile and can be eliminated from water by stripping.

Bioaccumulative potential

Bioaccumulation potential:

Accumulation in organisms is not to be expected.

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Mobility in soil

Assessment transport between environmental compartments:

Volatility: The substance will rapidly evaporate into the atmosphere from the water surface. The product has not been tested. The statement has been derived from the properties of the individual components.

Adsorption in soil: Adsorption to solid soil phase is not expected. The product has not been tested. The statement has been derived from the properties of the individual components.

Other adverse effects

The product does not contain substances that are listed in Regulation (EC) 1005/2009 on substances that deplete the ozone layer.

Additional information

Other ecotoxicological advice:

Do not discharge product into the environment without control.

13. Disposal Considerations

Waste treatment methods

Incinerate in suitable incineration plant, observing local authority regulations.

Contaminated packaging:

No special precautions necessary.

14. Transport Information

Land transport

ADR

UN number	UN1953
UN proper shipping name:	COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S. (contains CARBONMONOXIDE, HYDROGEN)
Transport hazard class(es):	2.3, 2.1
Packing group:	Not applicable
Environmental hazards:	no
Special precautions for user:	: B/D

RID

UN number	UN1953
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UN proper shipping name: COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S. (contains CARBONMONOXIDE, HYDROGEN)
Transport hazard class(es): 2.3, 2.1, 13
Packing group: Not applicable
Environmental hazards: no
Special precautions for user: Shunting label: 13

Inland waterway transport

ADN

UN number: UN1953
UN proper shipping name: COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S. (contains CARBONMONOXIDE, HYDROGEN)
Transport hazard class(es): 2.3, 2.1
Packing group: Not applicable
Environmental hazards: no
Special precautions for user: None known

Transport in inland waterway vessel

Not evaluated

Sea transport

IMDG

UN number: UN 1953
UN proper shipping name: COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S. (contains CARBONMONOXIDE, HYDROGEN)
Transport hazard class(es): 2.3, 2.1
Packing group: Not applicable
Environmental hazards: no
Marine pollutant: NO
Special precautions for user: None known

Air transport

IATA/ICAO

UN number: UN 1953
UN proper shipping name: COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S. (contains CARBONMONOXIDE, HYDROGEN)
Transport hazard class(es): 2.3, 2.1
Packing group: Not applicable

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Environmental hazards: No Mark as dangerous for the environment is needed
Special precautions for user: None known

UN number

See corresponding entries for "UN number" for the respective regulations in the tables above.

UN proper shipping name

See corresponding entries for "UN proper shipping name" for the respective regulations in the tables above.

Transport hazard class(es)

See corresponding entries for "Transport hazard class(es)" for the respective regulations in the tables above.

Packing group

See corresponding entries for "Packing group" for the respective regulations in the tables above.

Environmental hazards

See corresponding entries for "Environmental hazards" for the respective regulations in the tables above.

Special precautions for user

See corresponding entries for "Special precautions for user" for the respective regulations in the tables above.

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Regulation: Not evaluated
Shipment approved: Not evaluated
Pollution name: Not evaluated
Pollution category: Not evaluated
Ship Type: Not evaluated

15. Regulatory Information

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

If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

16. Other Information

Full text of classifications, hazard symbols and hazard statements, if mentioned in section 2 or 3:
Press. Gas Gases under pressure

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Acute Tox.	Acute toxicity
Repr.	Reproductive toxicity
STOT RE	Specific target organ toxicity — repeated exposure
Flam. gases (incl. chem. unstable gases)	Flammable gases (including chemically unstable gases)
H280	Contains gas under pressure; may explode if heated.
H220	Extremely flammable gas.
H331	Toxic if inhaled.
H360	May damage the unborn child.
H372	Causes damage to organs (Blood) through prolonged or repeated exposure.

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. The data do not describe the product's properties (product specification). Neither should any agreed property nor the suitability of the product for any specific purpose be deduced from the data contained in the safety data sheet. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

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