

Safety Data Sheet

Fuel gas bottle 0.1 l / 0.4 l with 100 % vol. hydrogen

Safety Data Sheet in compliance with Regulation (EC) No 1907/2006 (as amended by Regulation (EU) No 878/2020)

Safety data sheet no:	108402		
Version:	4	Replaces version:	3
Creation date:	14.12.2023	Valid from:	20.12.2023


1. Identification of the substance/mixture and of the company/undertaking

Product identifier

Substance name/trade name:	Fuel gas 100 % vol. H ₂ in 0.1 l / 0.4 l gas bottle.
Product code:	ZT30-10000 (0.1 l gas bottle), 9521-0011 (0.1 l refill) ZT31-10000 (0.4 l gas bottle), 9521-0040 (0.4 l refill)
Index no:	001-001-00-9
EC no:	215-605-7
CAS no:	1333-74-0
REACH registration no:	Listed in Annex IV/V REACH, exempted from registration.
Unique formula identifier (UFI)	Not applicable for gases under pressure in accordance with Annex VIII to Regulation (EC) No 1272/2008 (amended by (EU) 2017/542).
Other means of identification:	Fuel gas bottle 100 % vol. H ₂ , Fuel gas 100 % vol. H ₂
Identified uses:	Industrial and professional.
Which are not recommended:	---

Details of the supplier of the safety data sheet

Manufacturer/supplier:	Hermann Sewerin GmbH
Address:	Robert-Bosch-Straße 3, D – 33334 Gütersloh
Email:	info@sewerin.com
Telephone:	+49 (0)5241 934-0
Emergency telephone no:	+49 (0)5241 934-330 (office hours)

2. Hazards identification	
Classification of the substance or mixture	
Classification in accordance with Regulation (EC) No 1272/2008, Annex VII:	Extremely flammable gas (H220).
Label elements in accordance with Regulation (EC) No 1272/2008	
Pictogram/hazard symbol:	
Signal word/indication of danger:	Danger.
Hazard statements (H statements)	H220: Extremely flammable gas
	H280: Contains gas under pressure; may explode if heated.
Precautionary statements (P statements)	P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
	P377: Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
	P381: Eliminate all ignition sources if safe to do so.
	P410+P403: Protect from sunlight. Store in a well-ventilated place.
Other hazards	
Other hazards	Asphyxiating in high concentrations. These elevated concentrations are within the ignition range.

3. Composition/information on ingredients	
Substance/mixture:	Substance
Substance name:	Hydrogen
Concentration:	100 %
Index no:	001-001-00-9
EC no:	215-605-7
CAS no:	1333-74-0

4. First aid measures	
Description of first aid measures	
Inhalation:	In high concentrations may cause asphyxiation. Symptoms may include loss of mobility and consciousness. Victim may not be aware of asphyxiation. Remove victim to uncontaminated area wearing self-contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing has stopped.

Skin contact:	Skin contact is not considered a potential route of exposure.
Eye contact:	Eye contact is not considered a potential route of exposure.
Ingestion:	Ingestion is not considered a potential route of exposure.
Most important symptoms and effects, both acute and delayed	
Most important symptoms and effects, both acute and delayed:	Asphyxiation, loss of mobility and consciousness.
Indication of any immediate medical attention and special treatment needed	
Indication of any immediate medical attention and special treatment needed	Apply artificial respiration if breathing has stopped.

5. Firefighting measures

Extinguishing media

Suitable extinguishing media:	Any known extinguishing media may be used.
Unsuitable extinguishing media:	None known.

Special hazards arising from the substance or mixture

Specific hazards:	Exposure to fire may cause containers to rupture/explode.
Hazardous combustion products:	Incomplete combustion may form carbon monoxide.

Advice for firefighters

Specific methods:	Move away from container and cool with water from a protected position. Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous, explosive reignition may occur. Extinguish any other fire.
Special protective equipment for firefighters:	In confined spaces use self-contained breathing apparatus.
Indication of any immediate medical attention and special treatment needed:	Apply artificial respiration if breathing has stopped.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions, protective equipment and emergency procedures:	Clear the area. Ensure adequate air ventilation. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Eliminate ignition sources.
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Environmental precautions

Environmental precautions:	Try to stop gas release.
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Methods and material for containment and cleaning up

Methods and material for containment and cleaning up:	Ventilate area.
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Reference to other sections	
Reference to other sections:	---

7. Handling and storage	
Precautions for safe handling	
Measures to prevent fire and explosion:	Purge air from system before introducing gas. Take precautionary measures against static discharges. Open valves slowly to prevent pressure spikes. Do not allow water to enter the container. Do not allow backfeed into the container. Use only equipment that is suitable for this product, its supply pressure and temperature. Keep away from ignition sources, including static discharges. Secure pressure vessels (pressure cylinders) to prevent them from overturning.
Measures to prevent dust and aerosol generation:	---
Measures to protect the environment:	---
General hygiene precautions:	---
Conditions for safe storage, including any incompatibilities	
Information on storage conditions:	Segregate from oxidising gases and other oxidising substances. Store containers below 50 °C in a well-ventilated location. Secure pressure vessels (pressure cylinders) to prevent them from overturning.
Requirements for storage areas and containers:	---
Specific end use(s)	
Industry or sector-specific guidance:	---

8. Exposure controls/personal protection	
Control parameters	
Occupational exposure limits for Germany	
Substance name, CAS no:	---
Specification:	---
Value:	---
Acceptable peak concentration:	---
Teratogenic:	---
Monitoring procedures:	---

DNEL and PNEC values	
Substance name, CAS no:	---
Specification:	---
Value:	---
Control banding (e.g. ILO, EMKG)	
Relevant parameters/classification:	---
Relevant protection guidelines:	---
Value:	---
Exposure controls	
Appropriate engineering controls:	Provide general and local ventilation/extraction to keep concentrations below explosion limits and/or to comply with occupational exposure limits (where applicable).
Individual protection measures, such as personal protective equipment:	Ensure adequate ventilation. No smoking when handling the product.
Environmental exposure controls:	---

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance, state of aggregation:	Gas.
Colour:	Colourless gas.
Odour:	No perceptible odour.
Melting point:	-259 °C
Boiling point:	-253 °C
Vapour pressure:	Not applicable.
Relative density, gas (air =1):	0.07
Solubility in water:	1.6 mg/l
Flammability range:	4 % vol. to 75 % vol.
Ignition temperature:	560 °C
Other information	
Molecular weight:	2
Critical temperature:	-240 °C

10. Stability and reactivity	
Reactivity	
Reactivity:	Unreactive under normal temperature and pressure conditions.
Chemical stability	
Chemical stability:	Stable under normal temperature and pressure conditions.
Possibility of hazardous reactions	
Possibility of hazardous reactions:	None.
Conditions to avoid	
Conditions to avoid:	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Incompatible materials	
Incompatible materials:	Can form an explosive mixture with air. Can react vigorously with oxidising substances. Air, oxidising agents.
Hazardous decomposition products	
Hazardous decomposition products:	None.


11. Toxicological information	
Information on hazard classes as defined in Regulation (EC) No 1272/2008	
Information on toxicological effects:	There are no known toxic effects associated with this product.
Information on other hazards	
Other hazards:	None.

12. Ecological information	
Toxicity	
Toxicity:	This product does not cause any environmental pollution.
Persistence and degradability	
Persistence and degradability:	No data available.
Bioaccumulative potential	
Bioaccumulative potential:	No data available.
Mobility in soil	
Mobility in soil:	No data available.

Results of PBT and vPvB assessment	
Results of PBT and vPvB assessment:	No data available.
Endocrine disrupting properties	
Endocrine disrupting properties:	The substance or mixture does not have any endocrine-disrupting properties.
Other adverse effects	
Other adverse effects:	No data available.

13. Disposal considerations	
Waste treatment methods	
Waste treatment methods:	Do not discharge into areas where there is a risk of forming an explosive gas/air mixture. Prevent runoff into sewerage systems, cellars, working pits and similar places where accumulation of the gas could be dangerous. Contact supplier if guidance is required.
Treatment of contaminated packaging:	Contact supplier for special recommendations. Recycling: 15 01 04 Metallic packaging.
Waste code in accordance with the German Waste Ordinance (AVV):	16 05 04 – Gases in pressure containers (including halons) containing dangerous substances.
Special precautions:	---
Relevant EU or other provisions:	---

14. Transport information	
UN number or ID number	
UN number:	UN 1049
UN proper shipping name	
Surface transport (ADR/RID):	HYDROGEN, COMPRESSED
Transport by sea (IMDG):	HYDROGEN, COMPRESSED
Air transport (ICAO-TI/IATA-DGR):	hydrogen, compressed
Transport hazard class(es)	
Transport hazard class surface transport (ADR/RID):	2
Transport hazard class by sea (IMDG):	2
Transport hazard class air transport (ICAO-TI/IATA-DGR):	2

Surface transport	
Classification under ADR/RID regulations:	 2.1
Classification code:	1 F
Tunnel restriction:	D: Passage forbidden through tunnels of categories D and E
Transport by sea	
Classification:	2.1
EMS:	F-D, S-U
Air transport	
Classification:	2.1
Packing group	
Surface transport (ADR/RID):	Not applicable.
Transport by sea (IMDG):	Not applicable.
Air transport (ICAO-TI/IATA-DGR):	Not applicable.
Environmental hazards	
Surface transport (ADR/RID):	Not a marine pollutant.
Transport by sea (IMDG):	Not a marine pollutant.
Air transport (ICAO-TI/IATA-DGR):	Not a marine pollutant.
Special precautions for user	
Other transport information:	<p>Where possible avoid transport in vehicles where the load space is not separated from the driver's compartment.</p> <p>Secure gas cylinders. Cylinder valves must be closed and not leaking. Ensure that the valve protection device (where provided) is correctly fitted.</p> <p>Ensure that the valve lock nut is correctly fitted.</p> <p>Ensure adequate ventilation.</p> <p>Ensure compliance with applicable regulations.</p>
Air transport (ICAO-TI/IATA-DGR):	<p>Transport on passenger aircraft is prohibited.</p> <p>Transport only by cargo plane.</p>
Maritime transport in bulk according to IMO instruments	
Maritime transport in bulk:	Not applicable.

15. Regulatory information	
Safety, health and environmental regulations/legislation specific for the substance or mixture	
European requirements:	Regulation EG No. 1907/2006 (REACH). Regulation EG No. 1272/2008 (CLP).
	Ensure compliance with all national and local regulations.
Chemical safety assessment	
Chemical safety assessment:	A chemical safety assessment does not need to be prepared for this product.

16. Other information	
Changes to the previous version:	Revision according to Regulation (EU) No. 878/2020.
Training for employees:	www.industriegaseverband.de http://www.eiga.org/
Conversion of units:	0.001 % vol. = 10 ppm
Further information:	The risk of asphyxiation is often overlooked and must be stressed during operator training. Before using the product in any new process or experiment, a thorough material compatibility and safety study should be carried out. This information does not imply a contractual confirmation of product characteristics. It is based on current knowledge.

108402 – 20.12.2023 – Subject to technical changes.