

## 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 453/2010)

Safety data sheet no:	108402
Version:	3
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Replaces version:	2


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

#### Product identifier

Substance name/trade name:	Fuel gas 100 % vol. H <sub>2</sub> 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.
Other means of identification:	Fuel gas bottle 100 % vol. H <sub>2</sub> , Fuel gas 100 % vol. H <sub>2</sub>
Uses:	Industrial and professional.

#### Details of the supplier of the safety data sheet

Manufacturer/supplier:	Hermann Sewerin GmbH
Street address:	Robert-Bosch-Straße 3
City/town, country:	33334 Gütersloh, Germany
Email:	<a href="mailto:info@sewerin.com">info@sewerin.com</a>
Telephone/fax:	+49 (0)5241 934444
Emergency telephone number:	+49 (0)5241 934333 (office hours)

<b>2. Hazards identification</b>	
<b>Classification of the substance or mixture</b>	
Classification in accordance with Regulation (EC) No 1272/2008, Annex VII:	Extremely flammable gas (H220). F+; R12
<b>Label elements in accordance with Regulation (EC) No 1272/2008:</b>	
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.

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

<b>4. First aid measures</b>	
<b>Description of first aid measures</b>	
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:	Asphyxiation, loss of mobility and consciousness.
Indication of any immediate medical attention and special treatment needed	Apply artificial respiration if breathing has stopped.

<b>5. Firefighting measures</b>	
<b>Extinguishing media</b>	
Suitable extinguishing media:	Any known extinguishing media may be used.
Unsuitable extinguishing media:	None known.
<b>Special hazards arising from the substance or mixture</b>	
Specific hazards:	Exposure to fire may cause containers to rupture/explode. Burns with an invisible flame.
Hazardous combustion products:	Incomplete combustion may form carbon monoxide.
<b>Advice for firefighters</b>	
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.

<b>6. Accidental release measures</b>	
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.
Environmental precautions:	Try to stop gas release.
Methods and material for containment and cleaning up:	Ventilate area.
Reference to other sections:	---

<b>7. Handling and storage</b>	
<b>Precautions for safe handling</b>	
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:	---
<b>Conditions for safe storage, including any incompatibilities</b>	
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:	---
<b>Specific end use(s)</b>	
Industry or sector-specific guidance:	---

<b>8. Exposure controls/personal protection</b>	
<b>Occupational exposure limits and/or biological limits</b>	
<b>Occupational exposure limits for Germany</b>	
Substance name, CAS no:	---
Specification:	---
Value:	---
Acceptable peak concentration:	---
Teratogenic:	---
Monitoring procedures:	---
<b>DNEL and PNEC values</b>	
Substance name, CAS no:	---
Specification:	---
Value:	---
<b>Control banding (e.g. ILO, EMKG)</b>	
Relevant parameters/classification:	---
Relevant protection guidelines:	---
Value:	---
<b>Exposure controls</b>	
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:	---



<b>9. Physical and chemical properties</b>	
Appearance, state of aggregation:	Gas.
Colour:	Colourless gas.
Odour:	No perceptible odour.
Molecular weight:	2
Melting point:	-259 °C
Boiling point:	-253 °C
Critical temperature:	-240 °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

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

<b>11. Toxicological information</b>	
Information on toxicological effects:	There are no known toxic effects associated with this product.

<b>12. Ecological information</b>	
Toxicity:	When discharged in large quantities may contribute to the greenhouse effect.
Persistence and degradability:	No data available.
Bioaccumulative potential:	No data available.
Mobility in soil:	No data available.
Results of PBT and vPvB assessment:	No data available.
Other adverse effects:	No data available.

<b>13. Disposal considerations</b>	
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:	---

<b>14. Transport information</b>	
UN number:	UN 1049
Classification under ADR/RID regulations:	 2.1: Flammable gases.
Classification under IMDG Code/ICAO-TI/IATA-DGR regulations:	 2.1: Flammable gases.
<b>Surface transport</b>	
HI no:	---
UN proper shipping name:	UN 1049, HYDROGEN, COMPRESSED, 2.1, (D)
Transport hazard class(es):	2
Classification code:	1 F
Packing group:	---
Packing instruction(s):	P200
Tunnel restriction:	D: Passage forbidden through tunnels of categories D and E
ADR limited quantities:	No exemption.

<b>Transport by sea</b>	
GGVSee/IMO-IMDG code:	Class 2
Description of the goods:	HYDROGEN, COMPRESSED
Class:	2.1
Packing group:	P200
EMS:	F-D, S-U
<b>Air transport</b>	
ICAO/IATA-DGR:	Packing instruction (cargo): 200
Technical name:	HYDROGEN, COMPRESSED
Class:	2.1
IATA packing group:	---
IATA passenger and cargo aircraft:	Not allowed.
Packing instruction:	---
Cargo aircraft only:	Allowed.
Packing instruction:	200
<b>Environmental hazards - Indication of environmentally hazardous substances</b>	
ADR/RID / IMDG Code / ICAO-TI / IATA-DGR:	None.
Marine pollutant:	None.
<b>Special precautions for user</b>	
Other transport information:	Where possible avoid transport in vehicles where the load space is not separated from the driver's compartment. Secure gas cylinders. Cylinder valves must be closed and not leaking. Ensure that the valve protection device (where provided) is correctly fitted. Ensure that the valve lock nut is correctly fitted. Ensure adequate ventilation. Ensure compliance with applicable regulations.

## 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).
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### National regulations:

	Ensure compliance with all national and local regulations.
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<b>16. Other information</b>	
Changes to the previous version:	Section 15.
Training for employees:	<a href="http://www.industriegaseverband.de">www.industriegaseverband.de</a> <a href="http://www.eiga.org/">http://www.eiga.org/</a>
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 – 14.08.2017 – Subject to technical changes.