Safety data sheet
according to Regulation (EC) No 1907/2006, Annex II

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

1.1 Product identifier

FUEL CELL (Hochdruck)

1.2 Relevant identified uses of the substance or mixture and uses advised against
Relevant identified uses of the substance or mixture:
Cartridge
Uses advised against:
No information available at present.

1.3 Details of the supplier of the safety data sheet
OK Befestigung GmbH & Co. KG, Liesentorweg 19 A, D-47802 Krefeld
Telephone: +49 (0)2151 953639, Fax: +49 (0)2151 953649
www.okbefestigung.de

Qualified person's e-mail address: info@chemical-check.de, k.schnurbusch@chemical-check.de Please DO NOT use for requesting Safety Data Sheets.

1.4 Emergency telephone
Emergency information services / official advisory body:

Telephone number of the company in case of emergencies:
Tel.: +49 (0)2151 953639

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
2.1.1 Classification according to Regulation (EC) 1272/2008 (CLP)

Hazard class	Hazard category	Hazard statement
Flam. Gas	1	H220-Extremely flammable gas.
Aquatic Chronic	3	H412-Harmful to aquatic life with long lasting effects.

2.1.2 Classification according to Directives 67/548/EEC and 1999/45/EC (including amendments)
F+, Extremely flammable, R12
Dangerous for the environment, R52-53
2.2 Label elements
2.2.1 Labeling according to Regulation (EC) 1272/2008 (CLP)

Danger

Hazard statement
H220-Extremely flammable gas. H412-Harmful to aquatic life with long lasting effects.
Prevention
P210-Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Response
P377-Leaking gas fire: Do not extinguish, unless leak can be stopped safely. P381-Eliminate all ignition sources if safe to do so.

Storage

P403-Store in a well-ventilated place.

2.3 Other hazards

The mixture does not contain any vPvB substance (vPvB = very persistent, very bioaccumulative) or is not included under XIII of the regulation (EC) 1907/2006.
The mixture does not contain any PBT substance (PBT = persistent, bioaccumulative, toxic) or is not included under XIII of the regulation (EC) 1907/2006.
Danger of bursting (explosion) when heated
Possible build up of explosive/highly flammable vapour/air mixture.
Liquid projections or spray may cause frostbite.

SECTION 3: Composition/information on ingredients

3.1 Substance

n.a.

3.2 Mixture

Pentane	**Substance for which an EU exposure limit value applies.**
Registration number (REACH)	-
Index	601-006-00-1
EINECS, ELINCS, NLP	203-692-4
CAS	CAS 109-66-0
content %	1-5
Classification according to Directive 67/548/EEC	Extremely flammable, F+, R12 Dangerous for the environment, N, R51 Dangerous for the environment, R53 Harmful, Xn, R65 R66 R67
Classification according to Regulation (EC) 1272/2008 (CLP)	Aquatic Chronic 2, H411 Asp. Tox. 1, H304 STOT SE 3, H336 Flam. Liq. 2, H225

Hydrocarbons, C6, isoalkanes, <5% n-hexane	
Registration number (REACH)	01-2119484651-34-XXXX
Index	---
EINECS, ELINCS, NLP	931-254-9 (REACH-IT List-No.)
CAS	(64742-49-0)
content %	1-2,5
Classification according to Directive 67/548/EEC	Highly flammable, F, R11 Irritant, Xi, R38 Dangerous for the environment, N, R51 Dangerous for the environment, R53 Harmful, Xn, R65 R67
Classification according to Regulation (EC) 1272/2008 (CLP)	Flam. Liq. 2, H225 Asp. Tox. 1, H304 Skin Irrit. 2, H315 STOT SE 3, H336 Aquatic Chronic 2, H411

Hydrocarbons, C6-C7, isoalkanes, cyclics, < 5% n-hexane	
Registration number (REACH)	01-2119486291-36-XXXX
Index	---
EINECS, ELINCS, NLP	926-605-8 (REACH-IT List-No.)
CAS	CAS ---
content %	1-2,5

Classification according to Directive 67/548/EEC	Highly flammable, F, R11 Dangerous for the environment, N, R51 Dangerous for the environment, R53 Harmful, Xn, R65 R66 R67
Classification according to Regulation (EC) 1272/2008 (CLP)	Aquatic Chronic 2, H411 Asp. Tox. 1, H304 Flam. Liq. 2, H225 STOT SE 3, H336

For the text of the R-phrases / H-phrases and classification codes (GHS/CLP), see Section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

Inhalation

Remove person from danger area.
Supply person with fresh air and consult doctor according to symptoms.
If the person is unconscious, place in a stable side position and consult a doctor.
Respiratory arrest - Artificial respiration apparatus necessary.

Skin contact

Normally not irritating to skin.
Wash in water.
Cover frostbite aseptically.

Eye contact

Remove contact lenses.
Wash thoroughly for several minutes using copious water - call doctor immediately, have Data Sheet available.

Ingestion

Typically no exposure pathway.
Rinse the mouth thoroughly with water.
Call doctor immediately - have Data Sheet available.

4.2 Most important symptoms and effects, both acute and delayed

If applicable delayed symptoms and effects can be found in section 11 and the absorption route in section 4.1.
In certain cases, the symptoms of poisoning may only appear after an extended period / after several hours.
The following may occur:
At high levels of concentration the propellant dispels the oxygen in air needed to breathe.
Respiratory distress
Nausea
Headaches
Effect on the central nervous system
Coordination disorders

4.3 Indication of any immediate medical attention and special treatment needed

n.c.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water jet spray/foam/CO2/dry extinguisher

Unsuitable extinguishing media

High volume water jet

5.2 Special hazards arising from the substance or mixture

In case of fire the following can develop:
Oxides of carbon
Toxic gases
Danger of bursting (explosion) when heated
Explosive gas/air mixtures

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes.
Protective respirator with independent air supply.
According to size of fire
Full protection, if necessary

Cool container at risk with water.
Dispose of contaminated extinction water according to official regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Remove possible causes of ignition - do not smoke.
Ensure sufficient supply of air.
Avoid inhalation, and contact with eyes or skin.

6.2 Environmental precautions
Prevent penetration into drains, cellars, working pits or other places in which accumulation could be hazardous.

6.3 Methods and material for containment and cleaning up
If spray or gas escapes, ensure ample fresh air is available.
Without adequate ventilation, formation of explosive mixtures may be possible.

6.4 Reference to other sections
For personal protective equipment see Section 8 and for disposal instructions see Section 13.

SECTION 7: Handling and storage

In addition to information given in this section, relevant information can also be found in section 8 and 6.1.

7.1 Precautions for safe handling

7.1.1 General recommendations
Ensure good ventilation.
Keep away from sources of ignition - Do not smoke.
Take precautions against electrostatic charges.
Only use equipment that is suitable for this product and the intended pressure and temperature.
Eating, drinking, smoking, as well as food-storage, is prohibited in work-room.
Observe directions on label and instructions for use.
Use working methods according to operating instructions.

7.1.2 Notes on general hygiene measures at the workplace
General hygiene measures for the handling of chemicals are applicable.
Wash hands before breaks and at end of work.
Keep away from food, drink and animal feedingstuffs.
Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

7.2 Conditions for safe storage, including any incompatibilities
Keep out of access to unauthorised individuals.
Do not store with flammable or self-igniting materials.
Not to be stored in gangways or stair wells.
Observe special regulations for gases.
Keep protected from direct sunlight and temperatures over 50°C.
Store in a well ventilated place.
Store upright.
Store cool

7.3 Specific end use(s)
No information available at present.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
Workplace exposure limit (WEL) of the total hydrocarbon solvent content of the mixture (RCP method according to EH40):
500 mg/m3

GB **Chemical Name**	Pentane		Content %:1-5
WEL-TWA: 600 ppm (1800 mg/m3) (WEL), 1000 ppm (3000 mg/m3) (EU)	WEL-STEL: ---	---	
BMGV: ---		Other information: ---	

GB **Chemical Name**	Hydrocarbons, C6, isoalkanes, <5% n-hexane		Content %:1-2,5
WEL-TWA: 800 mg/m3	WEL-STEL: ---	---	
BMGV: ---		Other information: (WEL acc. to RCP-method, EH40)	

GB **Chemical Name**	Hydrocarbons, C6-C7, isoalkanes, cyclics, < 5% n-hexane	Content %:1-2,5

WEL-TWA: 350 mg/m3 (cyclohexane)	WEL-STEL: ---	---
BMGV: ---	Other information: ---	

GB Chemical Name	Propane	Content %:
WEL-TWA: 1000 ppm (ACGIH)	WEL-STEL: ---	---
BMGV: ---	Other information: ---	

GB WEL-TWA = Workplace Exposure Limit - Long-term exposure limit (8-hour TWA (= time weighted average) reference period) EH40. AGW = "Arbeitsplatzgrenzwert" (workplace limit value, Germany). | WEL-STEL = Workplace Exposure Limit - Short-term exposure limit (15-minute reference period). | BMGV = Biological monitoring guidance value EH40. BGW = "Biologischer Grenzwert" (biological limit value, Germany) | Other information: Sen = Capable of causing occupational asthma. Sk = Can be absorbed through skin. Carc = Capable of causing cancer and/or heritable genetic damage.
** = The exposure limit for this substance is repealed through the TRGS 900 (Germany) of January 2006 with the goal of revision.

Hydrocarbons, C6, isoalkanes, <5% n-hexane						
Area of application	**Exposure route / Environmental compartment**	**Effect on health**	**Descriptor**	**Value**	**Unit**	**Note**
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	13964	mg/kg bw/day	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	5306	mg/m3	
Consumer	Human - oral	Long term, systemic effects	DNEL	1301	mg/kg bw/day	
Consumer	Human - dermal	Long term, systemic effects	DNEL	1377	mg/kg bw/day	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	1137	mg/m3	

Hydrocarbons, C6-C7, isoalkanes, cyclics, < 5% n-hexane						
Area of application	**Exposure route / Environmental compartment**	**Effect on health**	**Descriptor**	**Value**	**Unit**	**Note**
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	13964	mg/kg bw/day	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	5306	mg/kg	
Consumer	Human - dermal	Long term, systemic effects	DNEL	1377	mg/kg bw/day	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	1131	mg/kg	
Consumer	Human - oral	Long term, systemic effects	DNEL	1301	mg/kg bw/day	

8.2 Exposure controls
8.2.1 Appropriate engineering controls

Ensure good ventilation. This can be achieved by local suction or general air extraction.
If this is insufficient to maintain the concentration under the WEL or AGW values, suitable breathing protection should be worn.
Applies only if maximum permissible exposure values are listed here.

8.2.2 Individual protection measures, such as personal protective equipment
General hygiene measures for the handling of chemicals are applicable.
Wash hands before breaks and at end of work.
Keep away from food, drink and animal feedingstuffs.
Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

Eye/face protection:
Normally not necessary.

Skin protection - Hand protection:
Normally not necessary.
If applicable
Leather gloves

Skin protection - Other:
Protective working garments (e.g. safety shoes EN ISO 20345, long-sleeved protective working garments)

Respiratory protection:
Normally not necessary.
If OES or MEL is exceeded.
Gas mask filter AX (EN 14387), code colour brown.
At high concentrations:
Respiratory protection appliance (insulation device) (e.g. EN 137 or EN 138)
Observe wearing time limitations for respiratory protection equipment.

Thermal hazards:
Not applicable

Additional information on hand protection - No tests have been performed.
In the case of mixtures, the selection has been made according to the knowledge available and the information about the contents.
Selection of materials derived from glove manufacturer's indications.
Final selection of glove material must be made taking the breakthrough times, permeation rates and degradation into account.
Selection of a suitable glove depends not only on the material but also on other quality characteristics and varies from manufacturer to manufacturer.
In the case of mixtures, the resistance of glove materials cannot be predicted and must therefore be tested before use.
The exact breakthrough time of the glove material can be requested from the protective glove manufacturer and must be observed.

8.2.3 Environmental exposure controls
No information available at present.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state:	Gas forming, Liquid
Colour:	Colourless
Odour:	Characteristic
Odour threshold:	Not determined
pH-value:	n.a.
Melting point/freezing point:	Not determined
Initial boiling point and boiling range:	Not determined
Flash point:	n.a.
Evaporation rate:	Not determined
Flammability (solid, gas):	Not determined
Lower explosive limit:	Not determined
Upper explosive limit:	Not determined
Vapour pressure:	18 bar
Vapour density (air = 1):	Gasses, heavier than air.
Density:	Not determined
Bulk density:	n.a.
Solubility(ies):	Not determined
Water solubility:	Not miscible
Partition coefficient (n-octanol/water):	Not determined
Auto-ignition temperature:	Not determined
Decomposition temperature:	Not determined
Viscosity:	n.a.
Explosive properties:	Possible build up of explosive/highly flammable vapour/air mixture. Product is not explosive.
Oxidising properties:	No

9.2 Other information

Miscibility:	Not determined
Fat solubility / solvent:	Not determined
Conductivity:	Not determined
Surface tension:	Not determined
Solvents content:	Not determined

SECTION 10: Stability and reactivity

10.1 Reactivity
The product has not been tested.

10.2 Chemical stability
Stable with proper storage and handling.

10.3 Possibility of hazardous reactions
No dangerous reactions are known.

10.4 Conditions to avoid
See also section 7.
Heating, open flame, ignition sources
Pressure increase will result in danger of bursting.

10.5 Incompatible materials
See also section 7.
Avoid contact with strong oxidizing agents.

10.6 Hazardous decomposition products
See also section 5.2
No decomposition when used as directed.

SECTION 11: Toxicological information

Possibly more information on health effects, see Section 2.1 (classification).

FUEL CELL (Hochdruck)

Toxicity/effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:						n.d.a.
Acute toxicity, by dermal route:						n.d.a.
Acute toxicity, by inhalation:						n.d.a.
Skin corrosion/irritation:						n.d.a.
Serious eye damage/irritation:						n.d.a.
Respiratory or skin sensitisation:						n.d.a.
Germ cell mutagenicity:						n.d.a.
Carcinogenicity:						n.d.a.
Reproductive toxicity:						n.d.a.
Specific target organ toxicity - single exposure (STOT-SE):						n.d.a.
Specific target organ toxicity - repeated exposure (STOT-RE):						n.d.a.
Aspiration hazard:						n.d.a.
Respiratory tract irritation:						n.d.a.
Repeated dose toxicity:						n.d.a.
Symptoms:						n.d.a.
Other information:						Classification according to calculation procedure.

Pentane

Toxicity/effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	>16000	mg/kg	Rat		
Acute toxicity, by dermal route:	LD50	>2000	mg/kg	Rabbit		
Acute toxicity, by inhalation:	LC50	>100	mg/l/4h	Rat		
Skin corrosion/irritation:						Mild irritant, Repeated exposure may cause skin dryness or cracking.
Serious eye damage/irritation:						Mild irritant
Respiratory or skin sensitisation:						Not sensitizising
Germ cell mutagenicity:					OECD 471 (Bacterial Reverse Mutation Test)	Negative
Aspiration hazard:						Yes

Respiratory tract irritation:						Mild irritant
Symptoms:						dizziness, vomiting, cramps, drowsiness, mucous membrane irritation

Hydrocarbons, C6, isoalkanes, <5% n-hexane

Toxicity/effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	>16750	mg/kg	Rat	OECD 401 (Acute Oral Toxicity)	
Acute toxicity, by dermal route:	LD50	>3350	mg/kg	Rabbit	OECD 402 (Acute Dermal Toxicity)	
Acute toxicity, by inhalation:	LC50	259354	mg/m3	Rat	OECD 403 (Acute Inhalation Toxicity)	
Skin corrosion/irritation:						Irritant
Aspiration hazard:						Yes
Symptoms:						dizziness, unconsciousness, heart/circulatory disorders, headaches, cramps, drowsiness, mucous membrane irritation, dizziness, nausea and vomiting.

Hydrocarbons, C6-C7, isoalkanes, cyclics, < 5% n-hexane

Toxicity/effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	>5000	mg/kg	Rat	OECD 401 (Acute Oral Toxicity)	Analogous conclusion
Acute toxicity, by dermal route:	LD50	>2000	mg/kg	Rat	OECD 402 (Acute Dermal Toxicity)	Analogous conclusion
Acute toxicity, by inhalation:	LC50	>20	mg/l/4h	Rat	OECD 403 (Acute Inhalation Toxicity)	Vapours, Analogous conclusion
Skin corrosion/irritation:					OECD 404 (Acute Dermal Irritation/Corrosion)	Drying of the skin.
Serious eye damage/irritation:					OECD 405 (Acute Eye Irritation/Corrosion)	Mild irritant
Respiratory or skin sensitisation:					OECD 429 (Skin Sensitisation - Local Lymph Node Assay)	No indications of such an effect.
Specific target organ toxicity - single exposure (STOT-SE):						May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure (STOT-RE):						Yes
Aspiration hazard:						Yes
Respiratory tract irritation:						Not to be expected
Symptoms:						respiratory distress, drying of the skin., dizziness, annoyance, heart/circulatory disorders, coughing, headaches, cramps, drowsiness, mucous membrane irritation, dizziness, nausea and vomiting.

Propane

Toxicity/effect	Endpoint	Value	Unit	Organism	Test method	Notes

Germ cell mutagenicity (bacterial):					OECD 471 (Bacterial Reverse Mutation Test)	Negative
Symptoms:						breathing difficulties, unconsciousness, frostbite, headaches, cramps, mucous membrane irritation, dizziness, nausea and vomiting.

SECTION 12: Ecological information

Possibly more information on environmental effects, see Section 2.1 (classification).

FUEL CELL (Hochdruck)

Toxicity/effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
Toxicity to fish:							n.d.a.
Toxicity to daphnia:							n.d.a.
Toxicity to algae:							n.d.a.
Persistence and degradability:							n.d.a.
Bioaccumulative potential:							n.d.a.
Mobility in soil:							n.d.a.
Results of PBT and vPvB assessment:							n.d.a.
Other adverse effects:							n.d.a.

Pentane

Toxicity/effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
Toxicity to fish:	LC50	96h	9,87	mg/l	Oncorhynchus mykiss		
Toxicity to fish:	LC50	96h	9,87	mg/l	Salmo gairdneri		
Toxicity to fish:	LC50	96h	9,99	mg/l	Lepomis macrochirus		
Toxicity to daphnia:	EC50	48h	9,74	mg/l	Daphnia magna		
Persistence and degradability:		8d	70	%			
Bioaccumulative potential:	Log Pow		3,39				calculated value

Hydrocarbons, C6, isoalkanes, <5% n-hexane

Toxicity/effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
Toxicity to fish:	LC50	48h	>1	mg/l	Oryzias latipes		Analogous conclusion
Toxicity to daphnia:	LC50	48h	3,87	mg/l	Daphnia magna		Analogous conclusion
Toxicity to algae:	ErC50	72h	55	mg/l	Pseudokirchneriella subcapitata		Analogous conclusion
Toxicity to algae:	NOELR	72h	30	mg/l	Raphidocelis subcapitata		
Persistence and degradability:							Readily biodegradable (Analogous conclusion)
Bioaccumulative potential:	Log Kow		4				
Results of PBT and vPvB assessment:							No PBT substance, No vPvB substance

Hydrocarbons, C6-C7, isoalkanes, cyclics, < 5% n-hexane

Toxicity/effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
Toxicity to fish:	LL50	96h	12	mg/l	Oncorhynchus mykiss		
Toxicity to daphnia:	EL50	48h	3	mg/l	Daphnia magna		
Persistence and degradability:		28d	98	%			

Propane

Toxicity/effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
Bioaccumulative potential:	Log Pow		2,28				A notable biological accumulation potential is not to be expected (LogPow 1-3).
Results of PBT and vPvB assessment:							No PBT substance, No vPvB substance

SECTION 13: Disposal considerations

13.1 Waste treatment methods

For the substance / mixture / residual amounts

EC disposal code no.:
The waste codes are recommendations based on the scheduled use of this product.
Owing to the user's specific conditions for use and disposal, other waste codes may be allocated under certain circumstances. (2001/118/EC, 2001/119/EC, 2001/573/EC)
16 05 04 gases in pressure containers (including halons) containing dangerous substances
Recommendation:
Pay attention to local and national official regulations
Implement substance recycling.

For contaminated packing material

Pay attention to local and national official regulations
Do not perforate, cut up or weld uncleaned container.
Residues may present a risk of explosion.
15 01 04 metallic packaging

SECTION 14: Transport information

General statements

UN number: 3150

Transport by road/by rail (ADR/RID)

UN proper shipping name:
UN 3150 DEVICES, SMALL, HYDROCARBON GAS POWERED

Transport hazard class(es):	2.1
Packing group:	-
Classification code:	6F
LQ (ADR 2013):	0
LQ (ADR 2009):	0
Environmental hazards:	Not applicable
Tunnel restriction code:	D

Special precautions for user

Persons employed in transporting dangerous goods must be trained.
All persons involved in transporting must observe safety regulations.
Precautions must be taken to prevent damage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Freighted as packaged goods rather than in bulk, therefore not applicable.
Minimum amount regulations have not been taken into account.
Danger code and packing code on request.

SECTION 15: Regulatory information

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

For classification and labelling see Section 2.

Observe restrictions:	Yes

Comply with trade association/occupational health regulations.
Observe youth employment law (German regulation).

VOC (1999/13/EC):	100%

15.2 Chemical safety assessment

A chemical safety assessment is not provided for mixtures.

SECTION 16: Other information

These details refer to the product as it is delivered.
Revised sections: 2, 3, 8, 9, 11, 12, 15, 16

Classification and processes used to derive the classification of the mixture in accordance with the ordinance (EG) 1272/2008 (CLP):

Classification in accordance with regulation (EC) No. 1272/2008 (CLP)	Evaluation method used
Flam. Gas 1, H220	Classification based on test data.
Aquatic Chronic 3, H412	Classification according to calculation procedure.

The following phrases represent the posted R phrases / H phrases, Hazard Class and Risk Category Code (GHS/CLP) of the product and the constituents (specified in Section 2 and 3).
11 Highly flammable.
12 Extremely flammable.
38 Irritating to skin.
51 Toxic to aquatic organisms.
52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
53 May cause long-term adverse effects in the aquatic environment.
65 Harmful: may cause lung damage if swallowed.
66 Repeated exposure may cause skin dryness or cracking.
67 Vapours may cause drowsiness and dizziness.
H225 Highly flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H336 May cause drowsiness or dizziness.
H411 Toxic to aquatic life with long lasting effects.

Flam. Gas — Flammable gases (including chemically unstable gases)
Aquatic Chronic — Hazardous to the aquatic environment - chronic
Asp. Tox. — Aspiration hazard
STOT SE — Specific target organ toxicity - single exposure - narcotic effects
Flam. Liq. — Flammable liquid
Skin Irrit. — Skin irritation

Any abbreviations and acronyms used in this document:

AC Article Categories
acc., acc. to according, according to
ACGIH American Conference of Governmental Industrial Hygienists
ADR Accord européen relatif au transport international des marchandises Dangereuses par Route (= European Agreement concerning the International Carriage of Dangerous Goods by Road)
AOEL Acceptable Operator Exposure Level
AOX Adsorbable organic halogen compounds
approx. approximately
Art., Art. no. Article number
ATE Acute Toxicity Estimate according to Regulation (EC) 1272/2008 (CLP)
BAM Bundesanstalt für Materialforschung und -prüfung (Federal Institute for Materials Research and Testing, Germany)
BAuA Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (= Federal Institute for Occupational Health and Safety, Germany)
BCF Bioconcentration factor
BGV Berufsgenossenschaftliche Vorschrift (= Accident Prevention Regulation)
BHT Butylhydroxytoluol (= 2,6-Di-t-butyl-4-methyl-phenol)
BMGV Biological monitoring guidance value (EH40, UK)
BOD Biochemical oxygen demand
BSEF Bromine Science and Environmental Forum
bw body weight
CAS Chemical Abstracts Service
CEC Coordinating European Council for the Development of Performance Tests for Fuels, Lubricants and Other Fluids
CESIO Comité Européen des Agents de Surface et de leurs Intermédiaires Organiques
CIPAC Collaborative International Pesticides Analytical Council
CLP Classification, Labelling and Packaging (REGULATION (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures)
CMR carcinogenic, mutagenic, reproductive toxic
COD Chemical oxygen demand

CTFA Cosmetic, Toiletry, and Fragrance Association
DMEL Derived Minimum Effect Level
DNEL Derived No Effect Level
DOC Dissolved organic carbon
DT50 Dwell Time - 50% reduction of start concentration
DVS Deutscher Verband für Schweißen und verwandte Verfahren e.V. (= German Association for Welding and Allied Processes)
dw dry weight
e.g. for example (abbreviation of Latin 'exempli gratia'), for instance
EC European Community
ECHA European Chemicals Agency
EEA European Economic Area
EEC European Economic Community
EINECS European Inventory of Existing Commercial Chemical Substances
ELINCS European List of Notified Chemical Substances
EN European Norms
EPA United States Environmental Protection Agency (United States of America)
ERC Environmental Release Categories
ES Exposure scenario
etc. et cetera
EU European Union
EWC European Waste Catalogue
Fax. Fax number
gen. general
GHS Globally Harmonized System of Classification and Labelling of Chemicals
GWP Global warming potential
HET-CAM Hen's Egg Test - Chorionallantoic Membrane
HGWP Halocarbon Global Warming Potential
IARC International Agency for Research on Cancer
IATA International Air Transport Association
IBC Intermediate Bulk Container
IBC (Code) International Bulk Chemical (Code)
IC Inhibitory concentration
IMDG-code International Maritime Code for Dangerous Goods
incl. including, inclusive
IUCLID International Uniform ChemicaL Information Database
LC lethal concentration
LC50 lethal concentration 50 percent kill
LCLo lowest published lethal concentration
LD Lethal Dose of a chemical
LD50 Lethal Dose, 50% kill
LDLo Lethal Dose Low
LOAEL Lowest Observed Adverse Effect Level
LOEC Lowest Observed Effect Concentration
LOEL Lowest Observed Effect Level
LQ Limited Quantities
MARPOL International Convention for the Prevention of Marine Pollution from Ships
n.a. not applicable
n.av. not available
n.c. not checked
n.d.a. no data available
NIOSH National Institute of Occupational Safety and Health (United States of America)
NOAEC No Observed Adverse Effective Concentration
NOAEL No Observed Adverse Effect Level
NOEC No Observed Effect Concentration
NOEL No Observed Effect Level
ODP Ozone Depletion Potential
OECD Organisation for Economic Co-operation and Development
org. organic
PAH polycyclic aromatic hydrocarbon
PBT persistent, bioaccumulative and toxic
PC Chemical product category
PE Polyethylene
PNEC Predicted No Effect Concentration
POCP Photochemical ozone creation potential
ppm parts per million
PROC Process category
PTFE Polytetrafluorethylene

REACH Registration, Evaluation, Authorisation and Restriction of Chemicals (REGULATION (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals)
REACH-IT List-No. 9xx-xxx-x No. is automatically assigned, e.g. to pre-registrations without a CAS No. or other numerical identifier. List Numbers do not have any legal significance, rather they are purely technical identifiers for processing a submission via REACH-IT.
RID Règlement concernant le transport International ferroviaire de marchandises Dangereuses (= Regulation concerning the International Carriage of Dangerous Goods by Rail)
SADT Self-Accelerating Decomposition Temperature
SAR Structure Activity Relationship
SU Sector of use
SVHC Substances of Very High Concern
Tel. Telephone
ThOD Theoretical oxygen demand
TOC Total organic carbon
TRGS Technische Regeln für Gefahrstoffe (=Technical Regulations for Hazardous Substances)
UN RTDG United Nations Recommendations on the Transport of Dangerous Goods
VbF Verordnung über brennbare Flüssigkeiten (= Regulation for flammable liquids (Austria))
VOC Volatile organic compounds
vPvB very persistent and very bioaccumulative
WEL-TWA, WEL-STEL WEL-TWA = Workplace Exposure Limit - Long-term exposure limit (8-hour TWA (= time weighted average) reference period), WEL-STEL = Workplace Exposure Limit - Short-term exposure limit (15-minute reference period) (EH40, UK).
WHO World Health Organization
wwt wet weight

The statements made here should describe the product with regard to the necessary safety precautions - they are not meant to guarantee definite characteristics - but they are based on our present up-to-date knowledge.
No responsibility.
These statements were made by:

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