

## n-Heptane

Version number: GHS 1.0

Revision: 25.02.2016

### SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

#### 1.1 Product identifier

Identification of the substance	<b>n-Heptane</b>
Registration number (REACH)	01-2119457603-38-0000
EC number	205-563-8
Index No	601-008-00-2
CAS number	142-82-5
Additional relevant and available information	n-Heptane > 95 % n-Heptane > 99 % n-Heptane > 99,5 % n-Heptane > 99,75 % n-Heptane > 99,8 %

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

Relevant identified uses	Distribution of substance manufacture of substances Formulation & (re)packing of substances and mixtures Use as a fuel Use in Cleaning Agents Use in Agrochemicals Use in laboratories
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#### 1.3 Details of the supplier of the safety data sheet

DHC Solvent Chemie GmbH  
Timmerhellstraße 28  
D-45478 Mülheim an der Ruhr  
Germany

Telephone: +49 (208) 9940-0  
Telefax: +49 (208) 9940-150

Competent person responsible for the safety data sheet  
e-mail (competent person)

Yvonne Knappe  
productsafety@dhc-solvent.de

#### 1.4 Emergency telephone number

Emergency information service

DHC Solvent Chemie GmbH  
+49 (208) 9940-112

This number is only for medical emergencies.  
Giftnotrufzentrale Berlin  
+49 (0)30 19 240.

### SECTION 2: HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Hazard class	Category	Hazard class and category	Hazard statement
flammable liquid	Cat. 2	(Flam. Liq. 2)	H225
skin corrosion/irritation	Cat. 2	(Skin Irrit. 2)	H315
specific target organ toxicity - single exposure (narcotic effects, drowsiness)	Cat. 3	(STOT SE 3)	H336
aspiration hazard	Cat. 1	(Asp. Tox. 1)	H304
hazardous to the aquatic environment - acute hazard	Cat. 1	(Aquatic Acute 1)	H400

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Hazard class	Category	Hazard class and category	Hazard statement
hazardous to the aquatic environment - chronic hazard	Cat. 1	(Aquatic Chronic 1)	H410

**Remarks**

For full text of H-phrases: see SECTION 16.  
 Substance with a community indicative occupational exposure limit value.

**The most important adverse physicochemical, human health and environmental effects**

May be fatal if swallowed and enters airways.  
 The product is combustible and can be ignited by potential ignition sources.

**2.2 Label elements**

**Labelling according to Regulation (EC) No 1272/2008 (CLP)**

**Signal word**                      **Danger**

**Pictograms**

GHS02, GHS07,  
 GHS08, GHS09



**Hazard statements**

- 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.
- H410                      Very toxic to aquatic life with long lasting effects.

**Precautionary statements**

**Precautionary statements - prevention**

- P210                      Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

**Precautionary statements - response**

- P301+P310              IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician.
- P331                      Do NOT induce vomiting.
- P370+P378              In case of fire: Use sand, carbon dioxide or powder extinguisher to extinguish.

**Precautionary statements - storage**

- P403+P233              Store in a well-ventilated place. Keep container tightly closed.
- P403+P235              Store in a well-ventilated place. Keep cool.

**2.3 Other hazards**

According to the results of its assessment, this substance is not a PBT or a vPvB.  
 Vapour heavier than air, may form an explosive mixture in air: it may be ignited at some distance away from the spill resulting in flashbacks. Flowing product can create electrostatic charge, resulting sparks may ignite or cause an explosion.

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### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.1 Substances

Name of substance	N-Heptane
Registration number (REACH)	01-2119457603-38-0000
EC number	205-563-8
CAS number	142-82-5
Index No	601-008-00-2
Purity	>95 %
Molecular formula	C7H16

### 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

Wash with plenty of soap and water.

##### Following eye contact

Irrigate copiously with clean, fresh water, holding the eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing. In all cases of doubt, or when symptoms persist, seek medical advice.

##### Following ingestion

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

#### 4.2 Most important symptoms and effects, both acute and delayed

Choking and suffocation risks. Narcotic effects. Deficits in perception and coordination, reaction time, or sleepiness.

#### 4.3 Indication of any immediate medical attention and special treatment needed

none

### SECTION 5: FIREFIGHTING MEASURES

#### 5.1 Extinguishing media

##### Suitable extinguishing media

carbon dioxide (CO<sub>2</sub>), BC-powder, foam, alcohol resistant foam, water mist

##### Unsuitable extinguishing media

water jet

#### 5.2 Special hazards arising from the substance or mixture

Solvent vapours are heavier than air and may spread along floors. In case of insufficient ventilation and/or in use, may form flammable/explosive vapour-air mixture. May produce toxic fumes of carbon monoxide if burning.

##### Hazardous combustion products

carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>)

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### 5.3 Advice for firefighters

Wear breathing apparatus if exposed to vapours/dust/spray/gases. Co-ordinate 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. Keep containers cool with water spray.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment and emergency procedures

#### For non-emergency personnel

Remove persons to safety. Avoid inhaling sprayed product. Wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. Remove/take off immediately all contaminated clothing and wash it before reuse.

#### For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases.

### 6.2 Environmental precautions

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

### 6.3 Methods and material for containment and cleaning up

#### Advices on how to contain a spill

Covering of drains.

#### Advices on how to clean up a spill

Wipe up with absorbent material (e.g. cloth, fleece). Collect spillage (sawdust. , kieselgur (diatomite), sand, universal binder).

#### Appropriate containment techniques

Use of adsorbent materials. - covering of drains

#### 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

##### • Measures to prevent fire as well as aerosol and dust generation

Use only in well-ventilated areas. Use local and general ventilation. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools.

##### • Warning

Vapours are heavier than air, spread along floors and form explosive mixtures with air.

#### Advice on general occupational hygiene

Wash hands after use. Do not to 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

Keep container tightly closed and in a well-ventilated place. Use local and general ventilation. Keep cool. Protect from sunlight.

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• **Flammability hazards**

Keep away from sources of ignition - No smoking. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharge. Protect from sunlight.

**Incompatible substances or mixtures**

Observe hints for combined storage.

**Consideration of other advice**

• **Ventilation requirements**

Use local and general ventilation. Ground/bond container and receiving equipment.

• **Packaging compatibilities**

Only packagings which are approved (e.g. acc. to ADR) may be used.

Suitable materials and coatings for container/equipment: Carbon Steel, Stainless Steel, Polyester, Polytetrafluoroethylene (PTFE), Polyvinyl Alcohol (PVA)

Unsuitable Materials and Coatings for container/equipment: Butyl Rubber, Natural Rubber, Ethylene-propylene-diene monomer (EPDM), Polystyrene, Polyethylene, Polyacrylonitrile.

**7.3 Specific end use(s)**

See attached exposure scenarios

### SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**8.1 Control parameters**

**National limit values**

**Occupational exposure limit values (Workplace Exposure Limits)**

Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m <sup>3</sup> ]	STEL [ppm]	STEL [mg/m <sup>3</sup> ]	Source
DE	heptane, mixture of isomers	142-82-5	AGW	500	2,100	500	2,100	TRGS 900
DE	n-Heptan	142-82-5	AGW		1,500		3,000	RCP method according to TRGS 900
DE	n-heptane	142-82-5	MAK	500	2,100	500	2,100	DFG
EU	heptane (n-heptane)	142-82-5	IOELV	500	2,085			2000/39/EC
GB	n-heptane	142-82-5	WEL	500	2,085			EH40/2005
IE	n-heptane	142-82-5	OELV	500	2,085			S.I. No. 619 of 2001

**Notation**

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.

**Relevant DNELs/DMELs/PNECs and other threshold levels**

• **human health values**

Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	300 mg/kg	human, dermal	worker (industry)	chronic - systemic effects
DNEL	2,085 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects
DNEL	149 mg/kg	human, oral	consumer (private households)	chronic - systemic effects
DNEL	149 mg/kg	human, dermal	consumer (private households)	chronic - systemic effects
DNEL	447 mg/m <sup>3</sup>	human, inhalatory	consumer (private households)	chronic - systemic effects

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### 8.2 Exposure controls

#### Appropriate engineering controls

Technical measures and the appliance of appropriate working methods take priority over the use of personal protective equipment.

Safety and necessary control measures vary according to exposure conditions. Appropriate measures are:

Open windows, door, to allow sufficient ventilation. If this is not possible employ a fan to increase air exchange (see attached exposure scenarios).

#### Individual protection measures (personal protective equipment)

##### Eye/face protection

Use safety goggle with side protection.

##### Skin protection

###### • hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374.

Short-term contact with the skin: Disposable gloves

Long-term contact with the skin: Gloves with long cuffs

Check leak-tightness/impermeability prior to use.

###### • type of material

NBR: acrylonitrile-butadiene rubber, FKM: fluoro-elastomer

###### • material thickness

0,40 mm.

###### • breakthrough times of the glove material

>480 minutes (permeation: level 6)

###### • other protection measures

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

Body protection:

Suitable protective clothing: Flame resistant clothing

Suitable safety shoes: Anti static safety shoes according to EN 345 S3

#### Respiratory protection

For activities in enclosed areas at elevated temperatures of the substance, local extraction or explosion protected ventilation equipment is recommended. In case this is not sufficient for the intended use, then apply a suitable respiratory protection according to EN 140 type A or better (see exposure scenarios).

#### Environmental exposure controls

Do not empty into drains.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

#### Appearance

Physical state	liquid
Colour	colourless
Odour	characteristic

#### Other physical and chemical parameters

pH (value)	not determined
Melting point/freezing point	<-20 °C (ASTM D 5950)
Initial boiling point and boiling range	93 - 100 °C at 1,013 mbar (ASTM D 1078)
Flash point	-4 °C

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Explosive limits	
• lower explosion limit (LEL)	1 vol%
• upper explosion limit (UEL)	6.7 vol%
Vapour pressure	6.1 kPa at 25 °C
Density	0.687 - 0.693 g/cm <sup>3</sup> at 15 °C
Solubility(ies)	
Water solubility	2.5 mg/l at 25 °C
Partition coefficient	
n-octanol/water (log KOW)	This information is not available.
Auto-ignition temperature	204 °C
Viscosity	
• kinematic viscosity	0.61 mm <sup>2</sup> /s at 20 °C
Explosive properties	
in use, may form flammable/explosive vapour-air mixture	
Oxidising properties	none
<b>9.2 Other information</b>	
Surface tension	19.7 mN/m (25 °C) (Wilhelmy Plate)

## SECTION 10: STABILITY AND REACTIVITY

### 10.1 Reactivity

risk of ignition

• **if heated**

risk of ignition

### 10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure (see below "Conditions to avoid").

### 10.3 Possibility of hazardous reactions

No known hazardous reactions.

### 10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

#### Hints to prevent fire or explosion

Use only non-sparking tools.

### 10.5 Incompatible materials

oxidisers

### 10.6 Hazardous decomposition products

No known hazardous decomposition products.

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### SECTION 11: TOXICOLOGICAL INFORMATION

#### 11.1 Information on toxicological effects

**Classification according to GHS (1272/2008/EC, CLP)**

**Acute toxicity**

Shall not be classified as acutely toxic.  
May be harmful if inhaled.

Exposure route	Endpoint	Value	Species
inhalation: vapour	LC50	>29.29 mg/l/4h	rat
oral	LD50	>5,000 mg/kg	rat
dermal	LD50	>2,000 mg/kg	rabbit

**Skin corrosion/irritation**

Causes skin irritation.

**Respiratory or skin sensitisation**

Shall not be classified as a respiratory or skin sensitiser.

**Summary of evaluation of the CMR properties**

Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant.

**Specific target organ toxicity (STOT)**

- **Specific target organ toxicity - single exposure**

May cause drowsiness or dizziness.

- **Specific target organ toxicity - repeated exposure**

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

**Aspiration hazard**

May be fatal if swallowed and enters airways.

### SECTION 12: ECOLOGICAL INFORMATION

#### 12.1 Toxicity

**Aquatic toxicity (acute)**

Endpoint	Value	Species	Exposure time
LL50	5.7 mg/l	rainbow trout (Oncorhynchus mykiss)	96 hours
EL50	3.9 mg/l	daphnia magna	48 hours

**Aquatic toxicity (chronic)**

May cause long-term adverse effects in the aquatic environment.

Endpoint	Value	Species	Exposure time
NOELR	1.28 mg/l	rainbow trout (Oncorhynchus mykiss)	28 d
NOELR	1 mg/l	daphnia magna	21 d

#### 12.2 Persistence and degradability

The substance is readily biodegradable.



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### 12.3 Bioaccumulative potential

The substance fulfils the very bioaccumulative criterion.

### 12.4 Mobility in soil

Data are not available.

### 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 Other adverse effects

Data are not available.

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

#### Waste treatment-relevant information

Solvent reclamation/regeneration.

#### Sewage disposal-relevant information

Do not empty into drains.

#### Waste treatment of containers/packagings

Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately re-conditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

#### List of wastes

Proposed waste code(s) for the used product:

07 01 04x Other organic solvents, washing liquids and mother liquors

#### 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  | 1206                                    |
| 14.2 | UN proper shipping name  | HEPTANES                                |
|      | Technical name   | N-Heptane                               |
| 14.3 | Transport hazard class(es)   |   |
|      | Class  | 3 (flammable liquids)                   |
| 14.4 | Packing group  | II (substance presenting medium danger) |
| 14.5 | Environmental hazards  | hazardous to the aquatic environment    |
| 14.6 | Special precautions for user   |   |
|      | Provisions for dangerous goods (ADR) should be complied within the premises. |   |
| 14.7 | Transport in bulk according to Annex II of MARPOL and the IBC Code           |   |
|      | The cargo is not intended to be carried in bulk.                             |   |

#### Information for each of the UN Model Regulations

##### • Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)

UN number	1206
Proper shipping name	HEPTANES
Technical name (hazardous constituents)	N-Heptane
Class	3
Classification code	F1
Packing group	II
Danger label(s)	3 + "fish and tree"

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Environmental hazards	yes (hazardous to the aquatic environment)
Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
Transport category (TC)	2
Tunnel restriction code (TRC)	D/E
Hazard identification No	33
<b>Emergency Action Code</b>	3YE
<b>• International Maritime Dangerous Goods Code (IMDG)</b>	
UN number	1206
Proper shipping name	HEPTANES
Particulars in the shipper's declaration	UN1206, HEPTANES, 3, II, -4 °C c.c., MARINE POLLUTANT
Class	3
Marine pollutant	yes (hazardous to the aquatic environment)
Packing group	II
Danger label(s)	3 + "fish and tree"



Special provisions (SP)	-
Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
EmS	F-E, S-D
Stowage category	B
<b>• International Civil Aviation Organization (ICAO-IATA/DGR)</b>	
UN number	1206
Proper shipping name	Heptanes
Class	3
Environmental hazards	yes (hazardous to the aquatic environment)
Packing group	II
Danger label(s)	3



Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L

### SECTION 15: REGULATORY INFORMATION

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

##### Relevant provisions of the European Union (EU)

##### • 2012/18/EU (Seveso III)

No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements	Notes
E1	environmental hazards (hazardous to the aquatic environment, cat. 1)	100                      200	56)

##### Notation

56) Hazardous to the Aquatic Environment in category Acute 1 or Chronic 1.

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- **Limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products (2004/42/EC, Deco-Paint Directive)**

VOC content 100 %

- **Directive on industrial emissions (VOCs, 2010/75/EU)**

VOC content 100 %

### 15.2 Chemical Safety Assessment

For this substance a chemical safety assessment has been carried out.

## SECTION 16: OTHER INFORMATION

### Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
2000/39/EC	Commission Directive establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
AGW	workplace exposure limit
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
DFG	Deutsche Forschungsgemeinschaft MAK-und BAT-Werte-Liste, Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe, Wiley-VCH, Weinheim
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
EH40/2005	EH40/2005 Workplace exposure limits ( <a href="http://www.nationalarchives.gov.uk/doc/open-government-licence/">http://www.nationalarchives.gov.uk/doc/open-government-licence/</a> )
EmS	Emergency Schedule
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
index No	the Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
IOELV	indicative occupational exposure limit value
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
S.I. No. 619 of 2001	Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001
STEL	short-term exposure limit
TRGS 900	Arbeitsplatzgrenzwerte (TRGS 900)

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Abbr.	Descriptions of used abbreviations
TWA	time-weighted average
VOC	Volatile Organic Compounds
vPvB	very Persistent and very Bioaccumulative
WEL	workplace exposure limit

### Key literature references and sources for data

- Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU
- Regulation (EC) No. 1272/2008 (CLP, EU GHS)
- See attached exposure scenarios

[http://www.dhc-solvent.de/dhc\\_sdbreach.html](http://www.dhc-solvent.de/dhc_sdbreach.html)

[http://www.dhc-solvent.de/en/dhc\\_sdbreach.html](http://www.dhc-solvent.de/en/dhc_sdbreach.html)

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN).  
International Maritime Dangerous Goods Code (IMDG).  
International Air Transport Association (IATA).

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

Code	Text
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
H400	very toxic to aquatic life
H410	very toxic to aquatic life with long lasting effects