

n-hexane

Version number: 1.0

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

1.1 Product identifier

Identification of the substance	n-hexane
Alternative name(s)	n-Hexane > 99,5% n-Hexan > 99% n-Hexan > 97,5% n-Hexan > 95% n-Hexan > 90%
Registration number (REACH)	01-2119480412-44-XXXX
EC number	203-777-6
Index number in CLP Annex VI	601-037-00-0
CAS number	110-54-3

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

Relevant identified uses	Manufacture of substances Distribution of substances Formulation & (re)packing of substances and mixtures Use in Coatings Use in cleaning agents Blowing agent Functional fluids Laboratory chemical Mining chemicals Plastics processing Use as a fuel
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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
e-mail (competent person)	productsafety@dhc-solvent.de

n-Hexane

1.4 Emergency telephone number

Poison centre		
Country	Name	Telephone
Germany	CHEMTREC Germany.	+496922225285

As above or nearest toxicological information centre.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

Classification				
Section	Hazard class	Category	Hazard class and category	Hazard statement
2.6	flammable liquid	2	Flam. Liq. 2	H225
3.2	skin corrosion/irritation	2	Skin Irrit. 2	H315
3.7	reproductive toxicity	2	Repr. 2	H361f
3.8D	specific target organ toxicity - single exposure (narcotic effects, drowsiness)	3	STOT SE 3	H336
3.9	specific target organ toxicity - repeated exposure	2	STOT RE 2	H373
3.10	aspiration hazard	1	Asp. Tox. 1	H304
4.1C	hazardous to the aquatic environment - chronic hazard	2	Aquatic Chronic 2	H411

For full text of abbreviations: see SECTION 16

Harmonised classification (the classification of the substance corresponds to the entry in the list according to 1272/2008/EC, Annex VI) Substance with a community indicative occupational exposure limit value

The most important adverse physicochemical, human health and environmental effects

Delayed or immediate effects can be expected after short or long-term exposure.

The product is combustible and can be ignited by potential ignition sources.

Spillage and fire water can cause pollution of watercourses.

May be fatal if swallowed and enters airways.

2.2 Label elements

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

Signal word danger

n-Hexane

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.
H361f	Suspected of damaging fertility.
H373	May cause damage to organs (nervous system) through prolonged or repeated exposure (if inhaled).
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting equipment.
P242	Use non-sparking tools.
P243	Take action to prevent static discharges.
P260	Do not breathe mist/vapours/spray.
P264	Wash thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P312	Call a POISON CENTRE/doctor if you feel unwell.
P321	Specific treatment (see on this label).
P331	Do NOT induce vomiting.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P370+P378	In case of fire: Use sand, carbon dioxide or powder extinguisher to extinguish.
P391	Collect spillage.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

Additional labelling requirements

see section 15 of the safety data sheet

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2.3 Other hazards

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.

Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

Endocrine disrupting properties

Not listed.

SECTION 3: Composition/information on ingredients

3.1 Substances

Name of substance n-hexane

Identifiers

REACH Reg. No 01-2119480412-44-XXXX

CAS No 110-54-3

EC No 203-777-6

Index No 601-037-00-0

Molecular formula C₆H₁₄

Molar mass 86,18 g/mol

Purity >95 %

concentration limit, M-factor, ATE

Specific Conc. Limits	M-Factors	ATE	Exposure route
STOT RE 2; H373: C ≥ 5 %	-	-	-

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.

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Following inhalation

Provide fresh air.

Mouth to mouth resuscitation should be avoided. Use alternative methods, preferably with oxygen or compressed air driven apparatus.

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions.

Following skin contact

After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water and soap.

If skin irritation occurs: Get medical advice/attention.

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

Rinse mouth with water (only if the person is conscious).

Do NOT induce vomiting.

Call a physician in any case.

Notes for the doctor

None.

4.2 Most important symptoms and effects, both acute and delayed

Narcotic effects.

Death following aspiration.

Choking and suffocation risks.

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

water mist, foam, alcohol resistant foam, BC-powder, carbon dioxide (CO₂)

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Hazardous decomposition products: Section 10.

In case of insufficient ventilation and/or in use, may form flammable/explosive vapour-air mixture.

Solvent vapours are heavier than air and may spread along floors.

Places which are not ventilated, e.g. unventilated below ground level areas such as trenches, conduits and shafts, are particularly prone to the presence of flammable substances or mixtures.

May produce toxic fumes of carbon monoxide if burning.

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Hazardous combustion products

carbon monoxide (CO), carbon dioxide (CO₂)

5.3 Advice for firefighters

Keep containers cool with water spray.

In case of fire and/or explosion do not breathe fumes.

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.

Special protective equipment 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.

Ventilate affected area.

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.

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

Remove from the water surface (e.g. skimming, sucking).

Keep away from drains, surface and ground water.

Retain contaminated washing water and dispose of it.

If substance has entered a water course or sewer, inform the responsible authority.

6.3 Methods and material for containment and cleaning up

Covering of drains.

Advice on how to contain a spill

Covering of drains.

Advice on how to clean up a spill

Wipe up with absorbent material (e.g. cloth, fleece).

Collect spillage. Absorbent material (e.g. sand, diatomaceous earth, acid binder, universal binder, sawdust, etc.).

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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

Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation.
Use only in well-ventilated areas.
Keep away from sources of ignition - No smoking.
Take precautionary measures against static discharge.
Due to danger of explosion, prevent leakage of vapours into cellars, flues and ditches.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.

Specific notes/details

Places which are not ventilated, e.g. unventilated below ground level areas such as trenches, conduits and shafts, are particularly prone to the presence of flammable substances or mixtures.
Vapours are heavier than air, spread along floors and form explosive mixtures with air.

Measures to protect the environment

Avoid release to the environment.

Advice on general occupational hygiene

Do not eat, drink and smoke in work areas.
Wash hands after use.
Preventive skin protection (barrier creams/ointments) is recommended.
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 feeding stuffs.

7.2 Conditions for safe storage, including any incompatibilities

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Explosive atmospheres

Keep container tightly closed and in a well-ventilated place.

Use local and general ventilation.

Keep cool.

Protect from sunlight.

Flammability hazards

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

Take precautionary measures against static discharge.

Ground/bond container and receiving equipment.

Protect from sunlight.

Incompatible substances or mixtures

Incompatible materials: see section 10.

Observe hints for combined storage.

Protect against external exposure, such as

heat

Consideration of other advice

Keep away from food, drink and animal feeding stuffs.

Ventilation requirements

Use local and general ventilation.

Provision of sufficient ventilation.

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)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values (Workplace Exposure Limits)									
Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m ³]	STEL [ppm]	STEL [mg/m ³]	Notation	Source
DE	n-hexane	110-54-3	AGW	50	180	400	1.440	Y	TRGS 900
EU	n-hexane	110-54-3	IOELV	20	72	-	-	-	2006/15/EC

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)

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Notation

TWA time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

Y a risk of developmental toxicity does not need to be expected if the occupational exposure limit value and the biological limit value (BGW) are adhered to

Biological limit values							
Country	Name of agent	Parameter	Notation	Identifier	Value	Material	Source
DE	n-hexane	2,5-hexanedione, 4,5-dihydroxy-2-hexanone	-	BAT	5 mg/l	urine	DFG
DE	n-hexane	2,5-hexanedione, 4,5-dihydroxy-2-hexanone	hydr	BLV	5 mg/l	urine	TRGS 903

Notation

hydr hydrolysis

Human health values

Relevant DNELs and other threshold levels				
Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	75 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
DNEL	11 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

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

Wear eye/face protection. (EN 166).

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Hand protection

Protective gloves		
Material	Material thickness	Breakthrough times of the glove material
NBR: acrylonitrile-butadiene rubber	≥ 0,4 mm	>480 minutes (permeation: level 6)
FKM: fluoro-elastomer	≥ 0,4 mm	>480 minutes (permeation: level 6)

Wear suitable gloves.

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

Check leak-tightness/impermeability prior to use.

For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Short-term contact with the skin: Disposable gloves

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

Take recovery periods for skin regeneration.

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

In case of inadequate ventilation wear 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

Use appropriate container to avoid environmental contamination.

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	liquid
Colour	colourless
Odour	characteristic
Melting point/freezing point	-95 °C at 101,3 kPa (ASTM D 5950)

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Boiling point or initial boiling point and boiling range	>65 – 72 °C at 101,3 kPa (ASTM D 1078)
Flammability	flammable liquid in accordance with GHS criteria
Lower and upper explosion limit	1,1 vol% - 8,3 vol%
Flash point	<-20 °C at 101,3 kPa (DIN 51755)
Auto-ignition temperature	>220 °C
Decomposition temperature	not relevant
pH (value)	not determined
Kinematic viscosity	0,47 – 0,55 mm ² /s at 20 °C (ASTM D 445)
Dynamic viscosity	0,3 mPa s at 25 °C (calculated value)
Solubility(ies)	
Water solubility	9,8 mg/l at 25 °C
Partition coefficient n-octanol/water (log value)	4 (pH value: 7, 20 °C) (ECHA)
Vapour pressure	20 – 30 kPa at 20 °C
Density and/or relative density	
Density	0,66 – 0,68 g/cm ³ at 15 °C
Relative density / Relative vapour density	0,661 at 25 °C (water = 1) (ECHA)
Particle characteristics	not relevant (liquid)

9.2 Other information

Information with regard to physical hazard classes	there is no additional information
Other safety characteristics	
Surface tension	17 – 19 mN/m (Wilhelmy plate)
Temperature class (EU, acc. to ATEX)	T3 (maximum permissible surface temperature on the equipment: 200°C)

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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

In case of insufficient ventilation and/or in use, may form flammable/explosive vapour-air mixture.

10.4 Conditions to avoid

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

Take precautionary measures against static discharge.

Use explosion-proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

10.5 Incompatible materials

oxidisers

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known.

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

If not otherwise specified the classification is based on:

Animal studies; Evidence from any other toxicity tests; Expert judgement (weight of evidence determination).

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

Acute toxicity

Shall not be classified as acutely toxic.

Exposure route	Endpoint	Value	Species	Method	Source
oral	LD50	16.000 mg/kg	rat	OECD Guideline 401	ECHA
dermal	LD0	>3.350 mg/kg	rabbit	OECD Guideline 402	ECHA

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Exposure route	Endpoint	Value	Species	Method	Source
inhalation: vapour	LC0	259.354 mg/m ³ /4h	rat	OECD Guideline 403	ECHA

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation

Classification could not be established because:

Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Respiratory or skin sensitisation

Skin sensitisation

Shall not be classified as a skin sensitiser.

(ECHA, OECD Guideline 429)

Respiratory sensitisation

Classification could not be established because:

Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

(ECHA, OECD Guideline 471, OECD Guideline 475, OECD Guideline 478, OECD Guideline 476)

Carcinogenicity

Classification could not be established because:

Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Reproductive toxicity

Suspected of damaging fertility.

Specific target organ toxicity - single exposure

May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure

May cause damage to organs (nervous system) through prolonged or repeated exposure (if inhaled).

Hazard category	Target organ	Exposure route
2	nervous system	if inhaled

Aspiration hazard

May be fatal if swallowed and enters airways.

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11.2 Information on other hazards

Endocrine disrupting properties

Not listed.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity (acute)

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

Endpoint	Exposure time	Value	Species	Method	Source
LL50	96 h	12,51 mg/l	rainbow trout (<i>Oncorhynchus mykiss</i>)	(Q)SAR	ECHA
EL50	72 h	9,285 mg/l	algae (<i>pseudokirchneriella subcapitata</i>)	(Q)SAR	ECHA
EL50	48 h	21,85 mg/l	daphnia magna	(Q)SAR	ECHA
EL50	48 h	48,39 mg/l	<i>Tetrahymena pyriformis</i>	(Q)Sar	ECHA

Aquatic toxicity (chronic)

Toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability

Biodegradation

The substance is readily biodegradable.

Process of degradability				
Process	Degradation rate	Time	Method	Source
oxygen depletion	98 %	28 d	OECD Guideline 301 F	ECHA

Persistence

No data available.

12.3 Bioaccumulative potential

n-octanol/water (log KOW)

4 (pH value: 7, 20 °C)

(ECHA)

BCF

501,2

(ECHA)

n-Hexane

12.4 Mobility in soil

The Organic Carbon normalised adsorption coefficient 3,34
(ECHA)

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 Endocrine disrupting properties

Not listed.

12.7 Other adverse effects

Data are not available.

Remarks

Wassergefährdungsklasse, WGK (water hazard class): 2

SECTION 13: Disposal considerations

13.1 Waste treatment methods

This material and its container must be disposed of as hazardous waste.

Waste treatment-relevant information

Solvent reclamation/regeneration.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

Completely emptied packages can be recycled.

Handle contaminated packages in the same way as the substance itself.

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 reconditioned 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.

Relevant provisions relating to waste

list of wastes

Proposed waste code(s) for the used product

07 01 04* 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.

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SECTION 14: Transport information

14.1 UN number or ID number

ADR/RID/ADN UN1208

IMDG-Code UN1208

ICAO-TI UN1208

14.2 UN proper shipping name

ADR/RID/ADN HEXANES

IMDG-Code HEXANES

ICAO-TI Hexanes

14.3 Transport hazard class(es)

ADR/RID/ADN 3

IMDG-Code 3

ICAO-TI 3

14.4 Packing group

ADR/RID/ADN II

IMDG-Code II

ICAO-TI II

14.5 Environmental hazards hazardous to the aquatic environment

14.6 Special precautions for user -

14.7 Maritime transport in bulk according to IMO -
instruments

14.8 Information for each of the UN Model Regulations

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

Additional information

Particulars in the transport document UN1208, HEXANES, 3, II, (D/E), environmentally hazardous

Classification code F1

Danger label(s) 3, fish and tree



Environmental hazards yes
(hazardous to the aquatic environment)

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Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
Transport category (TC)	2
Tunnel restriction code (TRC)	D/E
Hazard identification No	33

European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN) Additional information

Number of cones/blue lights	1
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International Maritime Dangerous Goods Code (IMDG) Additional information

Marine pollutant	yes (P) (hazardous to the aquatic environment)
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Danger label(s)	3, fish and tree
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Special provisions (SP)	-
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Excepted quantities (EQ)	E2
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Limited quantities (LQ)	1 L
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EmS	F-E, S-D
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Stowage category	E
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International Civil Aviation Organization (ICAO-IATA/DGR) Additional information

Environmental hazards	yes (hazardous to the aquatic environment)
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Danger label(s)	3
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Excepted quantities (EQ)	E2
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Limited quantities (LQ)	1 L
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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)

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Restrictions according to REACH, Annex XVII

Name	Name acc. to inventory	CAS No	Restriction
n-hexane	this product meets the criteria for classification in accordance with Regulation No 1272/2008/EC	-	R3
n-hexane	flammable / pyrophoric	-	R40
n-hexane	substances in tattoo inks and permanent make-up	-	R75

Legend

- R3
1. Shall not be used in:
 - ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays,
 - tricks and jokes,
 - games for one or more participants, or any article intended to be used as such, even with ornamental aspects,
 2. Articles not complying with paragraph 1 shall not be placed on the market.
 3. Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they:
 - can be used as fuel in decorative oil lamps for supply to the general public, and
 - present an aspiration hazard and are labelled with H304.
 4. Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN).
 5. Without prejudice to the implementation of other Union provisions relating to the classification, labelling and packaging of substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met:
 - (a) lamp oils, labelled with H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: "Keep lamps filled with this liquid out of the reach of children"; and, by 1 December 2010, "Just a sip of lamp oil – or even sucking the wick of lamps – may lead to life-threatening lung damage";
 - (b) grill lighter fluids, labelled with H304, intended for supply to the general public are legibly and indelibly marked by 1 December 2010 as follows: 'Just a sip of grill lighter fluid may lead to life threatening lung damage';
 - (c) lamps oils and grill lighters, labelled with H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.;
- R40
1. Shall not be used, as substance or as mixtures in aerosol dispensers where these aerosol dispensers are intended for supply to the general public for entertainment and decorative purposes such as the following:
 - metallic glitter intended mainly for decoration,
 - artificial snow and frost,
 - 'whoopie' cushions,
 - silly string aerosols,
 - imitation excrement,
 - horns for parties,
 - decorative flakes and foams,
 - artificial cobwebs,
 - stink bombs.
 2. Without prejudice to the application of other Community provisions on the classification, packaging and labelling of substances, suppliers shall ensure before the placing on the market that the packaging of aerosol dispensers referred to above is marked visibly, legibly and indelibly with:
'For professional users only'.
 3. By way of derogation, paragraphs 1 and 2 shall not apply to the aerosol dispensers referred to Article 8 (1a) of Council Directive 75/324/EEC (2).
 4. The aerosol dispensers referred to in paragraphs 1 and 2 shall not be placed on the market unless they conform to the requirements indicated.

Legend

- R75 1. Shall not be placed on the market in mixtures for use for tattooing purposes, and mixtures containing any such substances shall not be used for tattooing purposes, after 4 January 2022 if the substance or substances in question is or are present in the following circumstances:
- (a) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as carcinogen category 1A, 1B or 2, or germ cell mutagen category 1A, 1B or 2, the substance is present in the mixture in a concentration equal to or greater than 0,00005 % by weight;
 - (b) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as reproductive toxicant category 1A, 1B or 2, the substance is present in the mixture in a concentration equal to or greater than 0,001 % by weight;
 - (c) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as skin sensitiser category 1, 1A or 1B, the substance is present in the mixture in a concentration equal to or greater than 0,001 % by weight;
 - (d) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as skin corrosive category 1, 1A, 1B or 1C or skin irritant category 2, or as serious eye damage category 1 or eye irritant category 2, the substance is present in the mixture in a concentration equal to or greater than:
 - (i) 0,1 % by weight, if the substance is used solely as a pH regulator;
 - (ii) 0,01 % by weight, in all other cases;
 - (e) in the case of a substance listed in Annex II to Regulation (EC) No 1223/2009 (*1), the substance is present in the mixture in a concentration equal to or greater than 0,00005 % by weight;
 - (f) in the case of a substance for which a condition of one or more of the following kinds is specified in column g (Product type, Body parts) of the table in Annex IV to Regulation (EC) No 1223/2009, the substance is present in the mixture in a concentration equal to or greater than 0,00005 % by weight:
 - (i) "Rinse-off products";
 - (ii) "Not to be used in products applied on mucous membranes";
 - (iii) "Not to be used in eye products";
 - (g) in the case of a substance for which a condition is specified in column h (Maximum concentration in ready for use preparation) or column i (Other) of the table in Annex IV to Regulation (EC) No 1223/2009, the substance is present in the mixture in a concentration, or in some other way, that does not accord with the condition specified in that column;
 - (h) in the case of a substance listed in Appendix 13 to this Annex, the substance is present in the mixture in a concentration equal to or greater than the concentration limit specified for that substance in that Appendix.
2. For the purposes of this entry use of a mixture "for tattooing purposes" means injection or introduction of the mixture into a person's skin, mucous membrane or eyeball, by any process or procedure (including procedures commonly referred to as permanent make-up, cosmetic tattooing, micro-blading and micro-pigmentation), with the aim of making a mark or design on his or her body.
3. If a substance not listed in Appendix 13 falls within more than one of points (a) to (g) of paragraph 1, the strictest concentration limit laid down in the points in question shall apply to that substance. If a substance listed in Appendix 13 also falls within one or more of points (a) to (g) of paragraph 1, the concentration limit laid down in point (h) of paragraph 1 shall apply to that substance.
4. By way of derogation, paragraph 1 shall not apply to the following substances until 4 January 2023:
- (a) Pigment Blue 15:3 (CI 74160, EC No 205-685-1, CAS No 147-14-8);
 - (b) Pigment Green 7 (CI 74260, EC No 215-524-7, CAS No 1328-53-6).
5. If Part 3 of Annex VI to Regulation (EC) No 1272/2008 is amended after 4 January 2021 to classify or re-classify a substance such that the substance then becomes caught by point (a), (b), (c) or (d) of paragraph 1 of this entry, or such that it then falls within a different one of those points from the one within which it fell previously, and the date of application of that new or revised classification is after the date referred to in paragraph 1 or, as the case may be, paragraph 4 of this entry, that amendment shall, for the purposes of applying this entry to that substance, be treated as taking effect on the date of application of that new or revised classification.
6. If Annex II or Annex IV to Regulation (EC) No 1223/2009 is amended after 4 January 2021 to list or change the listing of a substance such that the substance then becomes caught by point (e), (f) or (g) of paragraph 1 of this entry, or such that it then falls within a different one of those points from the one within which it fell previously, and the amendment takes effect after the date referred to in paragraph 1 or, as the case may be, paragraph 4 of this entry, that amendment shall, for the purposes of applying this entry to that substance, be treated as taking effect from the date falling 18 months after entry into force of the act by which that amendment was made.
7. Suppliers placing a mixture on the market for use for tattooing purposes shall ensure that, after 4 January 2022, the mixture is marked with the following information:
- (a) the statement "Mixture for use in tattoos or permanent make-up";

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Legend

- (b) a reference number to uniquely identify the batch;
- (c) the list of ingredients in accordance with the nomenclature established in the glossary of common ingredient names pursuant to Article 33 of Regulation (EC) No 1223/2009, or in the absence of a common ingredient name, the IUPAC name. In the absence of a common ingredient name or IUPAC name, the CAS and EC number. Ingredients shall be listed in descending order by weight or volume of the ingredients at the time of formulation. "Ingredient" means any substance added during the process of formulation and present in the mixture for use for tattooing purposes. Impurities shall not be regarded as ingredients. If the name of a substance, used as ingredient within the meaning of this entry, is already required to be stated on the label in accordance with Regulation (EC) No 1272/2008, that ingredient does not need to be marked in accordance with this Regulation;
- (d) the additional statement "pH regulator" for substances falling under point (d)(i) of paragraph 1;
- (e) the statement "Contains nickel. Can cause allergic reactions." if the mixture contains nickel below the concentration limit specified in Appendix 13;
- (f) the statement "Contains chromium (VI). Can cause allergic reactions." if the mixture contains chromium (VI) below the concentration limit specified in Appendix 13;
- (g) safety instructions for use insofar as they are not already required to be stated on the label by Regulation (EC) No 1272/2008.

The information shall be clearly visible, easily legible and marked in a way that is indelible.

The information shall be written in the official language(s) of the Member State(s) where the mixture is placed on the market, unless the Member State(s) concerned provide(s) otherwise.

Where necessary because of the size of the package, the information listed in the first subparagraph, except for point (a), shall be included instead in the instructions for use.

Before using a mixture for tattooing purposes, the person using the mixture shall provide the person undergoing the procedure with the information marked on the package or included in the instructions for use pursuant to this paragraph.

8. Mixtures that do not contain the statement "Mixture for use in tattoos or permanent make-up" shall not be used for tattooing purposes.

9. This entry does not apply to substances that are gases at temperature of 20 °C and pressure of 101,3 kPa, or generate a vapour pressure of more than 300 kPa at temperature of 50 °C, with the exception of formaldehyde (CAS No 50-00-0, EC No 200-001-8).

10. This entry does not apply to the placing on the market of a mixture for use for tattooing purposes, or to the use of a mixture for tattooing purposes, when placed on the market exclusively as a medical device or an accessory to a medical device, within the meaning of Regulation (EU) 2017/745, or when used exclusively as a medical device or an accessory to a medical device, within the same meaning. Where the placing on the market or use may not be exclusively as a medical device or an accessory to a medical device, the requirements of Regulation (EU) 2017/745 and of this Regulation shall apply cumulatively.

List of substances subject to authorisation (REACH, Annex XIV) / SVHC - candidate list

Not listed.

Seveso Directive

2012/18/EU (Seveso III)				
No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements		Notes
E2	environmental hazards (hazardous to the aquatic environment, cat. 2)	200	500	57)
P5c	flammable liquids (cat. 2, 3)	5.000	50.000	51)

Notation

- 51) flammable liquids, categories 2 or 3 not covered by P5a and P5b
- 57) hazardous to the Aquatic Environment in category Chronic 2

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VOC Deco-Paint Directive

VOC content 100 %.
670 g/l.

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

VOC content 100 %

VOC content 661 g/l

Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

Not listed.

Regulation on the marketing and use of explosives precursors

Not listed.

Regulation on drug precursors

Not listed.

Regulation on substances that deplete the ozone layer (ODS)

Not listed.

Regulation concerning the export and import of hazardous chemicals (PIC)

Not listed.

Regulation on persistent organic pollutants (POP)

Not listed.

National regulations (Germany)

Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen (Ordinance on facilities for handling substances hazardous to water) (AwSV)

Wassergefährdungsklasse, WGK 2
(water hazard class)

Index number 124

Technical instructions on air quality control (Germany)

Number	Group of substances	Class	Conc.	Mass flow	Mass concentration	Notation
5.2.5	organic substances	class I	100 wt%	0,1 kg/h	20 mg/m ³	3)

Notation

- 3) a total mass flow of 0.50 kg/h or a total mass concentration of 50 mg/m³, each of which to be indicated as total carbon, shall not be exceeded (except organic particulate matter)

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Storage of hazardous substances in non-stationary containers (TRGS 510) (Germany)

Storage class (LGK) 3
(flammable and desensitizing explosive liquids)

Other information

Observe employment restrictions for young people according to § 22 JArbSchG.
Observe occupational restrictions for mothers acc. to § 11 MuSchG!

National inventories

Country	Inventory	Status
AU	AIIC	substance is listed
CA	DSL	substance is listed
CN	IECSC	substance is listed
EU	ECSI	substance is listed
EU	REACH Reg.	substance is listed
JP	CSCL-ENCS	substance is listed
JP	ISHA-ENCS	substance is listed
KR	KECI	substance is listed
MX	INSQ	substance is listed
NZ	NZIoC	substance is listed
PH	PICCS	substance is listed
TR	CICR	substance is listed
TW	TCSI	substance is listed
US	TSCA	substance is listed as "ACTIVE"

Legend

AIIC	Australian Inventory of Industrial Chemicals
CICR	Chemical Inventory and Control Regulation
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
INSQ	National Inventory of Chemical Substances
ISHA-ENCS	Inventory of Existing and New Chemical Substances (ISHA-ENCS)
KECI	Korea Existing Chemicals Inventory
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances (PICCS)
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

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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
2006/15/EC	Commission Directive establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/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 relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)
ADR/RID/ADN	Agreements concerning the International Carriage of Dangerous Goods by Road/Rail/Inland Waterways (ADR/RID/ADN)
AGW	Workplace exposure limit
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
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
DFG	Deutsche Forschungsgemeinschaft MAK-und BAT-Werte-Liste, Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe, Wiley-VCH, Weinheim
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EINECS	European Inventory of Existing Commercial Chemical Substances
EL50	Effective Loading 50 %: the EL50 corresponds to the loading rate required to produce a response in 50% of the test organisms
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization

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Abbr.	Descriptions of used abbreviations
ICAO-TI	Technical instructions for the safe transport of dangerous goods by air
IMDG	International Maritime Dangerous Goods Code
IMDG-Code	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
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
LGK	Lagerklasse (storage class according to TRGS 510, Germany)
LL50	Lethal Loading 50 %: the LL50 corresponds to the loading rate causing 50 % lethality
M-factor	Means a multiplying factor. It is applied to the concentration of a substance classified as hazardous to the aquatic environment acute category 1 or chronic category 1, and is used to derive by the summation method the classification of a mixture in which the substance is present
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
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)
STEL	Short-term exposure limit
SVHC	Substance of Very High Concern
TRGS	Technische Regeln für Gefahrstoffe (technical rules for hazardous substances, Germany)
TRGS 900	Arbeitsplatzgrenzwerte (TRGS 900)
TRGS 903	Biologische Grenzwerte (TRGS 903)
TWA	Time-weighted average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and very Bioaccumulative

Key literature references and sources for data

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.
Regulation (EC) No. 1907/2006 (REACH).

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

International Maritime Dangerous Goods Code (IMDG).

Dangerous Goods Regulations (DGR) for the air transport (IATA).

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List of relevant phrases (code and full text as stated in section 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.
H361f	Suspected of damaging fertility.
H373	May cause damage to organs (nervous system) through prolonged or repeated exposure (if inhaled).
H411	Toxic to aquatic life with long lasting effects.

Responsible for the safety data sheet

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Disclaimer

This information is based upon the present state of our knowledge.
This SDS has been compiled and is solely intended for this product.
This safety data sheet is for information only and does not comply with the official language requirements of article 31 (5) of REACH.