

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

#### 1.1. Product identifier

Product form	: Substance
Name	: N-PENTANE
EC Index-No.	: 601-006-00-1
EC-No.	: 203-692-4
CAS-No.	: 109-66-0
REACH registration No	: 01-2119459286-30
Product code	: 100037900
Synonyms	: NOVASPRAY n-pentane S / NOVEXPANS n-pentane S / NOVASPRAY n-pentane T / NOVEXPANS n-pentane T

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

##### 1.2.1. Relevant identified uses

Use of the substance/mixture	: Blowing agent Aerosol jet
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##### 1.2.2. Uses advised against

No additional information available

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

##### Supplier

Dehon Service SAS  
26 Avenue du Petit Parc  
94683 VINCENNES Cedex  
France  
T 01 43 98 75 00 - F 01 43 98 21 51  
[ContactFDS@climalife.dehon.com](mailto:ContactFDS@climalife.dehon.com)

##### Other

Climalife Kft Budepesta sucursală Bucuresti Romania  
Bulevardul Hristo Botev, Nr. 28, Biroul NR 4, Modulul I  
Bucuresti Sectorul 3  
Romania  
[ContactFDS@climalife.dehon.com](mailto:ContactFDS@climalife.dehon.com)

##### Other

Dehon Kälte-Fachvertriebs GmbH  
Robert-Bosch-Strasse 14  
40668 MEERBUSCH  
Germany  
T 00 49 2150 7073 0 - F 00 49 2150 7073 17  
[ContactFDS@climalife.dehon.com](mailto:ContactFDS@climalife.dehon.com)

##### Other

Dehon Service Belgium s.a/n.v.  
Avenue Carton de Wiart, 79  
1090 Bruxelles  
Belgium  
T 00 32 2 421 01 70 - F 00 32 2 426 96 62  
[ContactFDS@climalife.dehon.com](mailto:ContactFDS@climalife.dehon.com)

##### Other

Friogas sa  
Poligono Industrial SEPES Parcela 10  
46500 SAGUNTO (Valencia)  
Spain  
T 00 34 9 6 266 36 32 - F 00 34 9 6 266 50 25  
[ContactFDS@climalife.dehon.com](mailto:ContactFDS@climalife.dehon.com)

##### Other

Climalife Hongrie Kft  
Villányi út 47  
1118 Budaörs  
Hungary  
T (36) 23 431 660 - F (36) 23 431 661  
[ContactFDS@climalife.dehon.com](mailto:ContactFDS@climalife.dehon.com)

##### Other

Climalife Supplied by Inventec Performance Chemicals Italia SRL  
Via del Lavoro, 10/G  
20874 Busnago MB  
Italia  
T +39 39-5973480 - F +39 39-5973490  
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##### Other

Dehon nordic service  
Östra Hamngatan 50B 3tr  
41109 GÖTEBORG  
Sweden  
T 00 46 735 01 90 50  
[ContactFDS@climalife.dehon.com](mailto:ContactFDS@climalife.dehon.com)

##### Other

Dehon Service Nerderland B.V.  
Van Konijnenburgweg 84  
NL-4612 PL Bergen Op Zoom  
Netherlands  
T 00 31 164 212 830 - F 00 31 164 212 831  
[ContactFDS@climalife.dehon.com](mailto:ContactFDS@climalife.dehon.com)

##### Other

Galco s.a/n.v.  
Avenue Carton de Wiart, 79  
1090 BRUSSELS  
Belgium  
T 00 32 2 421 01 84 - F 00 32 2 421 01 84 / 00 32 2 425 38 12  
[ContactFDS@climalife.dehon.com](mailto:ContactFDS@climalife.dehon.com)

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## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

### Other

IDS Refrigeration Limited  
22 Apex Court, Woodlands, Bradley Stoke  
BS32 4JT Bristol  
United Kingdom  
T 00 44 1179 802520 - F 00 44 1179 802521  
[ContactFDS@climalife.dehon.com](mailto:ContactFDS@climalife.dehon.com)

### Other

Prochimac SA  
ZI Petits Champs 15  
CH-1400 Yverdon-les-Bains  
Switzerland  
T 00 41 32 727 36 00 - F 00 41 32 727 36 19  
[ContactFDS@climalife.dehon.com](mailto:ContactFDS@climalife.dehon.com)

### 1.4. Emergency telephone number

Emergency number : +33 (0) 1 72 11 00 03

Country	Organisation/Company	Address	Emergency number	Comment
United Kingdom	National Poisons Information Service (Birmingham Centre) City Hospital	Dudley Road B18 7QH Birmingham	0344 892 0111	Only for healthcare professionals

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flam. Liq. 1 H224  
STOT SE 3 H336  
Asp. Tox. 1 H304  
Aquatic Chronic 2 H411  
Full text of hazard classes, H- and EUH-statements: see section 16

#### Adverse physicochemical, human health and environmental effects

Extremely flammable liquid and vapour. May cause drowsiness or dizziness. May be fatal if swallowed and enters airways. Toxic to aquatic life with long lasting effects.

### 2.2. Label elements

#### Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



Signal word (CLP) : Danger  
Contains : n-pentane  
Hazard statements (CLP) : H224 - Extremely flammable liquid and vapour.  
H304 - May be fatal if swallowed and enters airways.  
H336 - May cause drowsiness or dizziness.  
H411 - Toxic to aquatic life with long lasting effects.  
Precautionary statements (CLP) : P210 - Keep away from heat, sparks, open flames, hot surfaces. No smoking.  
P243 - Take action to prevent static discharges.  
P273 - Avoid release to the environment.  
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
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.  
P311 - Call a POISON CENTER/doctor.  
EUH-statements : EUH066 - Repeated exposure may cause skin dryness or cracking.

### 2.3. Other hazards

Contains no PBT/vPvB substances  $\geq 0.1\%$  assessed in accordance with REACH Annex XIII

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### SECTION 3: Composition/information on ingredients

#### 3.1. Substances

Name : N-PENTANE  
CAS-No. : 109-66-0  
EC-No. : 203-692-4  
EC Index-No. : 601-006-00-1

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
n-pentane	CAS-No.: 109-66-0 EC-No.: 203-692-4 EC Index-No.: 601-006-00-1 REACH-no: 01-2119459286-30	≥ 94	Flam. Liq. 1, H224 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
isopentane (Impurity)	CAS-No.: 78-78-4 EC-No.: 201-142-8 EC Index-No.: 601-085-00-2 REACH-no: 01-2119475602-38	≤ 6	Flam. Liq. 1, H224 Asp. Tox. 1, H304 STOT SE 3, H336 Aquatic Chronic 2, H411

Full text of H- and EUH-statements: see section 16

#### 3.2. Mixtures

Not applicable

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. In the event of coughing and slight breathlessness: Call a doctor.

First-aid measures after skin contact : Wash with plenty of water/.... Take off immediately all contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.

First-aid measures after eye contact : Rinse immediately and thoroughly, pulling the eyelids well away from the eye (15 minutes minimum). Remove contact lenses, if present and easy to do. Continue rinsing. Consult an ophthalmologist if irritation persists.

First-aid measures after ingestion : Do not give the affected person anything to drink, even if he is fully conscious. Do not induce vomiting. Transfer to hospital rapidly.

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

Symptoms/effects : May cause drowsiness or dizziness.

Symptoms/effects after skin contact : Repeated exposure may cause skin dryness or cracking.

Symptoms/effects after ingestion : Dizziness, headaches, nausea. Risk of lung oedema. CNS depression. Suffocation.

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

Risk of aspiration pneumonia. Do not administer medicines from the adrenalin-ephedrine group.

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

Unsuitable extinguishing media : Strong water jet.

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

- Fire hazard : Extremely flammable liquid and vapour. The vapours are denser than air and may travel along the ground. Distance ignition possible.
- Hazardous decomposition products in case of fire : Toxic fumes may be released.

### 5.3. Advice for firefighters

- Precautionary measures fire : Cool down the containers exposed to heat with a water spray. Contain the extinguishing fluids by bunding.
- Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

## SECTION 6: Accidental release measures

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

- General measures : Avoid contact with skin and eyes.

#### 6.1.1. For non-emergency personnel

- Emergency procedures : Evacuate area.

#### 6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. Do not breathe vapours.
- Emergency procedures : Stop leak if safe to do so. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing. Remove all sources of ignition.

### 6.2. Environmental precautions

Contain the spilled material by bunding (product is hazardous for the environment). Do not allow product to spread into the environment.

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

- For containment : Collect spillage. Take up liquid spill into inert absorbent material.
- Methods for cleaning up : Wash with a solution of 60-70 % ethanol. Then wash with water and detergent.
- Other information : Dispose of materials or solid residues at an authorized site.

### 6.4. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection". For disposal of solid materials or residues refer to section 13 : "Disposal considerations".

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

- Precautions for safe handling : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Flammable vapours may accumulate in the container. Use explosion-proof equipment. Wear personal protective equipment. Use only outdoors or in a well-ventilated area. Avoid breathing vapours. Vapour extraction at source.
- Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

### 7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Ground/bond container and receiving equipment.
- Storage conditions : Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store : away from any source of ignition.
- Incompatible products : Oxidizing materials. Oxidizing materials.
- Heat and ignition sources : Keep away from heat and direct sunlight. Do not expose to temperatures exceeding 50 °C/ 122 °F.

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Packaging materials : Recommended materials Stainless steel, Polyethylene, Polypropylene, Polyester, Teflon.  
Unsuitable materials: Rubbers.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### 8.1.1 National occupational exposure and biological limit values

n-pentane (109-66-0)	
<b>United Kingdom - Occupational Exposure Limits</b>	
Local name	n-pentane
WEL TWA (OEL TWA) [1]	1800 mg/m <sup>3</sup>
WEL TWA (OEL TWA) [2]	600 ppm
isopentane (78-78-4)	
<b>United Kingdom - Occupational Exposure Limits</b>	
WEL TWA (OEL TWA) [1]	1800 mg/m <sup>3</sup>
WEL TWA (OEL TWA) [2]	600 ppm

#### 8.1.2. Recommended monitoring procedures

No additional information available

#### 8.1.3. Air contaminants formed

No additional information available

#### 8.1.4. DNEL and PNEC

n-pentane (109-66-0)	
<b>DNEL/DMEL (Workers)</b>	
Long-term - systemic effects, dermal	432 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	3000 mg/m <sup>3</sup>
<b>DNEL/DMEL (General population)</b>	
Long-term - systemic effects, oral	214 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	643 mg/m <sup>3</sup>
Long-term - systemic effects, dermal	214 mg/kg bodyweight/day
<b>PNEC (Water)</b>	
PNEC aqua (freshwater)	0.23 mg/l
PNEC aqua (marine water)	0.23 mg/l
<b>PNEC (Soil)</b>	
PNEC soil	0.55 mg/kg dwt
<b>PNEC (STP)</b>	
PNEC sewage treatment plant	3.6 mg/l

#### 8.1.5. Control banding

No additional information available

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### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

##### Appropriate engineering controls:

Local exhaust is needed at source of vapours. Ensure good ventilation of the work station.

#### 8.2.2. Personal protection equipment

##### Personal protective equipment symbol(s):



##### 8.2.2.1. Eye and face protection

###### Eye protection:

Safety glasses with side shields

##### 8.2.2.2. Skin protection

###### Skin and body protection:

Wear suitable protective clothing

###### Hand protection:

Nitrile-rubber protective gloves

Hand protection					
Type	Material	Permeation	Thickness (mm)	Penetration	Standard
	Nitrile rubber (NBR)	6 (> 480 minutes)	0.35		

##### 8.2.2.3. Respiratory protection

###### Respiratory protection:

In the event of insufficient ventilation: Gas mask with filter type AX

##### 8.2.2.4. Thermal hazards

No additional information available

#### 8.2.3. Environmental exposure controls

##### Environmental exposure controls:

Avoid release to the environment.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: Colourless.
Odour	: weak. Hydrocarbon-like.
Odour threshold	: No data available
pH	: Not applicable
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: -130 °C Not applicable
Freezing point	: No data available
Boiling point	: 35 – 42 °C
Flash point	: -40 °C
Critical temperature	: 196.5 °C
Auto-ignition temperature	: 260 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: Extremely flammable liquid and vapour.
Vapour pressure	: 56.5 kPa (20°C)
Critical pressure	: 3370 kPa

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Relative vapour density at 20 °C	: 2.48
Relative density	: No data available
Density	: 0.626 g/cm <sup>3</sup>
Solubility	: Water: < 1 g/l practically insoluble Organic solvent: Miscible
Partition coefficient n-octanol/water (Log Pow)	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: Not explosive material according to EC criteria.
Oxidising properties	: Non oxidizing material according to EC criteria.
Lower explosive limit (LEL)	: 1.4 vol %
Upper explosive limit (UEL)	: 7.8 vol %

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

None under normal conditions.

### 10.2. Chemical stability

Stable at ambient temperature and under normal conditions of use.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

### 10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

### 10.5. Incompatible materials

Strong oxidizing agents. oxidizing materials.

### 10.6. Hazardous decomposition products

On thermal decomposition (pyrolysis), releases : Carbon oxides (CO, CO<sub>2</sub>).

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

#### n-pentane (109-66-0)

LD50 oral rat	> 2000 mg/kg
LC50 Inhalation - Rat	> 20 mg/l/4h

#### isopentane (78-78-4)

LD50 oral rat	> 5000 ml/kg
LC50 Inhalation - Rat (Vapours)	> 25.3 mg/l/4h

Skin corrosion/irritation	: Not classified pH: Not applicable
Serious eye damage/irritation	: Not classified pH: Not applicable

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Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: May cause drowsiness or dizziness.

### n-pentane (109-66-0)

STOT-single exposure	May cause drowsiness or dizziness.
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### isopentane (78-78-4)

STOT-single exposure	May cause drowsiness or dizziness.
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STOT-repeated exposure	: Not classified
Aspiration hazard	: May be fatal if swallowed and enters airways.

### n-pentane (109-66-0)

Viscosity, kinematic	0.3 – 0.5 mm <sup>2</sup> /s (20°C)
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### isopentane (78-78-4)

Viscosity, kinematic	0.31 – 0.52 mm <sup>2</sup> /s
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## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general	: Toxic to aquatic life with long lasting effects.
Hazardous to the aquatic environment, short-term (acute)	: Not classified
Hazardous to the aquatic environment, long-term (chronic)	: Toxic to aquatic life with long lasting effects.

### n-pentane (109-66-0)

LC50 - Fish [1]	4.26 mg/l 96 Hours (Oncorhynchus mykiss)
EC50 - Crustacea [1]	2.7 mg/l 48 Hours (Daphnia magna)
EC50 72h - Algae [1]	10.7 mg/l 72 Hours (Pseudokirchneriella subcapitata)

### isopentane (78-78-4)

LC50 - Fish [1]	4.26 mg/l 96 Hours (Oncorhynchus mykiss)
EC50 - Crustacea [1]	2.3 mg/l 48 Hours (Daphnia magna)

### 12.2. Persistence and degradability

### n-pentane (109-66-0)

Persistence and degradability	87 % biodegradation after 28 days. Half-life in air : 3.95 d.
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### 12.3. Bioaccumulative potential

No additional information available

### 12.4. Mobility in soil

No additional information available

### 12.5. Results of PBT and vPvB assessment

#### Component

n-pentane (109-66-0)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
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### Component

isopentane (78-78-4)

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII  
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

### 12.6. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.  
Product/Packaging disposal recommendations : Dispose of this material and its container at hazardous or special waste collection point.  
Additional information : Flammable vapours may accumulate in the container.

## SECTION 14: Transport information

In accordance with ADR / IMDG / IATA

ADR	IMDG	IATA
<b>14.1. UN number</b>		
UN 1265	UN 1265	UN 1265
<b>14.2. UN proper shipping name</b>		
PENTANES	PENTANES	Pentanes
<b>Transport document description</b>		
UN 1265 PENTANES, 3, I, (D/E), ENVIRONMENTALLY HAZARDOUS	UN 1265 PENTANES, 3, I, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS	UN 1265 Pentanes, 3, I, ENVIRONMENTALLY HAZARDOUS
<b>14.3. Transport hazard class(es)</b>		
3	3	3
<b>14.4. Packing group</b>		
I	I	I
<b>14.5. Environmental hazards</b>		
Dangerous for the environment: Yes	Dangerous for the environment: Yes Marine pollutant: Yes	Dangerous for the environment: Yes
No supplementary information available		

### 14.6. Special precautions for user

#### Overland transport

Classification code (ADR) : F1  
Limited quantities (ADR) : 0  
Tank code (ADR) : L4BN  
Transport category (ADR) : 1  
Hazard identification number (Kemler No.) : 33

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Orange plates : 

Tunnel restriction code (ADR) : D/E  
EAC code : 3YE

### Transport by sea

Limited quantities (IMDG) : 0  
EmS-No. (Fire) : F-E  
EmS-No. (Spillage) : S-D  
Flash point (IMDG) : - 40°C

### Air transport

PCA Limited quantities (IATA) : Forbidden  
PCA limited quantity max net quantity (IATA) : Forbidden  
PCA packing instructions (IATA) : 351  
PCA max net quantity (IATA) : 1L  
CAO packing instructions (IATA) : 361  
CAO max net quantity (IATA) : 30L

### 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

## SECTION 15: Regulatory information

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

#### 15.1.1. EU-Regulations

##### REACH Annex XVII (Restriction List)

No REACH Annex XVII restrictions

##### REACH Annex XIV (Authorisation List)

N-PENTANE is not on the REACH Annex XIV List

##### REACH Candidate List (SVHC)

N-PENTANE is not on the REACH Candidate List

##### PIC Regulation (Prior Informed Consent)

N-PENTANE is not subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.

##### POP Regulation (Persistent Organic Pollutants)

N-PENTANE is not subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

##### Ozone Regulation (1005/2009)

N-PENTANE is not subject to REGULATION (EU) No 1005/2009 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 September 2009 on substances that deplete the ozone layer.

##### Explosives Precursors Regulation (2019/1148)

Contains no substance subject to Regulation (EU) 2019/1148 of the European Parliament and of the Council of 20 June 2019 on the marketing and use of explosives precursors.

##### Drug Precursors Regulation (273/2004)

Contains no substance subject to Regulation (EC) 273/2004 of the European Parliament and of the Council of 11 February 2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances.

#### 15.1.2. National regulations

No additional information available

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### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out

### SECTION 16: Other information

#### Indication of changes

Section	Changed item	Change	Comments
3.1	Composition/information on ingredients	Modified	

#### Full text of H- and EUH-statements:

Aquatic Chronic 2	Hazardous to the aquatic environment – Chronic Hazard, Category 2
Asp. Tox. 1	Aspiration hazard, Category 1
EUH066	Repeated exposure may cause skin dryness or cracking.
Flam. Liq. 1	Flammable liquids, Category 1
H224	Extremely flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H336	May cause drowsiness or dizziness.
H411	Toxic to aquatic life with long lasting effects.
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Narcosis

Safety Data Sheet (SDS), EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

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### Annex to the safety data sheet

Product exposure scenario(s)	
ES Type	ES title
Worker	Distribution of substance
Worker	Formulation [mixing] of preparations and/or re-packaging
Worker	Blowing agent
Consumer	Uses in cosmetics/personal care products, perfumes and fragrances
Consumer	Consumer use of washing and cleaning products
Worker	Use in functional fluids

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

### 1. Exposure scenario SE1

#### Distribution of substance

ES Ref.: SE1

ES Type: Worker

Version: 1.0

Issue date: 1/21/2020

### 2. Operational conditions and risk management measures

#### 2.2. Contributing scenario controlling environmental exposure (ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7, ESVOC SPERC 1.1b.v1)

ERC1	Manufacture of the substance
ERC2	Formulation into mixture
ERC3	Formulation into solid matrix
ERC4	Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
ERC5	Use at industrial site leading to inclusion into/onto article
ERC6a	Use of intermediate
ERC6b	Use of reactive processing aid at industrial site (no inclusion into or onto article)
ERC6c	Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article)
ERC6d	Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article)
ERC7	Use of functional fluid at industrial site
ESVOC SPERC 1.1b.v1	Distribution: Industrial (SU3)

#### Product characteristics

Physical form of product	Liquid
Other product characteristics	Readily biodegradable, Predominantly hydrophobic

#### Operational conditions

Amounts used	Daily amount per site	360 kg/day
Frequency and duration of use	Emission days	20
	Continuous release	
Environmental factors not influenced by risk management	Local freshwater dilution factor:	10
	Local marine water dilution factor:	100

#### Risk Management Measures

Technical conditions and measures at process level (source) to prevent release	Treat air emissions.	90
Conditions and measures related to sewage treatment plant	Not applicable as there is no release to wastewater plant	
Conditions and measures related to external treatment of waste for disposal	Do not apply industrial sludge to natural soils. Incineration, disposal or recycling at specific offsite provider	

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

### 2.1.1. Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3)

General exposures (closed systems)	
PROC1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
PROC2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

Operational conditions		
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

Risk Management Measures		
Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice	

### 2.1.2. Contributing scenario controlling worker exposure (PROC4)

General exposures (open systems)	
PROC4	Chemical production where opportunity for exposure arises

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

Operational conditions		
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

Risk Management Measures		
Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice	

### 2.1.3. Contributing scenario controlling worker exposure (PROC3)

sampling	
PROC3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

Operational conditions		
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

Risk Management Measures		
Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice	

### 2.1.4. Contributing scenario controlling worker exposure (PROC15)

Laboratory activities	
PROC15	Use as laboratory reagent

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

Operational conditions		
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

Risk Management Measures		
Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice	

### 2.1.5. Contributing scenario controlling worker exposure (PROC8b)

Bulk transfers Closed systems	
PROC8b	Transfer of substance or mixture (charging and discharging) at dedicated facilities

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

Operational conditions		
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

### Risk Management Measures

Technical conditions and measures to control dispersion from source towards the worker	Clear transfer lines prior to de-coupling	
Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice	

### 2.1.6. Contributing scenario controlling worker exposure (PROC8b)

#### Bulk transfers , Open systems

PROC8b	Transfer of substance or mixture (charging and discharging) at dedicated facilities
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### Product characteristics

Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

### Operational conditions

Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

### Risk Management Measures

Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice	
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### 2.1.7. Contributing scenario controlling worker exposure (PROC9)

#### Drum and small package filling

PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
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### Product characteristics

Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

### Operational conditions

Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

### Risk Management Measures

Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice	
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### 2.1.8. Contributing scenario controlling worker exposure (PROC8a)

#### Equipment cleaning and maintenance

PROC8a	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
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# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

Operational conditions		
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

Risk Management Measures		
Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice	

### 2.1.9. Contributing scenario controlling worker exposure (PROC1, PROC2)

Storage	
PROC1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
PROC2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

Operational conditions		
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

Risk Management Measures		
Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice	

## 3. Exposure estimation and reference to its source

### 3.1. Health

Information for contributing exposure scenario	
2.1.1	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.2	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

Information for contributing exposure scenario	
2.1.3	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.4	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.5	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.6	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.7	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.8	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.9	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented

### 3.2. Environment

Information for contributing exposure scenario	
2.2	Hydrocarbon Block Method (Petrorisk)

Environmental exposure	Unit	Exposure estimation	PNEC	RCR	Assessment method
Sewage treatment plant				≤ 0.00013	

## 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

### 4.1. Health

Guidance - Health	No additional risk management measures, besides those that are mentioned above, are needed to guarantee safe use for workers. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required
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### 4.2. Environment

Guidance - Environment	No additional risk management measures, besides those that are mentioned above, are needed to guarantee safe use for environment. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required
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# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

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### Additional good practice advice beyond the REACH CSA

No data available

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

### 1. Exposure scenario SE2

#### Formulation [mixing] of preparations and/or re-packaging

ES Ref.: SE2

ES Type: Worker

Version: 1.0

Issue date: 1/21/2020

### 2. Operational conditions and risk management measures

#### 2.2. Contributing scenario controlling environmental exposure (ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7, ESVOC SPERC 2.2.v1)

ERC1	Manufacture of the substance
ERC2	Formulation into mixture
ERC3	Formulation into solid matrix
ERC4	Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
ERC5	Use at industrial site leading to inclusion into/onto article
ERC6a	Use of intermediate
ERC6b	Use of reactive processing aid at industrial site (no inclusion into or onto article)
ERC6c	Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article)
ERC6d	Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article)
ERC7	Use of functional fluid at industrial site
ESVOC SPERC 2.2.v1	Formulation & packing of preparations and mixtures: Industrial (SU10)

#### Product characteristics

Physical form of product	Liquid
Other product characteristics	Readily biodegradable, Predominantly hydrophobic

#### Operational conditions

Amounts used	Daily amount per site	11000 kg/day
Frequency and duration of use	Emission days	300
	Continuous release	
Environmental factors not influenced by risk management	Local freshwater dilution factor:	10
	Local marine water dilution factor:	100

#### Risk Management Measures

Technical conditions and measures at process level (source) to prevent release	Treat air emissions.	90
Conditions and measures related to sewage treatment plant	Not applicable as there is no release to wastewater	
Conditions and measures related to external treatment of waste for disposal	Do not apply industrial sludge to natural soils. Incineration, disposal or recycling at specific offsite provider	

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

### 2.1.1. Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3)

General exposures (closed systems)	
PROC1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
PROC2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

Operational conditions		
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

Risk Management Measures		
Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice	

### 2.1.2. Contributing scenario controlling worker exposure (PROC4)

General exposures (open systems)	
PROC4	Chemical production where opportunity for exposure arises

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

Operational conditions		
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

Risk Management Measures		
Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice	

### 2.1.3. Contributing scenario controlling worker exposure (PROC3)

Batch processes at elevated temperatures	
PROC3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

Operational conditions		
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Operation is carried out at elevated temperature (> 20°C above ambient temperature)	

Risk Management Measures		
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	
Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice	

### 2.1.4. Contributing scenario controlling worker exposure (PROC3)

Product sampling	
PROC3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

Operational conditions		
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

Risk Management Measures		
Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice	

### 2.1.5. Contributing scenario controlling worker exposure (PROC15)

Laboratory activities	
PROC15	Use as laboratory reagent

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

Operational conditions		
Frequency and duration of use	Covers daily exposures up to 8 hours	

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

### Operational conditions

Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.
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### Risk Management Measures

Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice
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### 2.1.6. Contributing scenario controlling worker exposure (PROC8b)

#### Bulk transfers

PROC8b	Transfer of substance or mixture (charging and discharging) at dedicated facilities
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### Product characteristics

Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

### Operational conditions

Frequency and duration of use	Covers daily exposures up to 8 hours
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.

### Risk Management Measures

Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice
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### 2.1.7. Contributing scenario controlling worker exposure (PROC5)

#### Mixing operations (open systems)

PROC5	Mixing or blending in batch processes
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### Product characteristics

Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

### Operational conditions

Frequency and duration of use	Covers daily exposures up to 8 hours
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.

### Risk Management Measures

Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice
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# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

### 2.1.8. Contributing scenario controlling worker exposure (PROC8a)

#### transfer of material from one container to another

PROC8a	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
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#### Product characteristics

Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

#### Operational conditions

Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

#### Risk Management Measures

Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice	
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### 2.1.9. Contributing scenario controlling worker exposure (PROC8a)

#### Drum/batch transfers

PROC8a	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
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#### Product characteristics

Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

#### Operational conditions

Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

#### Risk Management Measures

Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice	
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### 2.1.10. Contributing scenario controlling worker exposure (PROC14)

#### Production of preparations or articles by tableting, compression, extrusion, pelettisation

PROC14	Tableting, compression, extrusion, pelettisation, granulation
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#### Product characteristics

Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa



# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

Operational conditions		
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

Risk Management Measures		
Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice	

### 2.1.11. Contributing scenario controlling worker exposure (PROC9)

Drum and small package filling		
PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	

Product characteristics		
Physical form of product	Liquid	
Concentration of substance in product	≤ 100 %	
Vapour pressure	> 10 kPa	

Operational conditions		
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

Risk Management Measures		
Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice	

### 2.1.12. Contributing scenario controlling worker exposure (PROC8a)

Equipment cleaning and maintenance		
PROC8a	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities	

Product characteristics		
Physical form of product	Liquid	
Concentration of substance in product	≤ 100 %	
Vapour pressure	> 10 kPa	

Operational conditions		
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

Risk Management Measures		
Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice	

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

### 2.1.13. Contributing scenario controlling worker exposure (PROC1, PROC2)

Storage	
PROC1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
PROC2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

Operational conditions		
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

Risk Management Measures		
Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice	

## 3. Exposure estimation and reference to its source

### 3.1. Health

Information for contributing exposure scenario	
2.1.1	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.2	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.3	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.4	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.5	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.6	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.7	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.8	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

Information for contributing exposure scenario	
2.1.9	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.10	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.11	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.12	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.13	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented

### 3.2. Environment

Information for contributing exposure scenario	
2.2	Hydrocarbon Block Method (Petrorisk)

Environmental exposure	Unit	Exposure estimation	PNEC	RCR	Assessment method
Sewage treatment plant				≤ 0.017448	

## 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

### 4.1. Health

Guidance - Health	No additional risk management measures, besides those that are mentioned above, are needed to guarantee safe use for workers. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required
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### 4.2. Environment

Guidance - Environment	No additional risk management measures, besides those that are mentioned above, are needed to guarantee safe use for environment. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required
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## Additional good practice advice beyond the REACH CSA

No data available

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

### 1. Exposure scenario SE3

#### Blowing agent

ES Ref.: SE3

ES Type: Worker

Version: 1.0

Issue date: 1/21/2020

### 2. Operational conditions and risk management measures

#### 2.2. Contributing scenario controlling environmental exposure (ERC4, ESVOC SPERC 4.9.v1)

ERC4	Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
ESVOC SPERC 4.9.v1	Blowing agents: Industrial (SU3)

#### Product characteristics

Physical form of product	Liquid
Other product characteristics	Readily biodegradable, Predominantly hydrophobic

#### Operational conditions

Amounts used	Daily amount per site	15000 kg/day
Frequency and duration of use	Emission days	100
	Continuous release	
Environmental factors not influenced by risk management	Local freshwater dilution factor:	10
	Local marine water dilution factor:	100

#### Risk Management Measures

Conditions and measures related to sewage treatment plant	Not applicable as there is no release to wastewater plant	
Conditions and measures related to external treatment of waste for disposal	Do not apply industrial sludge to natural soils. Incineration, disposal or recycling at specific offsite provider	

#### 2.1.1. Contributing scenario controlling worker exposure (PROC8b)

#### Bulk transfers

PROC8b	Transfer of substance or mixture (charging and discharging) at dedicated facilities
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#### Product characteristics

Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

#### Operational conditions

Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

### Risk Management Measures

Conditions and measures related to personal protection, hygiene and health evaluation

Handle in accordance with good industrial hygiene and safety practice

### 2.1.2. Contributing scenario controlling worker exposure (PROC1, PROC3)

#### Mixing operations

PROC1

Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions

PROC3

Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

### Product characteristics

Physical form of product

Liquid

Concentration of substance in product

≤ 100 %

Vapour pressure

> 10 kPa

### Operational conditions

Frequency and duration of use

Covers daily exposures up to 8 hours

Other given operational conditions affecting workers exposure

Assumes use at not more than 20°C above ambient temperature.

### Risk Management Measures

Conditions and measures related to personal protection, hygiene and health evaluation

Handle in accordance with good industrial hygiene and safety practice

### 2.1.3. Contributing scenario controlling worker exposure (PROC12)

#### Extrusion and expansion of polymer mass, Sawmilling and planing of wood, Collection and re-processing of shavings, cuttings, etc, Product packaging, Storage

PROC12

Use of blowing agents in manufacture of foam

### Product characteristics

Physical form of product

Liquid

Concentration of substance in product

≤ 100 %

Vapour pressure

> 10 kPa

### Operational conditions

Frequency and duration of use

Covers daily exposures up to 8 hours

Other given operational conditions affecting workers exposure

Assumes use at not more than 20°C above ambient temperature.

### Risk Management Measures

Conditions and measures related to personal protection, hygiene and health evaluation

Handle in accordance with good industrial hygiene and safety practice

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

### 2.1.4. Contributing scenario controlling worker exposure (PROC3, PROC12)

#### Mixing operations, Intermediate polymer storage, Centrifuging including discharging, Treatment by heating, Casting operations

PROC3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC12	Use of blowing agents in manufacture of foam

#### Product characteristics

Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

#### Operational conditions

Frequency and duration of use	Covers daily exposures up to 8 hours
Other given operational conditions affecting workers exposure	Operation is carried out at elevated temperature (> 20°C above ambient temperature)

#### Risk Management Measures

Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice

### 2.1.5. Contributing scenario controlling worker exposure (PROC8b)

#### Semi-bulk packaging

PROC8b	Transfer of substance or mixture (charging and discharging) at dedicated facilities
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#### Product characteristics

Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

#### Operational conditions

Frequency and duration of use	Covers daily exposures up to 8 hours
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.

#### Risk Management Measures

Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice
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### 2.1.6. Contributing scenario controlling worker exposure (PROC12)

#### Drying and storage, Cutting by heated wire

PROC12	Use of blowing agents in manufacture of foam
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# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

Operational conditions		
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

Risk Management Measures		
Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice	

### 2.1.7. Contributing scenario controlling worker exposure (PROC9)

Drum and small package filling, Filling of equipment from drums or containers	
PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

Operational conditions		
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

Risk Management Measures		
Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice	

### 2.1.8. Contributing scenario controlling worker exposure (PROC12)

Foaming, Compression, Cutting by heated wire	
PROC12	Use of blowing agents in manufacture of foam

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

Operational conditions		
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

### Risk Management Measures

Conditions and measures related to personal protection, hygiene and health evaluation

Handle in accordance with good industrial hygiene and safety practice

## 3. Exposure estimation and reference to its source

### 3.1. Health

#### Information for contributing exposure scenario

2.1.1	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.2	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.3	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.4	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.5	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.6	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.7	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.8	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented

### 3.2. Environment

#### Information for contributing exposure scenario

2.2	Hydrocarbon Block Method (Petrisk)
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Environmental exposure	Unit	Exposure estimation	PNEC	RCR	Assessment method
Sewage treatment plant				≤ 0.034	



# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

### 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

#### 4.1. Health

Guidance - Health	No additional risk management measures, besides those that are mentioned above, are needed to guarantee safe use for workers. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required
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#### 4.2. Environment

Guidance - Environment	No additional risk management measures, besides those that are mentioned above, are needed to guarantee safe use for environment. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required
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### Additional good practice advice beyond the REACH CSA

No data available

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

### 1. Exposure scenario SE4

#### Uses in cosmetics/personal care products, perfumes and fragrances

ES Ref.: SE4

ES Type: Consumer

Version: 1.0

Issue date: 1/21/2020

### 2. Operational conditions and risk management measures

#### 2.1. Contributing scenario consumer end-use

##### Product characteristics

Physical form of product

Liquid

##### Operational conditions

No additional information

##### Risk Management Measures

No additional information

#### 2.2. Contributing scenario controlling environmental exposure (ERC8a, ERC8d, ESVOC SPERC 8.16.v1)

ERC8a

Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)

ERC8d

Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)

ESVOC SPERC 8.16.v1

Other Consumer Uses: Consumer (SU21)

##### Product characteristics

Physical form of product

Liquid

Other product characteristics

Readily biodegradable, Predominantly hydrophobic

##### Operational conditions

Amounts used

Regional use tonnage

72

Frequency and duration of use

Continuous release

Emission days

365

Environmental factors not influenced by risk management

Local freshwater dilution factor:

10

Local marine water dilution factor:

100

##### Risk Management Measures

No additional information

### 3. Exposure estimation and reference to its source

#### 3.1. Health

No data available

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

### 3.2. Environment

#### Information for contributing exposure scenario

2.2 Hydrocarbon Block Method (Petrorisk)

Environmental exposure	Unit	Exposure estimation	PNEC	RCR	Assessment method
Sewage treatment plant				≤ 0.00012	

### 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

#### 4.1. Health

Guidance - Health Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels

#### 4.2. Environment

Guidance - Environment No additional risk management measures, besides those that are mentioned above, are needed to guarantee safe use for environment. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels

### Additional good practice advice beyond the REACH CSA

No data available

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

### 1. Exposure scenario SE5

#### Consumer use of washing and cleaning products

ES Ref.: SE5  
ES Type: Consumer  
Version: 1.0

Issue date: 1/21/2020

### 2. Operational conditions and risk management measures

#### 2.2. Contributing scenario controlling environmental exposure (ERC8a, ERC8d, ESVOC SPERC 8.4c.v1)

ERC8a	Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
ERC8d	Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
ESVOC SPERC 8.4c.v1	Use in Cleaning Agents: Consumer (SU21)

#### Product characteristics

Physical form of product	Liquid
Other product characteristics	Readily biodegradable, Predominantly hydrophobic

#### Operational conditions

Amounts used	Regional use tonnage	42
Frequency and duration of use	Continuous release	
	Emission days	365
Environmental factors not influenced by risk management	Local freshwater dilution factor:	10
	Local marine water dilution factor:	100

#### Risk Management Measures

No additional information

#### 2.1.1. Contributing scenario consumer end-use (PC3)

#### Air care, instant action (aerosol sprays)

PC3	Air care products
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#### Product characteristics

Physical form of product	Liquid
Concentration of substance in product	≤ 50 %

#### Operational conditions

Amounts used	For each use event, covers use amounts up to	0.5 g
Frequency and duration of use	Covers use up to	4 times per day
	Covers use up to	365 days per year
	Covers exposure up to	0.25 h
Human factors not influenced by risk management	Exposed skin surface assumed:	857.5 cm <sup>2</sup>
Other given operational conditions affecting	Covers use at ambient temperatures	

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

Operational conditions		
consumers exposure	Covers use in room size of	20 m <sup>3</sup>
	Covers use under typical household ventilation	

Risk Management Measures
No additional information

### 2.1.2. Contributing scenario consumer end-use (PC3)

Air care, continuous action (solid and liquid)	
PC3	Air care products

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 50 %

Operational conditions		
Amounts used	For each use event, covers use amounts up to	0.48 g
Frequency and duration of use	Covers use up to	1 times per day
	Covers use up to	365 days per year
	Covers exposure up to	8 h
Human factors not influenced by risk management	Exposed skin surface assumed:	35.7 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Covers use at ambient temperatures	
	Covers use in room size of	20 m <sup>3</sup>
	Covers use under typical household ventilation	

Risk Management Measures
No additional information

### 2.1.3. Contributing scenario consumer end-use (PC4)

Washing car window	
PC4	Anti-Freeze and De-icing products

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 1 %

Operational conditions		
Amounts used	For each use event, covers use amounts up to	0.5 g
Frequency and duration of use	Covers use up to	1 times per day
	Covers use up to	365 days per year
	Covers exposure up to	0.02 h

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

Operational conditions		
Human factors not influenced by risk management	Exposed skin surface assumed:	857.5 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Covers use at ambient temperatures	
	Covers use in room size of	34 m <sup>3</sup>
	Covers use under typical household ventilation	

Risk Management Measures
No additional information

### 2.1.4. Contributing scenario consumer end-use (PC4)

Pouring into radiator	
PC4	Anti-Freeze and De-icing products

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 10 %

Operational conditions		
Amounts used	For each use event, covers use amounts up to	2000 g
Frequency and duration of use	Covers use up to	1 times per day
	Covers use up to	365 days per year
	Covers exposure up to	0.17 h
Human factors not influenced by risk management	Exposed skin surface assumed:	428 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Covers use at ambient temperatures	
	Covers use in room size of	34 m <sup>3</sup>
	Covers use under typical household ventilation	

Risk Management Measures
No additional information

### 2.1.5. Contributing scenario consumer end-use (PC4)

Lock de-icer	
PC4	Anti-Freeze and De-icing products

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 50 %

Operational conditions		
Amounts used	For each use event, covers use amounts up to	4 g
Frequency and duration of use	Covers use up to	1 times per day

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

Operational conditions		
	Covers use up to	365 days per year
	Covers exposure up to	0.25 h
Human factors not influenced by risk management	Exposed skin surface assumed:	214.4 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Covers use at ambient temperatures	
	Covers use in room size of	34 m <sup>3</sup>
	Covers use under typical household ventilation	

Risk Management Measures
No additional information

### 2.1.6. Contributing scenario consumer end-use (PC8)

Laundry and dish washing products	
PC8	Biocidal products

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 5 %

Operational conditions		
Amounts used	For each use event, covers use amounts up to	15 g
Frequency and duration of use	Covers use up to	1 times per day
	Covers use up to	365 days per year
	Covers exposure up to	0.5 h
Human factors not influenced by risk management	Exposed skin surface assumed:	857.5 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Covers use at ambient temperatures	
	Covers use in room size of	20 m <sup>3</sup>
	Covers use under typical household ventilation	

Risk Management Measures
No additional information

### 2.1.7. Contributing scenario consumer end-use (PC8)

Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)	
PC8	Biocidal products

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 5 %

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

Operational conditions		
Amounts used	For each use event, covers use amounts up to	27 g
Frequency and duration of use	Covers use up to	1 times per day
	Covers use up to	128 days per year
	Covers exposure up to	0.33 h
Human factors not influenced by risk management	Exposed skin surface assumed:	857.5 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Covers use at ambient temperatures	
	Covers use in room size of	20 m <sup>3</sup>
	Covers use under typical household ventilation	

Risk Management Measures
No additional information

### 2.1.8. Contributing scenario consumer end-use (PC8)

Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)	
PC8	Biocidal products

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 15 %

Operational conditions		
Amounts used	For each use event, covers use amounts up to	35 g
Frequency and duration of use	Covers use up to	1 times per day
	Covers use up to	128 days per year
	Covers exposure up to	0.17 h
Human factors not influenced by risk management	Exposed skin surface assumed:	428 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Covers use at ambient temperatures	
	Covers use in room size of	20 m <sup>3</sup>
	Covers use under typical household ventilation	

Risk Management Measures
No additional information

### 2.1.9. Contributing scenario consumer end-use (PC9a)

Waterborne latex wall paint	
PC9a	Coatings and paints, thinners, paint removers

Product characteristics	
Physical form of product	Liquid



# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

### Product characteristics

Concentration of substance in product	≤ 1.5 %
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### Operational conditions

Amounts used	For each use event, covers use amounts up to	2760 g
Frequency and duration of use	Covers use up to	1 times per day
	Covers use up to	4 days per year
	Covers exposure up to	2.2 h
Human factors not influenced by risk management	Exposed skin surface assumed:	428 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Covers use at ambient temperatures	
	Covers use in room size of	20 m <sup>3</sup>
	Covers use under typical household ventilation	

### Risk Management Measures

No additional information

#### 2.1.10. Contributing scenario consumer end-use (PC9a)

### Solvent rich, high solid, water borne paint

PC9a	Coatings and paints, thinners, paint removers
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### Product characteristics

Physical form of product	Liquid
Concentration of substance in product	≤ 27.5 %

### Operational conditions

Amounts used	For each use event, covers use amounts up to	744 g
Frequency and duration of use	Covers use up to	1 times per day
	Covers use up to	6 days per year
	Covers exposure up to	2.2 h
Human factors not influenced by risk management	Exposed skin surface assumed:	428 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Covers use at ambient temperatures	
	Covers use in room size of	20 m <sup>3</sup>
	Covers use under typical household ventilation	

### Risk Management Measures

No additional information

#### 2.1.11. Contributing scenario consumer end-use (PC9a)

### Aerosol spray can

PC9a	Coatings and paints, thinners, paint removers
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# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 50 %

Operational conditions		
Amounts used	For each use event, covers use amounts up to	215 g
Frequency and duration of use	Covers use up to	1 times per day
	Covers use up to	2 days per year
	Covers exposure up to	0.33 h
Human factors not influenced by risk management	Exposed skin surface assumed:	857.5 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Covers use at ambient temperatures	
	Covers use in room size of	34 m <sup>3</sup>
	Covers use under typical household ventilation	

Risk Management Measures
No additional information

### 2.1.12. Contributing scenario consumer end-use (PC9a)

Aerosol spray can	
PC9a	Coatings and paints, thinners, paint removers

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 50 %

Operational conditions		
Amounts used	For each use event, covers use amounts up to	215 g
Frequency and duration of use	Covers use up to	1 times per day
	Covers use up to	2 days per year
	Covers exposure up to	0.33 h
Human factors not influenced by risk management	Exposed skin surface assumed:	857.5 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Covers use at ambient temperatures	
	Covers use in room size of	34 m <sup>3</sup>
	Covers use under typical household ventilation	

Risk Management Measures
No additional information

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

### 2.1.13. Contributing scenario consumer end-use (PC9a)

Diluent	
PC9a	Coatings and paints, thinners, paint removers

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 50 %

Operational conditions		
Amounts used	For each use event, covers use amounts up to	491 g
Frequency and duration of use	Covers use up to	1 times per day
	Covers use up to	3 days per year
	Covers exposure up to	2 h
Human factors not influenced by risk management	Exposed skin surface assumed:	857.5 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Covers use at ambient temperatures	
	Covers use in room size of	20 m <sup>3</sup>
	Covers use under typical household ventilation	

Risk Management Measures
No additional information

### 2.1.14. Contributing scenario consumer end-use (PC9b)

Fillers and putty	
PC9b	Fillers, putties, plasters, modelling clay

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 2 %

Operational conditions		
Amounts used	For each use event, covers use amounts up to	85 g
Frequency and duration of use	Covers use up to	1 times per day
	Covers use up to	12 days per year
	Covers exposure up to	4 h
Human factors not influenced by risk management	Exposed skin surface assumed:	35.73 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Covers use at ambient temperatures	
	Covers use in room size of	20 m <sup>3</sup>
	Covers use under typical household ventilation	

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

### Risk Management Measures

No additional information

### 2.1.15. Contributing scenario consumer end-use (PC9b)

#### Plastering, Coat

PC9b Fillers, putties, plasters, modelling clay

#### Product characteristics

Physical form of product Liquid

Concentration of substance in product  $\leq 2\%$

#### Operational conditions

Amounts used	For each use event, covers use amounts up to	13800 g
Frequency and duration of use	Covers use up to	1 times per day
	Covers use up to	12 days per year
	Covers exposure up to	2 h
Human factors not influenced by risk management	Exposed skin surface assumed:	857.5 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Covers use at ambient temperatures	
	Covers use in room size of	20 m <sup>3</sup>
	Covers use under typical household ventilation	

### Risk Management Measures

No additional information

### 2.1.16. Contributing scenario consumer end-use (PC9b)

#### Modelling clay

PC9b Fillers, putties, plasters, modelling clay

#### Product characteristics

Physical form of product Liquid

Concentration of substance in product  $\leq 1\%$

#### Operational conditions

Amounts used	For each use event, covers use amounts up to	13800 g
	For each use event, assumes swallowed amount of :	1 g
Frequency and duration of use	Covers use up to	1 times per day
	Covers use up to	365 days per year
	Covers exposure up to	8 h
Human factors not influenced by risk management	Exposed skin surface assumed:	254.4 cm <sup>2</sup>
Other given operational conditions affecting	Covers use at ambient temperatures	

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

Operational conditions		
consumers exposure	Covers use in room size of	20 m <sup>3</sup>
	Covers use under typical household ventilation	

Risk Management Measures
No additional information

### 2.1.17. Contributing scenario consumer end-use (PC9c)

Finger paints	
PC9c	Finger paints

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 50 %

Operational conditions		
Amounts used	For each use event, covers use amounts up to	13800 g
	For each use event, assumes swallowed amount of :	1.35 g
Frequency and duration of use	Covers use up to	1 times per day
	Covers use up to	365 days per year
	Covers exposure up to	8 h
Human factors not influenced by risk management	Exposed skin surface assumed:	254.4 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Covers use at ambient temperatures	
	Covers use in room size of	20 m <sup>3</sup>
	Covers use under typical household ventilation	

Risk Management Measures
No additional information

### 2.1.18. Contributing scenario consumer end-use (PC24)

Liquid	
PC24	Lubricants, greases, release products

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 100 %

Operational conditions		
Amounts used	For each use event, covers use amounts up to	2200 g
Frequency and duration of use	Covers use up to	1 times per day
	Covers use up to	4 days per year

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

Operational conditions		
	Covers exposure up to	0.17 h
Human factors not influenced by risk management	Exposed skin surface assumed:	468 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Covers use at ambient temperatures	
	Covers use in room size of	34 m <sup>3</sup>
	Covers use under typical household ventilation	

Risk Management Measures
No additional information

### 2.1.19. Contributing scenario consumer end-use (PC24)

adhesives	
PC24	Lubricants, greases, release products

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 20 %

Operational conditions		
Amounts used	For each use event, covers use amounts up to	34 g
Frequency and duration of use	Covers use up to	1 times per day
	Covers use up to	10 days per year
	Covers exposure up to	4 h
Human factors not influenced by risk management	Exposed skin surface assumed:	468 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Covers use at ambient temperatures	
	Covers use in room size of	20 m <sup>3</sup>
	Covers use under typical household ventilation	

Risk Management Measures
No additional information

### 2.1.20. Contributing scenario consumer end-use (PC24)

aerosol	
PC24	Lubricants, greases, release products

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 50 %

Operational conditions		
Amounts used	For each use event, covers use amounts up to	73 g

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

Operational conditions		
Frequency and duration of use	Covers use up to	1 times per day
	Covers use up to	6 days per year
	Covers exposure up to	0.17 h
Human factors not influenced by risk management	Exposed skin surface assumed:	428.75 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Covers use at ambient temperatures	
	Covers use in room size of	20 m <sup>3</sup>
	Covers use under typical household ventilation	

Risk Management Measures
No additional information

### 2.1.21. Contributing scenario consumer end-use (PC35)

Laundry and dish washing products	
PC35	Washing and cleaning products

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 5 %

Operational conditions		
Amounts used	For each use event, covers use amounts up to	15 g
Frequency and duration of use	Covers use up to	1 times per day
	Covers use up to	365 days per year
	Covers exposure up to	0.5 h
Human factors not influenced by risk management	Exposed skin surface assumed:	857.5 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Covers use at ambient temperatures	
	Covers use in room size of	20 m <sup>3</sup>
	Covers use under typical household ventilation	

Risk Management Measures
No additional information

### 2.1.22. Contributing scenario consumer end-use (PC35)

Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)	
PC35	Washing and cleaning products

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 5 %

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

Operational conditions		
Amounts used	For each use event, covers use amounts up to	27 g
Frequency and duration of use	Covers use up to	1 times per day
	Covers use up to	128 days per year
	Covers exposure up to	0.33 h
Human factors not influenced by risk management	Exposed skin surface assumed:	857.5 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Covers use at ambient temperatures	
	Covers use in room size of	20 m <sup>3</sup>
	Covers use under typical household ventilation	

Risk Management Measures
No additional information

### 2.1.23. Contributing scenario consumer end-use (PC35)

Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)	
PC35	Washing and cleaning products

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 15 %

Operational conditions		
Amounts used	For each use event, covers use amounts up to	35 g
Frequency and duration of use	Covers use up to	1 times per day
	Covers use up to	128 days per year
	Covers exposure up to	0.17 h
Human factors not influenced by risk management	Exposed skin surface assumed:	428 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Covers use at ambient temperatures	
	Covers use in room size of	20 m <sup>3</sup>
	Covers use under typical household ventilation	

Risk Management Measures
No additional information

### 2.1.24. Contributing scenario consumer end-use (PC38)

Welding and soldering products, flux products	
PC38	Welding and soldering products, flux products



# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

Product characteristics	
Physical form of product	Liquid
Concentration of substance in product	≤ 20 %

Operational conditions		
Amounts used	For each use event, covers use amounts up to	12 g
Frequency and duration of use	Covers use up to	1 times per day
	Covers use up to	365 days per year
	Covers exposure up to	1 h
Human factors not influenced by risk management	Exposed skin surface assumed:	857.5 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Covers use at ambient temperatures	
	Covers use in room size of	20 m <sup>3</sup>
	Covers use under typical household ventilation	

Risk Management Measures
No additional information

### 3. Exposure estimation and reference to its source

#### 3.1. Health

Information for contributing exposure scenario	
2.1.1	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.2	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.3	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.4	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.5	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.6	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.7	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.8	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.9	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.10	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.11	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

Information for contributing exposure scenario	
2.1.12	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.13	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.14	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.15	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.16	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.17	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.18	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.19	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.20	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.21	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.22	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.23	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.24	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented

### 3.2. Environment

Information for contributing exposure scenario	
2.2	Hydrocarbon Block Method (Petrisk)

Environmental exposure	Unit	Exposure estimation	PNEC	RCR	Assessment method
Sewage treatment plant				≤ 0.00012	

## 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

### 4.1. Health

Guidance - Health	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels
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### 4.2. Environment

Guidance - Environment	No additional risk management measures, besides those that are mentioned above, are needed to guarantee safe use for environment. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels
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# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

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### Additional good practice advice beyond the REACH CSA

No data available

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

### 1. Exposure scenario SE6

#### Use in functional fluids

ES Ref.: SE6

ES Type: Worker

Version: 1.0

Issue date: 1/21/2020

### 2. Operational conditions and risk management measures

#### 2.2. Contributing scenario controlling environmental exposure (ERC7, ESVOC SPERC 7.13a.v1)

ERC7	Use of functional fluid at industrial site
ESVOC SPERC 7.13a.v1	Functional Fluids: Industrial (SU3)

#### Product characteristics

Physical form of product	Liquid
Other product characteristics	Readily biodegradable, Predominantly hydrophobic

#### Operational conditions

Amounts used	Daily amount per site	500 kg/day
Frequency and duration of use	Emission days	20
	Continuous release	
Environmental factors not influenced by risk management	Local freshwater dilution factor:	10
	Local marine water dilution factor:	100

#### Risk Management Measures

Conditions and measures related to sewage treatment plant	Not applicable as there is no release to wastewater	
Conditions and measures related to external treatment of waste for disposal	Do not apply industrial sludge to natural soils. Incineration, disposal or recycling at specific offsite provider	

#### 2.1.1. Contributing scenario controlling worker exposure (PROC1, PROC2)

#### Bulk transfers Closed systems

PROC1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
PROC2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

#### Product characteristics

Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

#### Operational conditions

Frequency and duration of use	Covers daily exposures up to 8 hours	
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# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

### Operational conditions

Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.
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### Risk Management Measures

Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice
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### 2.1.2. Contributing scenario controlling worker exposure (PROC8b)

#### Drum/batch transfers

PROC8b	Transfer of substance or mixture (charging and discharging) at dedicated facilities
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### Product characteristics

Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

### Operational conditions

Frequency and duration of use	Covers daily exposures up to 8 hours
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.

### Risk Management Measures

Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice
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### 2.1.3. Contributing scenario controlling worker exposure (PROC9)

#### Filling of articles/equipment Closed systems

PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
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### Product characteristics

Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

### Operational conditions

Frequency and duration of use	Covers daily exposures up to 8 hours
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.

### Risk Management Measures

Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice
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# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

### 2.1.4. Contributing scenario controlling worker exposure (PROC8a)

#### Filling of equipment from drums or containers

PROC8a	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
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#### Product characteristics

Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

#### Operational conditions

Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

#### Risk Management Measures

Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice	
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### 2.1.5. Contributing scenario controlling worker exposure (PROC2)

#### General exposures (closed systems)

PROC2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
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#### Product characteristics

Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

#### Operational conditions

Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

#### Risk Management Measures

Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice	
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### 2.1.6. Contributing scenario controlling worker exposure (PROC4)

#### General exposures (open systems)

PROC4	Chemical production where opportunity for exposure arises
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#### Product characteristics

Physical form of product	Liquid
Concentration of substance in product	≤ 100 %
Vapour pressure	> 10 kPa

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

Operational conditions		
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Operation is carried out at elevated temperature (> 20°C above ambient temperature)	

Risk Management Measures		
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	
Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice	

### 2.1.7. Contributing scenario controlling worker exposure (PROC9)

Recycling		
PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	

Product characteristics		
Physical form of product	Liquid	
Concentration of substance in product	≤ 100 %	
Vapour pressure	> 10 kPa	

Operational conditions		
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

Risk Management Measures		
Conditions and measures related to personal protection, hygiene and health evaluation	Handle in accordance with good industrial hygiene and safety practice	

### 2.1.8. Contributing scenario controlling worker exposure (PROC8a)

Equipment maintenance		
PROC8a	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities	

Product characteristics		
Physical form of product	Liquid	
Concentration of substance in product	≤ 100 %	
Vapour pressure	> 10 kPa	

Operational conditions		
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other given operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

### Risk Management Measures

Conditions and measures related to personal protection, hygiene and health evaluation

Handle in accordance with good industrial hygiene and safety practice

### 2.1.9. Contributing scenario controlling worker exposure (PROC1, PROC2)

#### Storage

PROC1

Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions

PROC2

Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

### Product characteristics

Physical form of product

Liquid

Concentration of substance in product

≤ 100 %

Vapour pressure

> 10 kPa

### Operational conditions

Frequency and duration of use

Covers daily exposures up to 8 hours

Other given operational conditions affecting workers exposure

Assumes use at not more than 20°C above ambient temperature.

### Risk Management Measures

Conditions and measures related to personal protection, hygiene and health evaluation

Handle in accordance with good industrial hygiene and safety practice

## 3. Exposure estimation and reference to its source

### 3.1. Health

#### Information for contributing exposure scenario

2.1.1	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.2	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.3	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.4	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.5	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.6	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented



# N-PENTANE

## Annex to the safety data sheet: Exposure scenario

Reference number: 100037900 CAS-No.: 109-66-0 Product form: Substance Physical state: Liquid

### Information for contributing exposure scenario

2.1.7	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.8	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented
2.1.9	Used ECETOC TRA model, Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented

### 3.2. Environment

#### Information for contributing exposure scenario

2.2	Hydrocarbon Block Method (Petrorisk)
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Environmental exposure	Unit	Exposure estimation	PNEC	RCR	Assessment method
Sewage treatment plant				≤ 0.0012	

## 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

### 4.1. Health

Guidance - Health	No additional risk management measures, besides those that are mentioned above, are needed to guarantee safe use for workers. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required
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### 4.2. Environment

Guidance - Environment	No additional risk management measures, besides those that are mentioned above, are needed to guarantee safe use for environment. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required
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## Additional good practice advice beyond the REACH CSA

No data available