

SAFETY DATA SHEET

According to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended 2015/830.

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

1.1 Product identifier

Product name: n-Pentane
Product No. 5281, 8239, 8114, 5415, 5501, 6721, 6755

Additional identification

Chemical name: Pentane
Chemical formula: C₅H₁₂
INDEX No. 601-006-00-1
CAS-No. 109-66-0
EC No. 203-692-4
REACH Registration No. 05-2117330326-52-0000

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

Identified uses: For Laboratory, Research or Manufacturing Use.
Uses advised against: Not determined.

1.3 Details of the supplier of the safety data sheet

Avantor Performance Materials Poland S.A.
Sowinskiego 11str., 44-101 Gliwice,
Poland

Telephone: 48 32 239-20-00
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Contact person: Product Information Compliance
E-mail: export@avantormaterials.com

E-mail address of person responsible for this SDS: SDS@avantormaterials.com

1.4 Emergency telephone number: CHEMTREC: (44)-870-8200418

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

The product has been classified according to the legislation in force.

Classification according to Regulation (EC) No 1272/2008 as amended.

Physical Hazards

Flammable liquids Category 2 H225: Highly flammable liquid and vapour.

Health Hazards

Specific Target Organ Toxicity -
Single Exposure Category 3 H336: May cause drowsiness or dizziness.

Aspiration Hazard Category 1 H304: May be fatal if swallowed and enters airways.

Environmental Hazards

Chronic hazards to the aquatic
environment Category 2 H411: Toxic to aquatic life with long lasting effects.

2.2 Label Elements

Contains:

Pentane



Signal Word:

Danger

Hazard Statement(s):

H225: Highly flammable liquid and vapour.
H336: May cause drowsiness or dizziness.
H304: May be fatal if swallowed and enters airways.
H411: Toxic to aquatic life with long lasting effects.

Precautionary Statements

Prevention:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233: Keep container tightly closed.
P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
P264: Wash thoroughly after handling.
P273: Avoid release to the environment.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response:

P301+P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P331: Do NOT induce vomiting.
P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312: Call a POISON CENTRE/doctor if you feel unwell.
P337+P313: If eye irritation persists: Get medical advice/attention.
P391: Collect spillage.

Supplemental label information

EUH066: Repeated exposure may cause skin dryness or cracking.

2.3 Other hazards

No data available.

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Concentration	CAS-No.	EC No.	REACH Registration No.	M-Factor:	Notes
Pentane	50 - <100%	109-66-0	203-692-4	01-2119459286-30-0025	No data available.	#

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

This substance has workplace exposure limit(s).

SECTION 4: First Aid Measures

General: Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.

4.1 Description of first aid measures

Inhalation: Move to fresh air. If breathing is difficult, give oxygen. If breathing stops, provide artificial respiration. Get medical attention if symptoms persist.

Skin Contact: Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if irritation persists after washing. Wash contaminated clothing before re-use. Destroy or thoroughly clean contaminated shoes.

Eye contact: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention if irritation persists after washing.

Ingestion: Call a doctor or poison control centre immediately. Do NOT induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

4.2 Most important symptoms and effects, both acute and delayed: May cause skin and eye irritation.

4.3 Indication of any immediate medical attention and special treatment needed

Hazards: No data available.

Treatment: Treat symptomatically. Symptoms may be delayed.

SECTION 5: Firefighting Measures

General Fire Hazards: Flammable liquid and vapour. In case of fire and/or explosion do not breathe fumes.

5.1 Extinguishing media Suitable extinguishing media:

Water spray, foam, dry powder or carbon dioxide.

Unsuitable extinguishing media:

Avoid water in straight hose stream; will scatter and spread fire.

5.2 Special hazards arising from the substance or mixture:

Can be ignited easily and burns vigorously. Vapours may cause a flash fire or ignite explosively. Vapours may travel considerable distance to a source of ignition and flash back. Prevent buildup of vapours or gases to explosive concentrations. Heat may cause the containers to explode.

5.3 Advice for firefighters Special fire fighting procedures:

Use water spray to keep fire-exposed containers cool. Water may be ineffective in fighting the fire. Fight fire from a protected location. Move containers from fire area if you can do so without risk. Cool containers exposed to flames with water until well after the fire is out.

Special protective equipment for firefighters:

Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

SECTION 6: Accidental Release Measures

- 6.1 Personal precautions, protective equipment and emergency procedures:** ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep unauthorised personnel away. Keep upwind. Use personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. See Section 8 of the SDS for Personal Protective Equipment.
- 6.2 Environmental Precautions:** Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or on to the ground.
- 6.3 Methods and material for containment and cleaning up:** In case of leakage, eliminate all ignition sources. Take precautionary measures against static discharges. Stop leak if possible without any risk. Use non-sparking tools. All equipment used when handling the product must be grounded. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Dyke far ahead of larger spill for later recovery and disposal.
- 6.4 Reference to other sections:** No data available.

SECTION 7: Handling and Storage:

- 7.1 Precautions for safe handling:** DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. Ground and bond container and receiving equipment. Use non-sparking tools. Use explosion-proof [electrical/ventilating/lighting] equipment. Wear protective gloves/protective clothing/eye protection/face protection. Avoid contact with eyes, skin, and clothing. Avoid breathing mist or vapour. Do not taste or swallow. Use only with adequate ventilation. Wash hands thoroughly after handling.
- 7.2 Conditions for safe storage, including any incompatibilities:** Keep away from food, drink and animal feeding stuffs. Keep out of reach of children. Protect against direct sunlight. Keep container tightly closed in a cool, well-ventilated place. Ground container and transfer equipment to eliminate static electric sparks. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of flammable liquids.
- 7.3 Specific end use(s):** No data available.

SECTION 8: Exposure Controls/Personal Protection

8.1 Control Parameters Occupational Exposure Limits

Chemical name	Type	Exposure Limit Values	Source
Pentane	TWA	600 ppm 1.800 mg/m ³	UK. EH40 Workplace Exposure Limits (WELs) (2007)
	TWA	1.000 ppm 3.000 mg/m ³	EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU (12 2009)
	TWA	1.000 ppm 3.000 mg/m ³	EU. Scientific Committee on Occupational Exposure Limit Values (SCOELs), European Commission - SCOEL (2014)

DNEL-Values

Critical component	Type	Route of Exposure	Health Warnings	Remarks

Pentane	General population	Oral	Systemic, long-term; 643 mg/m ³ 214 mg/kg bw/day	Repeated dose toxicity
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PNEC-Values

Critical component	Environmental compartment	PNEC-Values
Pentane	Sediment (marine water)	1,2 mg/kg
	Soil	0,55 mg/kg
	Aquatic (freshwater)	230 µg/l
	Aquatic (marine water)	230 µg/l
	Sediment (freshwater)	1,2 mg/kg

8.2 Exposure controls

Appropriate Engineering Controls: No data available.

Individual protection measures, such as personal protective equipment

General information: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area. Use explosion-proof ventilation equipment.

Eye/face protection: Chemical goggles and face shield are recommended.

Skin protection

Hand Protection: Material: Chemical resistant gloves

Other: Wear suitable protective clothing.

Respiratory Protection: In case of inadequate ventilation use suitable respirator.

Hygiene measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Provide eyewash station and safety shower.

Environmental Controls: No data available.

SECTION 9: Physical And Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state:	Liquid
Form:	Liquid
Colour:	Colorless
Odour:	Characteristic
Odour Threshold:	No data available.
pH:	No data available.
Freezing point:	-129,7 °C
Boiling Point:	36,1 °C
Flash Point:	-49 °C (Closed Cup)
Evaporation Rate:	28,6 (butyl acetate=1)
Flammability (solid, gas):	Class IA Flammable Liquid

Flammability limit - upper (%)	7,8 %(V)
Flammability limit - lower (%)	1,5 %(V)
Vapour pressure:	68,53 kPa (25 °C)
Vapour density (air=1):	2,49 Air=1
Density:	0,63 g/ml (20 °C)
Relative density:	0,63 (20 °C)
Solubility(ies)	
Solubility in Water:	0,04 g/l (25 °C)
Solubility (other):	ethanol: Very soluble ether: Very soluble acetone: Very soluble chloroform: Very soluble
Partition coefficient (n-octanol/water):	3,39
Autoignition Temperature:	260 °C
Decomposition Temperature:	No data available.
Viscosity:	No data available.
Explosive properties:	No data available.
Oxidising Properties:	No data available.

9.2 Other information

Molecular weight:	72,15 g/mol (C5H12)
VOC content:	EC Directive 2004/42: 630 g/l ~100 % (calculated)
Minimum ignition energy:	0,28 mJ

SECTION 10: Stability and Reactivity

10.1 Reactivity:	No dangerous reaction known under conditions of normal use.
10.2 Chemical Stability:	Material is stable under normal conditions.
10.3 Possibility of Hazardous Reactions:	Hazardous polymerization does not occur.
10.4 Conditions to Avoid:	Heat, sparks, flames. Contact with incompatible materials.
10.5 Incompatible Materials:	Strong oxidising agents. Flammable/combustible material.
10.6 Hazardous Decomposition Products:	Fire or excessive heat may produce hazardous decomposition products.

SECTION 11: Toxicological Information

Information on likely routes of exposure

Inhalation:	May cause irritation to the respiratory system.
Skin Contact:	None known or expected under normal use.
Eye contact:	Causes serious eye irritation.
Ingestion:	Harmful or fatal if swallowed.

11.1 Information on toxicological effects

Acute toxicity

Oral

Product:	LD 50 (Rat): > 5.000 mg/kg
Dermal Product:	No data available.
Inhalation Product:	LC 50 (Rat, 4 h): 364 mg/l LOAEL 23500 ppm
Repeated dose toxicity Product:	No data available.
Skin Corrosion/Irritation: Product:	May cause skin irritation.
Serious Eye Damage/Eye Irritation: Product:	Irritating to eyes.
Respiratory or Skin Sensitisation: Product:	Not a skin sensitiser.
Germ Cell Mutagenicity	
In vitro Product:	No mutagenic components identified
In vivo Product:	No mutagenic components identified
Carcinogenicity Product:	This substance has no evidence of carcinogenic properties.
Reproductive toxicity Product:	No components toxic to reproduction
Specific Target Organ Toxicity - Single Exposure Product:	No data available.
Specific Target Organ Toxicity - Repeated Exposure Product:	No data available.
Aspiration Hazard Product:	May be fatal if swallowed and enters airways.
Other Adverse Effects:	None known.

SECTION 12: Ecological Information

12.1 Toxicity

Acute toxicity

Fish

Product: No data available.

Specified substance(s)

Pentane

NOAEL (Oncorhynchus kisutch, 96 h): > 100 mg/l

LC 50 (Oncorhynchus mykiss, 96 h): 4,26 mg/l

Aquatic Invertebrates

Product: No data available.

Specified substance(s)

Pentane EC 50 (Daphnia magna, 48 h): 2,7 mg/l

Chronic toxicity

Fish

Product: No data available.

Specified substance(s)

Pentane NOAEL (Oncorhynchus mykiss, 28 d): 6,165 mg/l

Aquatic Invertebrates

Product: No data available.

Specified substance(s)

Pentane NOAEL (Daphnia magna, 21 d): 10,76 mg/l

Toxicity to aquatic plants

Product: No data available.

Specified substance(s)

Pentane No data available.

12.2 Persistence and Degradability

Biodegradation

Product: There is no data on the degradability of this product.

Specified substance(s)

Pentane No data available.

BOD/COD Ratio

Product: No data available.

Specified substance(s)

Pentane No data available.

12.3 Bioaccumulative Potential

Product: No data available on bioaccumulation.

Specified substance(s)

Pentane Pimephales promelas, Bioconcentration Factor (BCF): 171 Aquatic sediment

12.4 Mobility in Soil:

No data available.

Known or predicted distribution to environmental compartments

Pentane No data available.

12.5 Results of PBT and vPvB assessment:

Not available.

Pentane No data available.

12.6 Other Adverse Effects:

Toxic to aquatic life with long lasting effects.

12.7 Additional Information:

No data available.

SECTION 13: Disposal Considerations

13.1 Waste treatment methods

General information:	No data available.
Disposal methods:	Discharge, treatment, or disposal may be subject to national, state, or local laws. Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

SECTION 14: Transport Information

ADR

14.1 UN Number:	UN 1265
14.2 UN Proper Shipping Name:	PENTANES
14.3 Transport Hazard Class(es)	
Class:	3
Label(s):	3
Hazard No. (ADR):	33
Tunnel restriction code:	(D/E)
14.4 Packing Group:	II
14.5 Environmental Hazards:	No
14.6 Special precautions for user:	Not determined.

RID

14.1 UN Number:	UN 1265
14.2 UN Proper Shipping Name	PENTANES
14.3 Transport Hazard Class(es)	
Class:	3
Label(s):	3
14.4 Packing Group:	II
14.5 Environmental Hazards:	No
14.6 Special precautions for user:	Not determined.

IMDG

14.1 UN Number:	UN 1265
14.2 UN Proper Shipping Name:	PENTANES
14.3 Transport Hazard Class(es)	
Class:	3
Label(s):	3
EmS No.:	F-E, S-D
14.4 Packing Group:	II
14.5 Environmental Hazards:	No
14.6 Special precautions for user:	Not determined.

IATA

14.1 UN Number: UN 1265
 14.2 Proper Shipping Name: Pentanes
 14.3 Transport Hazard Class(es):
 Class: 3
 Label(s): 3
 14.4 Packing Group: II
 14.5 Environmental Hazards: No
 14.6 Special precautions for user: Not determined.

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:

EU Regulations

Regulation (EC) No. 2037/2000 Substances that deplete the ozone layer: none

Regulation (EC) No. 850/2004 on persistent organic pollutants: none

Regulation (EC) No. 649/2012 Import and export of dangerous chemicals: none

Regulation (EC) No. 1907/2006 REACH Annex XIV Substance subject to authorisation, as amended: none

Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use:

Chemical name	CAS-No.	Concentration
Pentane	109-66-0	100%

Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens and mutagens at work.:

Chemical name	CAS-No.	Concentration
Pentane	109-66-0	100%

Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breast feeding.:

Chemical name	CAS-No.	Concentration
Pentane	109-66-0	100%

Directive 2012/18/EU (Seveso III): on the control of major accident hazards involving dangerous substances:

Chemical name	CAS-No.	Concentration
Pentane	109-66-0	100%

EU. Regulation No. 166/2006 PRTR (Pollutant Release and Transfer Registry), Annex II: Pollutants: none

Directive 98/24/EC on the protection of workers from the risks related to chemical agents at work:

Chemical name	CAS-No.	Concentration
Pentane	109-66-0	100%

15.2 Chemical safety assessment:

No Chemical Safety Assessment has been carried out.

SECTION 16: Other Information

Revision Information: Not relevant.

References

PBT PBT: persistent, bioaccumulative and toxic substance.
 vPvB vPvB: very persistent and very bioaccumulative substance.

Key literature references and sources for data: No data available.

Wording of the H-statements in sections 2 and 3

H225	Highly flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H411	Toxic to aquatic life with long lasting effects.

Training information: No data available.

Issue Date: 14.05.2020

SDS No.:

Disclaimer:

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