

**Pentane (BDH1143-19L, BDH1143-204L, BDH1143-4LG)****000000011707**

Version 1.4

Revision Date 03/25/2015

Print Date 04/29/2015

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Pentane (BDH1143-19L, BDH1143-204L, BDH1143-4LG)

MSDS Number : 000000011707

Product Use Description : Solvent

Manufactured for : VWR International LLC
Radnor Corporate Center
Building One
Suite 200
100 Matsonford Road
Radnor PA 19087For more information call : (Monday-Friday, 8.00am-5:00pm)
1-800-932-5000In case of emergency call : (24 hours/day, 7 days/week)
1-800-424-9300(USA Only)
For Transportation Emergencies:
1-800-424-9300 (CHEMTREC - Domestic)
1-613-996-6666 (CANUTEC - Canada)**SECTION 2. HAZARDS IDENTIFICATION****Emergency Overview**

Form : liquid, clear

Color : colourless

Odor : mild hydrocarbon-like

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Classification of the substance or mixture

Classification of the substance or mixture : Flammable liquids, Category 2
Specific target organ toxicity - single exposure, Category 3,
Central nervous system
Aspiration hazard, Category 1

GHS Label elements, including precautionary statements

Symbol(s)



Signal word

: Danger

Hazard statements

: Highly flammable liquid and vapour.
May be fatal if swallowed and enters airways.
May cause drowsiness and dizziness.

Precautionary statements

: **Prevention:**
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ ventilating/ lighting/ equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/ eye protection/ face protection.**Response:**

IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Call a POISON CENTER or doctor/ physician if you feel unwell.
Do NOT induce vomiting.

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In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage:

Store in a well-ventilated place. Keep container tightly closed.
Keep cool.
Store locked up.

Disposal:

Dispose of contents/container in accordance with local, state & federal regulations.

Carcinogenicity

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP, IARC, or OSHA.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : C₅H₁₂

Chemical nature : Substance

Chemical Name	CAS-No.	Concentration
Pentane	109-66-0	100.00 %

SECTION 4. FIRST AID MEASURES

Inhalation : Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Use oxygen as required, provided a qualified operator is present. Call a physician.

Skin contact : Wash off immediately with plenty of water for at least 15 minutes. Take off contaminated clothing and shoes immediately. Wash contaminated clothing before re-use. Call a physician.

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Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician.

Ingestion : Do not induce vomiting without medical advice. If a person vomits when lying on his back, place him in the recovery position. Call a physician immediately. Never give anything by mouth to an unconscious person.

Notes to physician

Treatment : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Foam
Dry chemical
Carbon dioxide (CO₂)
Cool closed containers exposed to fire with water spray.

Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.

Specific hazards during firefighting : Extremely flammable.
Vapours may form explosive mixtures with air.
Vapours are heavier than air and may spread along floors.
Vapors may travel to areas away from work site before igniting/flashing back to vapor source.
In case of fire hazardous decomposition products may be produced such as:
Carbon monoxide
Carbon dioxide (CO₂)

Special protective equipment for firefighters : Wear self-contained breathing apparatus and protective suit.

SECTION 6. ACCIDENTAL RELEASE MEASURES

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- Personal precautions : Wear personal protective equipment.
Immediately evacuate personnel to safe areas.
Keep people away from and upwind of spill/leak.
Ensure adequate ventilation.
Remove all sources of ignition.
Do not swallow.
Avoid breathing vapours, mist or gas.
Avoid contact with skin, eyes and clothing.
- Environmental precautions : Prevent further leakage or spillage if safe to do so.
Prevent product from entering drains.
Discharge into the environment must be avoided.
Do not flush into surface water or sanitary sewer system.
Do not allow run-off from fire fighting to enter drains or water courses.
- Methods for cleaning up : Ventilate the area.
No sparking tools should be used.
Use explosion-proof equipment.
Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE**Handling**

- Handling : Wear personal protective equipment.
Use only in well-ventilated areas.
Keep container tightly closed.
Do not smoke.
Do not swallow.
Avoid breathing vapours, mist or gas.
Avoid contact with skin, eyes and clothing.
- Advice on protection against fire and explosion : Keep away from fire, sparks and heated surfaces.
Take precautionary measures against static discharges.
Ensure all equipment is electrically grounded before beginning transfer operations.
Use explosion-proof equipment.

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Keep product and empty container away from heat and sources of ignition.
No sparking tools should be used.
No smoking.

Storage

Requirements for storage areas and containers : Store in area designed for storage of flammable liquids. Protect from physical damage.
Keep containers tightly closed in a dry, cool and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Keep away from heat and sources of ignition.
Keep away from direct sunlight.
Store away from incompatible substances.
Container hazardous when empty.
Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Protective measures : Ensure that eyewash stations and safety showers are close to the workstation location.

Engineering measures : Use with local exhaust ventilation.
Prevent vapour buildup by providing adequate ventilation during and after use.

Eye protection : Do not wear contact lenses.
Wear as appropriate:
Safety glasses with side-shields
If splashes are likely to occur, wear:
Goggles or face shield, giving complete protection to eyes

Hand protection : Solvent-resistant gloves
Gloves must be inspected prior to use.
Replace when worn.


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- Skin and body protection : Wear as appropriate:
Solvent-resistant apron
Flame retardant antistatic protective clothing.
If splashes are likely to occur, wear:
Protective suit
- Respiratory protection : In case of insufficient ventilation wear suitable respiratory equipment.
For rescue and maintenance work in storage tanks use self-contained breathing apparatus.
- Hygiene measures : When using, do not eat, drink or smoke.
Wash hands before breaks and immediately after handling the product.
Keep working clothes separately.
Remove and wash contaminated clothing before re-use.
Do not swallow.
Avoid breathing vapours, mist or gas.
Avoid contact with skin, eyes and clothing.

Exposure Guidelines

Components	CAS-No.	Value	Control parameters	Update	Basis
Pentane	109-66-0	TWA : time weighted average	(600 ppm)	2008	ACGIH:US. ACGIH Threshold Limit Values
Pentane	109-66-0	TWA : time weighted average	(1,000 ppm)	02 2013	ACGIHLIS_P:US. ACGIH Notice of Intended Changes (NIC) to Threshold Limit Values

SAFETY DATA SHEET


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Pentane	109-66-0	Ceil_Tim e : Ceiling Limit Value and Time Period (if specified) :	1,800 mg/m ³ (610 ppm)	2005	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards
Pentane	109-66-0	REL : Recomm ended exposure limit (REL):	350 mg/m ³ (120 ppm)	2005	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards
Pentane	109-66-0	PEL : Permissi ble exposure limit	2,950 mg/m ³ (1,000 ppm)	02 2006	OSHA_TRANS:US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
Pentane	109-66-0	TWA : time weighted average	1,800 mg/m ³ (600 ppm)	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)
Pentane	109-66-0	STEL : Short term exposure limit	2,250 mg/m ³ (750 ppm)	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state : liquid, clear

Color : colourless

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Odor	: mild hydrocarbon-like
pH	: Note: Not applicable
Melting point/freezing point	: -129.7 °C
Boiling point/boiling range	: 36 °C at 1,013.25 hPa
Flash point	: -56 °F (-49 °C) Method: closed cup
Lower explosion limit	: 1 %(V)
Upper explosion limit	: 7.8 %(V)
Vapor pressure	: 559.95 hPa at 20 °C(68 °F)
Vapor density	: 2.5 Note: (Air = 1.0)
Density	: 0.626 g/cm ³ at 20 °C
Water solubility	: 0.4 g/l at 20 °C
Ignition temperature	: 296 °C
Molecular weight	: 72.17 g/mol

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SECTION 10. STABILITY AND REACTIVITY

Chemical stability	: Stable under recommended storage conditions.
Possibility of hazardous reactions	: Hazardous polymerisation does not occur.
Conditions to avoid	: Heat, flames and sparks. Keep away from direct sunlight.
Incompatible materials to avoid	: Strong oxidizing agents Strong acids Amines Strong bases May attack many plastics, rubbers and coatings.
Hazardous decomposition products	: In case of fire hazardous decomposition products may be produced such as: Carbon monoxide Carbon dioxide (CO ₂)

SECTION 11. TOXICOLOGICAL INFORMATION

Acute oral toxicity	: LD50: > 2,000 mg/kg Species: Rat
Acute inhalation toxicity	: LC50: > 20 mg/l Exposure time: 4 h Species: Rat
Acute dermal toxicity	: LD50: 3,000 mg/kg Species: Rabbit

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Skin irritation	: Species: Rabbit Result: slight irritation
Eye irritation	: Species: Rabbit Result: slight irritation
Sensitisation	: Maximisation Test Species: Guinea pig Classification: non-sensitizing
Repeated dose toxicity	: Species: Rat Application Route: Inhalation Note: 90-day Inhalation Study No observed adverse effect level 20,000 mg/m ³
	: Species: Rat Application Route: Oral Note: Developmental Toxicity No adverse response.
	: Species: Rat Application Route: Inhalation Note: Developmental Toxicity No adverse response. 10,000 ppm
Genotoxicity in vitro Genotoxicity in vivo	: Species: Rat Cell type: Micronucleus Application Route: Inhalation Result: negative

SECTION 12. ECOLOGICAL INFORMATION

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Ecotoxicity effects

- Toxicity to fish : LC50: 11.59 mg/l
Exposure time: 96 h
Species: Pimephales promelas (fathead minnow)
- : LC50: 9.87 mg/l
Exposure time: 96 h
Species: Oncorhynchus mykiss (rainbow trout)
- : LC50: 9.99 mg/l
Exposure time: 96 h
Species: Lepomis macrochirus (Bluegill sunfish)
- Toxicity to daphnia and other aquatic invertebrates : LC50: 9.7 mg/l
Exposure time: 48 h
Species: Daphnia pulex (Water flea)

Further information on ecology

- Additional ecological information : Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Do not flush into surface water or sanitary sewer system.
The product should not be allowed to enter drains, water courses or the soil.
Not inherently biodegradable.

SECTION 13. DISPOSAL CONSIDERATIONS

- Disposal methods : Dispose of contents/ container in accordance with local, state, and federal regulations.

SECTION 14. TRANSPORT INFORMATION

- DOT UN/ID No. : UN 1265
Proper shipping name : PENTANES

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Class : 3
 Packing group : II
 Hazard Labels : 3

IATA UN/ID No. : UN 1265
 Description of the goods : PENTANES
 Class : 3
 Packaging group : II
 Hazard Labels : 3
 Packing instruction (cargo aircraft) : 364
 Packing instruction (passenger aircraft) : 353
 Packing instruction (passenger aircraft) : Y341

IMDG UN/ID No. : UN 1265
 Description of the goods : PENTANES
 Class : 3
 Packaging group : II
 Hazard Labels : 3
 EmS Number : F-E, S-D
 Marine pollutant : no

SECTION 15. REGULATORY INFORMATION

Inventories

US. Toxic Substances Control Act : On TSCA Inventory

Australia. Industrial Chemical (Notification and Assessment) Act : On the inventory, or in compliance with the inventory

Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL) : All components of this product are on the Canadian DSL.

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Japan. Kashin-Hou Law List : On the inventory, or in compliance with the inventory

Korea. Toxic Chemical Control Law (TCCL) List : On the inventory, or in compliance with the inventory

Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act : On the inventory, or in compliance with the inventory

China. Inventory of Existing Chemical Substances : On the inventory, or in compliance with the inventory

New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand : On the inventory, or in compliance with the inventory

National regulatory information

SARA 302 Components : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard


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California Prop. 65 : This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Massachusetts RTK : Pentane 109-66-0

New Jersey RTK : Pentane 109-66-0

Pennsylvania RTK : Pentane 109-66-0

WHMIS Classification : B2: Flammable liquid
This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

SECTION 16. OTHER INFORMATION

	HMIS III	NFPA
Health hazard	: 1	1
Flammability	: 4	4
Physical Hazard	: 0	
Instability	:	0

Hazard rating and rating systems (e.g. HMIS® III, NFPA): This information is intended solely for the use of individuals trained in the particular system.

Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and

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may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. Final determination of suitability of any material is the sole responsibility of the user. This information should not constitute a guarantee for any specific product properties.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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Prepared by Honeywell Performance Materials and Technologies Product Stewardship Group