Safety Data Sheet

Piperylene

Compiled according to GB/T 16483, GB/T 17519
Initial preparation date: 10/18/2019 Revision date: 8/26/2024 Version: 3.0 SDS Nr: P2024081501

SECTION 1 Chemical product and company identification

Chemical Chinese name	:	No additional information available
Chemical English name	:	Piperylene
Substance type	:	UVCB
CAS-No.	:	102110-15-6
Formula	:	Unspecified
Product code	:	510
Name of company	:	Braskem S.A.
Address	:	Rua Eteno, 1561, Polo Petroquímico de Camaçari Camaçari, BA, CEP: 42810-000, Brasil
Tel.	:	+55 (71) 3413-3600
Emergency number	:	CHEMTREC: +1 800 424 9300 (NORTH AMERICA) CHEMTREC+1 703-741-5970 (International – 24h)
Recommended use of the chemical	:	Product for industrial use only
Restricted use of the chemical	:	No additional information available

SECTION 2 Hazards identification

Emergency overview

Colourless liquids. Highly flammable liquid and vapour. Harmful if swallowed or if inhaled. May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. Suspected of causing genetic defects. May cause cancer (if inhaled, if swallowed). Suspected of damaging fertility or the unborn child (if inhaled, if swallowed). Causes damage to organs (Auditory system, nervous system, visual system) through prolonged or repeated exposure. Very toxic to aquatic life with long lasting effects.

GHS hazard classification

Physical hazards	:	Flammable liquids, Category 2
Health hazards	:	Acute toxicity (Oral), Category 4
	:	Acute toxicity (Inhalation:dust,mist), Category 4
	:	Skin corrosion/irritation, Category 2
	:	Serious eye damage/eye irritation, Category 2
	:	Germ cell mutagenicity, Category 2
	:	Carcinogenicity, Category 1B
	:	Reproductive toxicity, Category 2
	:	Specific target organ toxicity - Single exposure, Category 3, Respiratory tract irritation
	:	Specific target organ toxicity - Repeated exposure, Category 1
	:	Aspiration hazard, Category 1
Environmental hazards	:	Hazardous to the aquatic environment – Acute hazard, Category 1
	:	Hazardous to the aquatic environment – Chronic hazard, Category 1

Other hazards not mentioned above are Not applicable or No data is available.

Label elements

Hazard pictograms (GHS CN) :

Signal word (GHS CN) : Danger.

Hazard statements (GHS CN) : H225 - Highly flammable liquid and vapour

H302+H332 - Harmful if swallowed or if inhaled

H304 - May be fatal if swallowed and enters airways

H315 - Causes skin irritation

H319 - Causes serious eye irritation

H335 - May cause respiratory irritation

H341 - Suspected of causing genetic defects

H350 - May cause cancer (if inhaled, if swallowed)

H361 - Suspected of damaging fertility or the unborn child (if inhaled, if swallowed)

H372 - Causes damage to organs (Auditory system, nervous system, visual system) through prolonged or repeated exposure

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

Precautionary statements (GHS CN)

Prevention measures : P201 - Obtain special instructions before use.

P202 - Do not handle until all safety precautions have been read and understood.

P210 - Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P233 - Keep container tightly closed.

P240 - Ground/bond container and receiving equipment.

P241 - Use explosion-proof electrical/ventilating/lighting equipment.

P242 - Use only non-sparking tools.

P243 - Take precautionary measures against static discharge.

P260 - Do not breathe dust/fume/gas/mist/vapours/spray.

P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.

P264 - Wash hands, forearms and face thoroughly after handling.

P270 - Do not eat, drink or smoke when using this product.

P271 - Use only outdoors or in a well-ventilated area.

P273 - Avoid release to the environment.

P280 - Wear protective gloves/protective clothing/eye protection/face protection.

Incident response : P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor.

P302+P352 - IF ON SKIN: Wash with plenty of water.

P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.

		P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
		P308+P313 - IF exposed or concerned: Get medical advice/attention.
		P312 - Call a POISON CENTER or doctor if you feel unwell.
		P314 - Get medical advice/attention if you feel unwell.
		P321 - Specific treatment (see supplemental first aid instruction on this label).
		P330 - Rinse mouth.
		P331 - Do NOT induce vomiting.
		P332+P313 - If skin irritation occurs: Get medical advice/attention.
		P337+P313 - If eye irritation persists: Get medical advice/attention.
		P362+P364 - Take off contaminated clothing and wash it before reuse.
		P370+P378 - In case of fire: Use media other than water to extinguish.
		P391 - Collect spillage.
Safe storage	:	P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
		P403+P235 - Store in a well-ventilated place. Keep cool.
		P405 - Store locked up.
Disposal	:	P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

Physical and chemical hazards

Highly flammable liquid and vapour

Health hazards

Harmful if swallowed or if inhaled

May be fatal if swallowed and enters airways

Causes skin irritation

Causes serious eye irritation

May cause respiratory irritation

Suspected of causing genetic defects

May cause cancer (if inhaled, if swallowed)

Suspected of damaging fertility or the unborn child (if inhaled, if swallowed)

Causes damage to organs (Auditory system, nervous system, visual system) through prolonged or repeated exposure

Symptoms/effects	:	Causes damage to organs (Auditory system, nervous system, visual system) through prolonged or repeated exposure,May cause cancer (Inhalation, oral),Suspected of damaging fertility or the unborn child (Inhalation, oral),Suspected of causing genetic defects.
Symptoms/effects after eye contact	:	Causes serious eye irritation
Symptoms/effects after ingestion	:	Harmful if swallowed,May be fatal if swallowed and enters airways,May result in aspiration into the lungs, causing chemical pneumonia,Ingestion may cause nausea, vomiting and diarrhea,Risk of lung oedema
Symptoms/effects after inhalation	:	Harmful if inhaled,Overexposure to vapours may result in cough,May cause respiratory irritation.
Symptoms/effects after skin contact	:	Causes skin irritation

Environmental hazards

Very toxic to aquatic life with long lasting effects

Other hazards

Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level. Burning liquid may float on water. May spread fire.

SECTION 3 Composition/information on ingredients

Product form : Substance.

Name : Hydrocarbons, C5-rich, dicyclopentadiene-containing

CAS-No. : 102110-15-6

Formula : Unspecified

Ingredient(s)	Concentration or concentration ranges (w/w %)	CAS No.
Hydrocarbons, C5-rich, dicyclopentadiene-containing	100	102110-15-6
1,3-Pentadiene, (E)-	33 – 38	2004-70-8
1,3-Pentadiene, (Z)-	20 – 23	1574-41-0
Cyclopentene	14 – 17	142-29-0
Cyclopentane	8 – 11	287-92-3
2-Methyl-2-butene	>5	513-35-9
Cyclopentadiene	0 – 5	542-92-7
n-Pentane	< 5	109-66-0
Dicyclopentadiene	0 – 4	77-73-6
2,2-dimethylbutane	0 – 1.5	75-83-2
1,3-Butadiene, 2-methyl-	< 1	78-79-5

SECTION 4 First-aid measures

Description of necessary first-aid measures

First-aid measures general : Never give anything by mouth to an unconscious person.
If you feel unwell, seek medical advice (show the label where possible).
In all cases of doubt, or when symptoms persist, seek medical attention.
Call a physician immediately

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.
If not breathing, give artificial respiration.

Do not apply mouth-to-mouth resuscitation.

Get medical advice/attention if you feel unwell.

First-aid measures after skin contact : After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water and soap.

Immediately rinse with plenty of water (for at least 15 minutes).

Wash contaminated clothing before reuse.

Seek medical attention if ill effect or irritation develops.

In case of doubt or persistent symptoms, consult always a physician.

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.

Seek medical attention if ill effect or irritation develops.

First-aid measures after ingestion : If swallowed, rinse mouth with water (only if the person is conscious).

Do not induce vomiting.

If vomiting occurs, the head should be kept low so that vomit does not enter the lungs.

Seek immediate medical advice.

Most important symptoms/effects

Symptoms/effects : Causes damage to organs (Auditory system, nervous system, visual system) through prolonged or repeated exposure.

May cause cancer (Inhalation, oral).

Suspected of damaging fertility or the unborn child (Inhalation, oral).

Suspected of causing genetic defects.

Symptoms/effects after eye contact : Causes serious eye irritation.

Symptoms/effects after ingestion : Harmful if swallowed.

May be fatal if swallowed and enters airways.

May result in aspiration into the lungs, causing chemical pneumonia

Ingestion may cause nausea, vomiting and diarrhea.

Symptoms/effects after inhalation : Harmful if inhaled.

Overexposure to vapours may result in cough.

Symptoms/effects after skin contact : Causes skin irritation.

Advices for first aid responders

No additional information available

Notes for the doctor

Note to physician : : Treat symptomatically

SECTION 5 Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Carbon dioxide (CO2), dry chemical powder, foam
Dry powder
Sand

Unsuitable extinguishing media	:	Do not use water jet Do not use a heavy water stream

Specific hazards

Fire hazard	:	Material can accumulate some static charge during transfer. May mass explode in fire. Vapours are heavier than air and may travel considerable distance to an ignition source and flash back to source of vapours. Incomplete combustion releases dangerous carbon monoxide, carbon dioxide and other toxic gases. Highly flammable liquid and vapour.
Hazardous decomposition products in case of fire	:	Toxic fumes may be released
Explosion hazard	:	May mass explode in fire. May form flammable/explosive vapour-air mixture

Advice for firefighters and protective measures

Firefighting instructions	:	In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. In case of fire: stop leak if safe to do so. Hose down area with water. Cool adjacent tanks / containers / drums with water jet. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment. Do not enter fire area without proper protective equipment, including respiratory protection.
Protective equipment for firefighters	:	In case of hazardous fumes, wear autonomous breathing apparatus Full protective flameproof clothing Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

General measures	:	Do not breathe mist, spray, vapours. Avoid contact with spilled material. Remove ignition sources. Use special care to avoid static electric charges. No open flames. No smoking. Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material damage.
Personal Precautions, Protective Equipment and Emergency Procedures	:	No additional information available

For non-emergency personnel

Protective equipment	:	Complete protective clothing For further information refer to section 8: "Exposure controls/personal protection"

Emergency procedures	:	Evacuate unnecessary personnel Avoid contact with skin, eyes and clothing No open flames, no sparks, and no smoking. Only qualified personnel equipped with suitable protective equipment may intervene. Do not breathe dust/fume/gas/mist/vapours/spray.

For emergency responders

Protective equipment	:	Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures	:	Ventilate area. In case of leakage, eliminate all ignition sources. Evacuate unnecessary personnel.. Prevent the product from entering drains or confined areas. Notify authorities if liquid enters sewers or public waters. Stop leak if safe to do so.

Environmental precautions

Avoid release to the environment

Air :

Use water curtains to contain the toxic clouds

In soil and sediments :

Take up liquid spill into absorbent material, e.g.: sand, earth, vermiculite or powdered limestone

Absorb remaining liquid with sand or inert absorbent and remove to safe place

Water :

Containment as appropriate

Prevent entry to sewers and public waters

Notify authorities if liquid enters sewers or public waters

Avoid release to the environment.

Methods and material for containment and cleaning up

Methods for cleaning	:	Depending on the local regulations it may be disposed of as solid waste or incinerated in a suitable installation. Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Stop leak if safe to do so. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.
For containment	:	Clean up any spills as soon as possible, using an absorbent material to collect it. Keep away from sources of ignition - No smoking. Wear recommended personal protective equipment. Do not touch spilled material. Evacuate unnecessary personnel.

Prevention measures for secondary accidents

Prevention Measures for Secondary Accidents	:	No additional information available
Other information	:	Dispose of in a safe manner in accordance with local/national regulations.

SECTION 7 Handling and storage

Handling

Precautions for safe handling	:	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Provide good ventilation in process area to prevent formation of vapour. Do not breathe mist, spray, vapours. Avoid contact with eyes, skin and clothing. Use grounded electrical/mechanical equipment. Use only non-sparking tools. Avoid ignition sources. No open flames. No smoking. Spilled product must never be returned to the original container for recycling. Wash contaminated clothing before reuse.
Hygiene measures	:	Handle in accordance with good industrial hygiene and safety practice. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Do not eat, drink or smoke when using this product.
Local and general ventilation	:	No additional information available
Additional hazards when processed	:	Product can accumulate electrostatic charges that may cause fire by electrical discharges. Handle empty containers with care because residual vapours are flammable.

Storage

Storage conditions	:	Keep away from open flames, hot surfaces and sources of ignition. Store in dry, cool, well-ventilated area. At room temperature the product is neither an irritant nor gives off hazardous vapours. Use only non-sparking tools. Keep in fireproof place. Keep container tightly closed. Store locked up.
Technical measures	:	Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof electrical equipment.
Material used in packaging/containers	:	No additional information available
Incompatible materials	:	Strong oxidizing agents. Halogens. Strong acids and oxidants. Reducing agents. Certain plastics, rubbers and coatings. Strong bases.
Storage area	:	Store in dry, cool, well-ventilated area. Keep away from sources of ignition. Keep away from heat and direct sunlight.
Packaging materials	:	Storage in steel recommended Store always product in container of same material as original container

SECTION 8 Exposure controls / Personal protection equipment

Occupational exposure limits

Dicyclopentadiene (77-73-6)	
China - Occupational Exposure Limits	
Local name	二聚环戊二烯 # Dicyclopentadiene
OEL PC-TWA	25 mg/m³
Catalogue of Occupational Hazard Factors	Category 2 - Chemical Factors
Regulatory reference	GBZ 2.1-2019

n-Pentane (109-66-0)	
China - Occupational Exposure Limits	
Local name	戊烷（全部异构体）# Pentane (all isomers)
OEL PC-TWA	500 mg/m³
OEL PC-STEL	1000 mg/m³
Catalogue of Occupational Hazard Factors	Category 2 - Chemical Factors
Regulatory reference	GBZ 2.1-2019

Biological limit values

No additional information available

Monitoring methods

No additional information available

Appropriate engineering controls

All equipment used when handling the product must be grounded. Mechanical ventilation is recommended. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Personal protective equipment

Personal protective equipment : Wear recommended personal protective equipment

Environmental exposure controls : Avoid release to the environment.

Other information : Do not eat, drink or smoke during use

Hand protection : Impermeable protective gloves
ISO 374-1
Please follow the instructions related to the permeability and the penetration time provided by the manufacturer
Do not reuse gloves

Eye protection : Full face piece respirator
Chemical goggles or safety glasses
ISO 16321-1

Skin and body protection : Use chemically protective clothing
Long sleeved protective clothing

Respiratory protection	:	Approved organic vapour respirator An approved organic vapour respirator/supplied air or self-contained breathing apparatus must be used when vapour concentration exceeds applicable exposure limits Consult a national health and safety authority for further guidance

SECTION 9 Physical and chemical properties

Physical state	:	Liquid
Appearance	:	Colourless Liquid
Colour	:	Colourless
Odour	:	Hydrocarbon-like
pH	:	Not applicable
Melting point	:	Not applicable
Freezing point	:	-141 – -87.5 °C Information refers to cis-1,3-pentadiene and trans-1,3-pentadiene
Boiling point	:	42 – 44 °C Information refers to cis-1,3-pentadiene and trans-1,3-pentadiene
Flash point	:	-29 – -28 °C (closed cup) Information refers to cis-1,3-pentadiene and trans-1,3-pentadiene
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Flammability	:	Highly flammable liquid and vapour.
Vapour pressure	:	405 mm Hg (25°C)
Relative vapour density at 20°C	:	2.35
Density	:	0.676 g/m³ (20°C)
Solubility	:	No data available
Solubility in water	:	690 mg/l
Solubility in ethanol	:	Miscible
Solubility in ether	:	Miscible
Solubility in acetone	:	Miscible
Partition coefficient n-octanol/water (Log Pow)	:	2.44
Explosive limits (vol %)	:	2 – 8.3 vol %
Lower explosion limit	:	No data available
Upper explosion limit	:	No data available
Radioactive	:	No

SECTION 10 Stability and reactivity

Chemical stability	:	Static-accumulating. Stable at room temperature
Reactivity	:	May form flammable/explosive vapour-air mixture. Attacks some forms of plastics, rubber, and coatings. Highly flammable liquid and vapour.

Possibility of hazardous reactions : Explosive when mixed with oxidizing substances
May polymerize on exposure to temperature rise

Conditions to avoid : Minimize exposure to air. No flames, no sparks. Eliminate all sources of ignition. Direct sunlight. Extremely high or low temperatures. Open flame.

Incompatible materials : Strong oxidizing agents
Halogens
Strong acids and oxidants
Certain plastics, rubbers and coatings
Reducing agents
Strong bases.

Hazardous decomposition products : Thermal decomposition may produce :
Carbon oxides (CO, CO2)
May release flammable gases
Lead oxide

Other properties : No additional information available

SECTION 11 Toxicological information

Acute toxicity

Acute toxicity (oral) : Harmful if swallowed.

Acute toxicity (dermal) : Not classified (Based on available data, the classification criteria are not met)

Acute toxicity (inhalation) : Inhalation:dust,mist: Harmful if inhaled.

Cyclopentene (142-29-0)	
LD50 oral rat	1656 mg/kg
LD50 dermal rabbit	1231 mg/kg (Source: ECHA_API)
LC50 Inhalation - Rat	> 22.9 mg/l/4h

2-Methyl-2-butene (513-35-9)	
LD50 oral rat	700 – 2600 mg/kg (Source: OECD_SIDS)
LD50 dermal rat	> 2000 mg/kg (Source: OECD_SIDS)

Cyclopentane (287-92-3)	
LD50 oral rat	11400 mg/kg (Source: NLM_CIP)
LC50 Inhalation - Rat	> 25.3 mg/l/4h

Cyclopentadiene (542-92-7)	
LD50 oral rat	113 mg/kg (Source: NLM_CIP)
LD50 dermal rabbit	430 mg/kg
LC50 Inhalation - Rat	39 mg/l (Exposure time: 1 h Source: JAPAN_GHS)

Dicyclopentadiene (77-73-6)	
LD50 oral rat	346.5 mg/kg (Source: JAPAN_GHS)
LD50 dermal rabbit	4380 mg/kg (Source: JAPAN_GHS)
LC50 Inhalation - Rat	1910 mg/m³ (Exposure time: 6 h Source: ECHA_API)

n-Pentane (109-66-0)	
LD50 oral rat	> 2000 mg/kg (Source: EU_RAR)
LD50 dermal rabbit	3000 mg/kg (Source: OECD_SIDS)

1,3-Butadiene, 2-methyl- (78-79-5)	
LD50 oral rat	2043 mg/kg
LC50 Inhalation - Rat	180 mg/l/4h

Skin corrosion/irritation

Skin corrosion/irritation : Causes skin irritation.

Serious eye damage/eye irritation

Serious eye damage/eye irritation : Causes serious eye irritation.

Respiratory or skin sensitisation

Respiratory or skin sensitisation : Not classified (Based on available data, the classification criteria are not met)

Germ cell mutagenicity

Germ cell mutagenicity : Suspected of causing genetic defects.

Carcinogenicity

Carcinogenicity : May cause cancer.

1,3-Butadiene, 2-methyl- (78-79-5)	
IARC group	2B - Possibly carcinogenic to humans
National Toxicity Program (NTP) Status	Reasonably anticipated to be Human Carcinogen Evidence of Carcinogenicity

Reproductive toxicity

Reproductive toxicity : Suspected of damaging fertility or the unborn child.

STOT - single exposure

STOT - single exposure : May cause respiratory irritation.

STOT - repeated exposure

STOT - repeated exposure : Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard

Aspiration hazard : May be fatal if swallowed and enters airways.

SECTION 12 Ecological information

Ecotoxicity

Ecology - general : Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects. Very toxic to aquatic life with long lasting effects.

Hazardous to the aquatic environment, short–term (acute) : Very toxic to aquatic life.

Hazardous to the aquatic environment, long–term (chronic) : Very toxic to aquatic life with long lasting effects.

2-Methyl-2-butene (513-35-9)	
LC50 - Fish [1]	4.99 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [semi-static] Source: ECHA)
EC50 - Crustacea [1]	3 mg/l (Exposure time: 48 h - Species: Daphnia magna)

Cyclopentane (287-92-3)	
EC50 - Crustacea [1]	10.5 mg/l (Exposure time: 48 h - Species: Daphnia magna)

n-Pentane (109-66-0)	
LC50 - Fish [1]	9.87 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss)
LC50 - Fish [2]	11.59 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
EC50 - Crustacea [1]	9.74 mg/l (Exposure time: 48 h - Species: Daphnia magna)
ErC50 algae	10.7 mg/l Source: EHCA

Persistence and degradability

Piperylene (102110-15-6)	
Persistence and degradability	Not persistent. Readily biodegradable.

Bioaccumulative potential

Piperylene (102110-15-6)	
Bioaccumulative potential	not bioaccumulable Based on the n-octanol/water partition coefficient accumulation in organisms is not expected
Partition coefficient n-octanol/water (Log Pow)	2.44

2-Methyl-2-butene (513-35-9)	
BCF - Fish [1]	See section 12.1 on ecotoxicology(low potential to bioaccumulate)
Cyclopentane (287-92-3)	
Partition coefficient n-octanol/water (Log Pow)	3 (at 25 °C (at pH 7)
Dicyclopentadiene (77-73-6)	
BCF - Fish [1]	See section 12.1 on ecotoxicology(53 dimensionless (edible fraction)
Partition coefficient n-octanol/water (Log Pow)	2.78 (at 25 °C (at pH 7)
n-Pentane (109-66-0)	
Partition coefficient n-octanol/water (Log Pow)	3.45 (at 25 °C (at pH 7)
1,3-Butadiene, 2-methyl- (78-79-5)	
BCF - Fish [1]	See section 12.1 on ecotoxicology(no bioaccumulation expected)
Partition coefficient n-octanol/water (Log Pow)	3.2 – 4.5 (at 20 °C)
2,2-dimethylbutane (75-83-2)	
Partition coefficient n-octanol/water (Log Pow)	3.8

Mobility in soil

Piperylene (102110-15-6)	
Bioaccumulative potential	not bioaccumulable Based on the n-octanol/water partition coefficient accumulation in organisms is not expected
Partition coefficient n-octanol/water (Log Pow)	2.44
Ecology - soil	Product is volatile. Mobility in soil.
Cyclopentane (287-92-3)	
Partition coefficient n-octanol/water (Log Pow)	3 (at 25 °C (at pH 7)
Dicyclopentadiene (77-73-6)	
Partition coefficient n-octanol/water (Log Pow)	2.78 (at 25 °C (at pH 7)
n-Pentane (109-66-0)	
Partition coefficient n-octanol/water (Log Pow)	3.45 (at 25 °C (at pH 7)
1,3-Butadiene, 2-methyl- (78-79-5)	
Partition coefficient n-octanol/water (Log Pow)	3.2 – 4.5 (at 20 °C)

2,2-dimethylbutane (75-83-2)	
Partition coefficient n-octanol/water (Log Pow)	3.8

Other adverse effects

Classification procedure (Ozone) : Not classified

Effect on the ozone layer : No additional information available

Other information : Avoid release to the environment.

SECTION 13 Disposal considerations

Waste treatment methods : Can be incinerated according to local regulations，Dispose of contents/container in accordance with licensed collector's sorting instructions.

Contaminated container and packaging : No additional information available

Additional information : Do not re-use empty containers，Handle empty containers with care because residual vapours are flammable.

Product/Packaging disposal recommendations : Dispose of in a safe manner in accordance with local/national regulations.

Ecological waste information : Avoid release to the environment.

Hazardous waste due to toxicity

Sewage disposal recommendations : Disposal must be done according to official regulations

Regional legislation (waste) : Disposal must be done according to official regulations

SECTION 14 Transport information

In accordance with JT/T 617 / IMDG / IATA

Overland transport (JT/T 617)	Transport by sea	Air transport
UN number		
3295	3295	3295
Proper shipping name		
HYDROCARBONS, LIQUID, N.O.S.	HYDROCARBONS, LIQUID, N.O.S.	Hydrocarbons, liquid, n.o.s.
Transport hazard class(es)		
3	3	3
		
Packing group		
II.	II.	II.

Overland transport (JT/T 617)	Transport by sea	Air transport
Environmental hazards		
Dangerous for the environment: Yes	Dangerous for the environment: Yes Marine pollutant: Yes	Dangerous for the environment: Yes
No supplementary information available		

Special transport precautions

Special transport precautions : Due to the characteristics of the product and the pressure and temperature conditions that can be reached during the road transport, it is recommended to transport in vehicles that meet the 27D classification defined in IMETRO Ordinance No. 473/2011 / Brazil

MFAG-No : 128

Overland transport (JT/T 617)

Classification code (JT/T 617) : F1.

Limited quantities (JT/T 617) : 1L.

Excepted quantities (JT/T 617) : E2.

Packing instructions (JT/T 617) : P001.

Mixed packing provisions (JT/T 617) : MP19.

Portable tank and bulk container instructions (JT/T 617) : T7.

Portable tank and bulk container special provisions (JT/T 617) : TP1，TP8，TP28.

Tank codes (JT/T 617) : L1.5BN.

Vehicle for tank carriage (JT/T 617) : FL.

Transport category (JT/T 617) : 2.

Tunnel restriction code (JT/T 617) : D/E.

Special provisions for carriage - Operation (JT/T 617) : S2，S20.

Hazard identification number (JT/T 617) : 33.

Orange-coloured plate (JT/T 617) :

Transport by sea

Limited quantities (IMDG) : 1 L.

Excepted quantities (IMDG) : E2.

Packing instructions (IMDG) : P001.

IBC packing instructions (IMDG) : IBC02.

Tank instructions (IMDG) : T7.

Tank special provisions (IMDG) : TP1，TP8，TP28.

EmS-No. (Fire) : F-E.

EmS-No. (Spillage) : S-D.

Stowage category (IMDG)	:	B.
Properties and observations (IMDG)	:	Immiscible with water.
MFAG-No	:	128

Air transport

PCA Excepted quantities (IATA)	:	E2.
PCA Limited quantities (IATA)	:	Y341.
PCA limited quantity max net quantity (IATA)	:	1L.
PCA packing instructions (IATA)	:	353.
PCA max net quantity (IATA)	:	5L.
CAO packing instructions (IATA)	:	364.
CAO max net quantity (IATA)	:	60L.
Special provisions (IATA)	:	A3，A324.
ERG code (IATA)	:	3H.

SECTION 15 Regulatory information

New Chemical Substance Environmental Management Registration Measures (MEE Order 12 of 2020)

Inventory of Existing Chemical Substances in China (IECSC) : Contains listed substance(s)

Cyclopentene (CAS-No. 142-29-0)
2-Butene, 2-methyl- (CAS-No. 513-35-9)
Cyclopentane (CAS-No. 287-92-3)
1,3-Cyclopentadiene (CAS-No. 542-92-7)
Dicyclopentadiene (CAS-No. 77-73-6)
Pentane (CAS-No. 109-66-0)
1,3-Butadiene, 2-methyl- (CAS-No. 78-79-5)
2,2-Dimethylbutane (CAS-No. 75-83-2)

Regulations on the Safe Management of Hazardous Chemicals (Decree 591 of the State Council)

Is the chemical listed in the Catalogue of Hazardous Chemicals (2015) : No

Contains Hazardous Chemical(s)

Cyclopentene (CAS-No. 142-29-0)
2-Methyl-2-butene (CAS-No. 513-35-9)
Cyclopentane (CAS-No. 287-92-3)
1,3-Cyclopentadiene (CAS-No. 542-92-7)
Dicyclopentadiene (CAS-No. 77-73-6)
n-Pentane (CAS-No. 109-66-0)
2-Methyl-1,3-butadiene(inhibited) (CAS-No. 78-79-5)
2,2-Dimethylbutane (CAS-No. 75-83-2)

Does the chemical comply with the definition and determination principles of hazardous chemicals in the Catalogue of Hazardous Chemicals (2015) : Yes

Law of the People's Republic of China on the Prevention and Control of Occupational Diseases

Catalogue for Classification of Hazardous Factors of Occupational Diseases	:	Contains listed substance(s) Dicyclopentadiene (CAS-No. 77-73-6) N-pentane (CAS-No. 109-66-0)
Other domestic regulatory lists		
Dangerous Goods List (GB 12268-2012)	:	Contains listed substance(s) CYCLOPENTENE (CAS-No. 142-29-0) 2-Methyl-2-butene (CAS-No. 513-35-9) CYCLOPENTANE (CAS-No. 287-92-3) DICYCLOPENTADIENE (CAS-No. 77-73-6) ISOPRENE, STABILIZED (CAS-No. 78-79-5) HEXANES (CAS-No. 75-83-2)

SECTION 16 Other information

Sources of Key data	:	Data arise from reference works and literature.
Other information	:	None

Safety Data Sheet (SDS), China

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. It warns that the handling of any chemical substance requires the previous knowledge of its hazards for the user. It is up to the user of the product company providing this SDS to and promote the training of its employees about possible risks come upon of the product. The information contained herein is not absolute, but only general information on the use of the chemical and indication of safety and security measures.