

**Cyclopentane**

Version 1.4

Revision Date 2016-06-06

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

Product Name : Cyclopentane
Material : 1087361, 1084274, 1026800, 1026802, 1028765, 1026799,
1026798, 1026797

EC-No.Registration number

Chemical name	CAS-No. EC-No. Index No.	Legal Entity Registration number
Cyclopentane	287-92-3 206-016-6 601-030-00-2	Chevron Phillips Chemicals International NV Pre-Registered

Company : Chevron Phillips Chemical Company LP
Specialty Chemicals
10001 Six Pines Drive
The Woodlands, TX 77380

Local : Chevron Phillips Chemicals International N.V.
Airport Plaza (Stockholm Building)
Leonardo Da Vincilaan 19
1831 Diegem
Belgium

SDS Requests: (800) 852-5530
Technical Information: (832) 813-4862
Responsible Party: Product Safety Group
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Emergency telephone:**Health:**

866.442.9628 (North America)
1.832.813.4984 (International)

Transport:

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Asia: +800 CHEMCALL (+800 2436 2255) China:+86-21-22157316
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

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Responsible Department : Product Safety and Toxicology Group
 E-mail address : SDS@CPChem.com
 Website : www.CPChem.com

SECTION 2: Hazards identification**Classification of the substance or mixture****REGULATION (EC) No 1272/2008**

Flammable liquids, Category 2	H225: Highly flammable liquid and vapor.
Specific target organ systemic toxicity - single exposure, Category 3, Central nervous system	H336: May cause drowsiness or dizziness.
Aspiration hazard, Category 1	H304: May be fatal if swallowed and enters airways.
Chronic aquatic toxicity, Category 3	H412: Harmful to aquatic life with long lasting effects.

Label elements**Labeling (REGULATION (EC) No 1272/2008)**

Hazard pictograms :



Signal Word : Danger

Hazard Statements	H225	Highly flammable liquid and vapor.
	H304	May be fatal if swallowed and enters airways.
	H336	May cause drowsiness or dizziness.
	H412	Harmful to aquatic life with long lasting effects.

Precautionary Statements	Prevention:	
	P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
	P243	Take precautionary measures against static discharge.
	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.
	P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
	P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
	P331	Do NOT induce vomiting.
Storage:		
P403 + P235	Store in a well-ventilated place. Keep cool.	

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Hazardous ingredients which must be listed on the label:

- 287-92-3 Cyclopentane

SECTION 3: Composition/information on ingredients

Synonyms : Pentamethylene
Cyclopentane Pure Grade
Cyclopentane 95%

Molecular formula : C₅H₁₀

Mixtures**Hazardous ingredients**

Chemical name	CAS-No. EC-No. Index No.	Classification (REGULATION (EC) No 1272/2008)	Concentration [wt%]
Cyclopentane	287-92-3 206-016-6 601-030-00-2	Flam. Liq. 2; H225 STOT SE 3; H336 Asp. Tox. 1; H304 Aquatic Chronic 3; H412	95 - 100
Isopentane	78-78-4 201-142-8 601-006-00-1	Flam. Liq. 1; H224 Aquatic Acute 2; H401 STOT SE 3; H336 Asp. Tox. 1; H304 Aquatic Chronic 2; H411	1 - 5
2,2-Dimethylbutane	75-83-2 200-906-8 601-007-00-7	Flam. Liq. 2; H225 Skin Irrit. 2; H315 STOT SE 3; H336 Asp. Tox. 1; H304 Aquatic Chronic 2; H411	0,1 - 1
n-Pentane	109-66-0 203-692-4 601-006-00-1	Flam. Liq. 2; H225 STOT SE 3; H336 Asp. Tox. 1; H304 Aquatic Chronic 2; H411	0,1 - 1

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.

If inhaled : Consult a physician after significant exposure. If unconscious place in recovery position and seek medical advice.

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|-------------------------|---|--|
| In case of skin contact | : | If on skin, rinse well with water. If on clothes, remove clothes. |
| In case of eye contact | : | Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist. |
| If swallowed | : | Keep respiratory tract clear. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital. |

SECTION 5: Firefighting measures

- | | | |
|--|---|--|
| Flash point | : | -35 °C (-31 °F)
Method: Tag closed cup |
| Autoignition temperature | : | 361 °C (682 °F)
estimated |
| Suitable extinguishing media | : | Alcohol-resistant foam. Carbon dioxide (CO2). Dry chemical. |
| Unsuitable extinguishing media | : | High volume water jet. |
| Specific hazards during fire fighting | : | Do not allow run-off from fire fighting to enter drains or water courses. |
| Special protective equipment for fire-fighters | : | Wear self-contained breathing apparatus for firefighting if necessary. |
| Further information | : | Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers. |
| Fire and explosion protection | : | Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition. |
| Hazardous decomposition products | : | Hydrocarbons. Carbon oxides. |

SECTION 6: Accidental release measures

- | | | |
|----------------------|---|---|
| Personal precautions | : | Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. |
|----------------------|---|---|

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- Environmental precautions : Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods for cleaning up : 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).
- Additional advice : Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).

SECTION 7: Handling and storage**Handling**

- Advice on safe handling : Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.
- Advice on protection against fire and explosion : Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

Storage

- Requirements for storage areas and containers : No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

SECTION 8: Exposure controls/personal protection**Ingredients with workplace control parameters****SK**

Zložka	Podstata	Hodnota	Kontrolné parametre	Poznámka
Isopentane	SK OEL	NPEL priemerný	1.000 ppm, 3.000 mg/m3	
2,2-Dimethylbutane	SK OEL	NPEL priemerný	500 ppm, 1.800 mg/m3	
	SK OEL	NPEL krátkodobý	1.000 ppm, 3.600 mg/m3	
n-Pentane	SK OEL	NPEL priemerný	1.000 ppm, 3.000 mg/m3	

SI

Sestavine	Osnova	Vrednost	Parametri nadzora	Pripomba
Isopentane	SI OEL	MV	1.000 ppm, 3.000 mg/m3	EU**,
2,2-Dimethylbutane	SI OEL	MV	200 ppm, 720 mg/m3	
n-Pentane	SI OEL	MV	1.000 ppm, 3.000 mg/m3	EU**,

EU** Mejna vrednost, določena z Direktivo Komisije 2006/15/ES z dne 7. februarja 2006 o določitvi drugega seznama indikativnih mejnih vrednosti za poklicno izpostavljenost pri izvajanju Direktive Sveta 98/24/ES ter o spremembi Direktive 91/322/EGS in Direktive

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2000/39/ES (UL L, št. 38, z dne 9. februarja 2006, str. 36).

SE

Beståndsdelar	Grundval	Värde	Kontrollparametrar	Anmärkning
Cyclopentane	SE AFS	NGV	600 ppm, 1.800 mg/m3	
	SE AFS	KTV	750 ppm, 2.000 mg/m3	
Isopentane	SE AFS	NGV	600 ppm, 1.800 mg/m3	
	SE AFS	KTV	750 ppm, 2.000 mg/m3	
2,2-Dimethylbutane	SE AFS	NGV	200 ppm, 700 mg/m3	
	SE AFS	KTV	300 ppm, 1.100 mg/m3	
n-Pentane	SE AFS	NGV	600 ppm, 1.800 mg/m3	
	SE AFS	KTV	750 ppm, 2.000 mg/m3	

RS

Компоненты	Основа	Величина	Параметры контроля	Заметка
Isopentane	RS OEL	GVI	1.000 ppm, 3.000 mg/m3	EU**,
n-Pentane	RS OEL	GVI	1.000 ppm, 3.000 mg/m3	EU**,

EU** Substance mentioned in indicative exposure limit values in Directive 2006/15 / EC (second list)

RO

Componente	Bază	Valoare	Parametri de control	Notă
Isopentane	RO OEL	TWA	1.000 ppm, 3.000 mg/m3	
n-Pentane	RO OEL	TWA	1.000 ppm, 1.800 mg/m3	
	RO OEL	STEL	2.400 mg/m3	

PT

Componentes	Bases	Valor	Parâmetros de controlo	Nota
Cyclopentane	PT OEL	VLE-MP	600 ppm,	irritação do TRS, afeção do SNC,
Isopentane	PT OEL	VLE-MP	1.000 ppm,	(1),
	PT DL 305/2007	oito horas	1.000 ppm, 3.000 mg/m3	
2,2-Dimethylbutane	PT OEL	VLE-MP	500 ppm,	irritação do TRS, afeção do SNC,
	PT OEL	VLE_CD	1.000 ppm,	irritação do TRS, afeção do SNC,
n-Pentane	PT OEL	VLE-MP	1.000 ppm,	(1),
	PT DL 305/2007	oito horas	1.000 ppm, 3.000 mg/m3	

(1) Abrangido por legislação nacional específica ou por legislação comunitária não transposta
 afeção do SNC afeção do sistema nervoso central
 irritação do irritação do trato respiratório superior
 TRS

PL

Składniki	Podstawa	Wartość	Parametry dotyczące kontroli	Uwaga
Isopentane	PL NDS	NDS	3.000 mg/m3	
2,2-Dimethylbutane	PL NDS	NDS	400 mg/m3	
	PL NDS	NDSch	1.200 mg/m3	
n-Pentane	PL NDS	NDS	3.000 mg/m3	

NO

Komponenter	Grunnlag	Verdi	Kontrollparametere	Nota
Isopentane	FOR-2011-12-06-1358	TWA	250 ppm, 750 mg/m3	E,
2,2-Dimethylbutane	FOR-2011-12-06-1358	TWA	250 ppm, 1.050 mg/m3	
n-Pentane	FOR-2011-12-06-1358	TWA	250 ppm, 750 mg/m3	E,

E EU har en veiledende grenseverdi for stoffet

NL

Bestanddelen	Basis	Waarde	Controleparameters	Opmerking
Isopentane	NL WG	TGG-8 uur	1.800 mg/m3	
n-Pentane	NL WG	TGG-8 uur	1.800 mg/m3	

MT

Ingredients	Basis	Value	Control parameters	Note
Isopentane	MT OEL	TWA	1.000 ppm, 3.000 mg/m3	
n-Pentane	MT OEL	TWA	1.000 ppm, 3.000 mg/m3	

MK

Съставки	Основа	Стойност	Параметри на контрол	Бележка
Isopentane	MK OEL	MV	1.000 ppm, 3.000 mg/m3	EU,
2,2-Dimethylbutane	MK OEL	MV	200 ppm, 720 mg/m3	
n-Pentane	MK OEL	MV	1.000 ppm, 3.000 mg/m3	

SDS Number:100000014138

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EU European Union - limit (threshold) value set at the level of European Union

LV

Sastāvdaļas	Bāze	Vērtība	Pārvaldības parametri	Piezīme
Cyclopentane	LV OEL	AER 8 st	100 mg/m3	
	LV OEL	AER īslaicīgā	300 mg/m3	
Isopentane	LV OEL	AER 8 st	1.000 ppm, 3.000 mg/m3	
2,2-Dimethylbutane	LV OEL	AER 8 st	100 mg/m3	
	LV OEL	AER īslaicīgā	300 mg/m3	
n-Pentane	LV OEL	AER 8 st	1.000 ppm, 3.000 mg/m3	

LU

Composants	Base	Valeur	Paramètres de contrôle	Note
Isopentane	LU OEL	TWA	1.000 ppm, 3.000 mg/m3	
n-Pentane	LU OEL	TWA	1.000 ppm, 3.000 mg/m3	

LT

Komponentai	Pagrindas, bazė	Vertė	Kontrolės parametrai	Pastaba
Isopentane	LT OEL	IPRD	1.000 ppm, 3.000 mg/m3	
2,2-Dimethylbutane	LT OEL	IPRD	200 ppm, 700 mg/m3	
	LT OEL	TPRD	300 ppm, 1.100 mg/m3	
n-Pentane	LT OEL	IPRD	1.000 ppm, 3.000 mg/m3	

IT

Componenti	Base	Valore	Parametri di controllo	Nota
Isopentane	IT OEL	TWA	667 ppm, 2.000 mg/m3	
n-Pentane	IT OEL	TWA	667 ppm, 2.000 mg/m3	

IS

Komponenter	Grunnlag	Verdi	Kontrollparametere	Nota
Cyclopentane	IS OEL	TWA	300 ppm, 850 mg/m3	
Isopentane	IS OEL	TWA	500 ppm, 1.500 mg/m3	
2,2-Dimethylbutane	IS OEL	TWA	200 ppm, 700 mg/m3	
n-Pentane	IS OEL	TWA	500 ppm, 1.500 mg/m3	

IE

Ingredients	Basis	Value	Control parameters	Note
Cyclopentane	IE OEL	OELV - 8 hrs (TWA)	600 ppm, 1.720 mg/m3	
Isopentane	IE OEL	OELV - 8 hrs (TWA)	1.000 ppm, 3.000 mg/m3	IOELV,
	IE OEL	OELV - 15 min (STEL)	750 ppm, 2.250 mg/m3	IOELV,
2,2-Dimethylbutane	IE OEL	OELV - 8 hrs (TWA)	500 ppm, 1.800 mg/m3	
	IE OEL	OELV - 15 min (STEL)	1.000 ppm, 3.600 mg/m3	
n-Pentane	IE OEL	OELV - 8 hrs (TWA)	1.000 ppm, 3.000 mg/m3	IOELV,
	IE OEL	OELV - 15 min (STEL)	750 ppm, 2.250 mg/m3	IOELV,

IOELV Indicative Occupational Exposure Limit Value

HU

Komponensek	Bázis	Érték	Ellenőrzési paraméterek	Megjegyzés
Isopentane	HU OEL	AK-érték	3.000 mg/m3	EU2,
	HU OEL	CK-érték	24.000 mg/m3	EU2,
n-Pentane	HU OEL	AK-érték	2.950 mg/m3	EU2,
	HU OEL	CK-érték	11.800 mg/m3	EU2,

EU2 96/94/EK irányelvben közölt érték

HR

Sastojci	Temelj	Vrijednost	Nadzorni parametri	Bilješka
Isopentane	HR OEL	GVI	1.000 ppm, 3.000 mg/m3	EU**, Xn, F+, N,
n-Pentane	HR OEL	GVI	600 ppm, 1.800 mg/m3	
	HR OEL	GVI	1.000 ppm, 3.000 mg/m3	EU**, Xn, F+, N,

EU** Naznaka da se radi o tvarima za koje su utvrđene indikativne granične vrijednosti izloženosti prema Direktivi 2006/15/ EC (druga lista)

F+ Vrlo lako zapaljivo

N Opasno za okoliš

Xn Štetno za zdravlje

GR

Συστατικά	Βάση	Τιμή	Παράμετροι ελέγχου	Σημείωση
Cyclopentane	GR OEL	TWA	600 ppm, 1.720 mg/m3	
Isopentane	GR OEL	TWA	1.000 ppm, 2.950 mg/m3	
2,2-Dimethylbutane	GR OEL	TWA	500 ppm, 1.800 mg/m3	
	GR OEL	STEL	1.000 ppm, 3.600 mg/m3	
n-Pentane	GR OEL	TWA	1.000 ppm, 2.950 mg/m3	
	GR OEL	STEL	1.000 ppm, 2.950 mg/m3	

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GB

Ingredients	Basis	Value	Control parameters	Note
Isopentane	GB EH40	TWA	600 ppm, 1.800 mg/m3	2,
n-Pentane	GB EH40	TWA	600 ppm, 1.800 mg/m3	2,

2 Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used

FR

Composants	Base	Valeur	Paramètres de contrôle	Note
Cyclopentane	FR VLE	VME	600 ppm, 1.720 mg/m3	normal,
Isopentane	FR VLE	VME	1.000 ppm, 3.000 mg/m3	bleu,
2,2-Dimethylbutane	FR VLE	VME	500 ppm, 1.800 mg/m3	normal,
	FR VLE	VME	1.000 mg/m3	(5), (6), normal, Vapeur
	FR VLE	VLCT (VLE)	1.500 mg/m3	(5), normal, Vapeur
n-Pentane	FR VLE	VME	1.000 ppm, 3.000 mg/m3	noir,

(5) Les valeurs spécifiques fixées pour les hydrocarbures nommément désignés dans la liste restent valables simultanément

(6) Une valeur d'objectif de 500 mg/m3 avait été prévue par la circulaire du 12 juillet 1993, elle devait être réexaminée en 1995 mais ne l'a pas été.

bleu Valeurs limites réglementaires indicatives

noir Valeurs limites réglementaires contraignantes

normal Valeurs limites indicatives

FI

Aineosat	Peruste	Arvo	Valvontaa koskevat muuttujat	Huomautus
Isopentane	FI OEL	HTP-arvot 8h	500 ppm, 1.500 mg/m3	
	FI OEL	HTP-arvot 15 min	630 ppm, 1.900 mg/m3	
	FI OEL	HTP-arvot 15 min	630 ppm, 1.900 mg/m3	
	FI OEL	HTP-arvot 8h	500 ppm, 1.500 mg/m3	
2,2-Dimethylbutane	FI OEL	HTP-arvot 8h	500 ppm, 1.800 mg/m3	
	FI OEL	HTP-arvot 15 min	630 ppm, 2.300 mg/m3	
n-Pentane	FI OEL	HTP-arvot 8h	500 ppm, 1.500 mg/m3	
	FI OEL	HTP-arvot 15 min	630 ppm, 1.900 mg/m3	
	FI OEL	HTP-arvot 15 min	630 ppm, 1.900 mg/m3	
	FI OEL	HTP-arvot 8h	500 ppm, 1.500 mg/m3	

ES

Componentes	Base	Valor	Parámetros de control	Nota
Cyclopentane	ES VLA	VLA-ED	600 ppm, 1.745 mg/m3	
Isopentane	ES VLA	VLA-ED	1.000 ppm, 3.000 mg/m3	VLI,
2,2-Dimethylbutane	ES VLA	VLA-ED	500 ppm, 1.790 mg/m3	
	ES VLA	VLA-EC	1.000 ppm, 3.580 mg/m3	
n-Pentane	ES VLA	VLA-ED	1.000 ppm, 3.000 mg/m3	VLI,

VLI Agente químico para el que la U.E. estableció en su día un valor límite indicativo. Todos estos agentes químicos figuran al menos en una de las directivas de valores límite indicativos publicadas hasta ahora (ver Anexo C. Bibliografía). Los estados miembros disponen de un tiempo fijado en dichas directivas para su transposición a los valores límites de cada país miembro. Una vez adoptados, estos valores tienen la misma validez que el resto de los valores adoptados por el país.

EE

Komponendid, osad	Alused	Väärtus	Kontrolliparameetrid	Märkused
Isopentane	EE OEL	Piirnorm	1.000 ppm, 3.000 mg/m3	
2,2-Dimethylbutane	EE OEL	Piirnorm	200 ppm, 700 mg/m3	
	EE OEL	Lühiajalise kokupuute piirnorm	300 ppm, 1.100 mg/m3	
n-Pentane	EE OEL	Piirnorm	1.000 ppm, 3.000 mg/m3	

DK

Komponenter	Basis	Værdi	Kontrolparametre	Note
Cyclopentane	DK OEL	GV	300 ppm, 850 mg/m3	
Isopentane	DK OEL	GV	500 ppm, 1.500 mg/m3	E,
2,2-Dimethylbutane	DK OEL	GV	200 ppm, 700 mg/m3	
n-Pentane	DK OEL	GV	500 ppm, 1.500 mg/m3	E,

E At stoffet har en EF-grænseværdi

DE

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
Isopentane	DE TRGS 900	AGW	1.000 ppm, 3.000 mg/m3	DFG, EU,
2,2-Dimethylbutane	DE TRGS 900	AGW	500 ppm, 1.800 mg/m3	DFG,
n-Pentane	DE TRGS 900	AGW	1.000 ppm, 3.000 mg/m3	DFG, EU, Y,

DFG Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission)

EU Europäische Union (Von der EU wurde ein Luftgrenzwert festgelegt: Abweichungen bei Wert und Spitzenbegrenzung sind möglich.)

Y Ein Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes (BGW) nicht befürchtet zu werden

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CZ

Složky	Základ	Hodnota	Kontrolní parametry	Poznámka
Isopentane	CZ OEL	PEL	3.000 mg/m ³	
	CZ OEL	NPK-P	4.500 mg/m ³	*
2,2-Dimethylbutane	CZ OEL	PEL	1.000 mg/m ³	D,
	CZ OEL	NPK-P	2.000 mg/m ³	D,
n-Pentane	CZ OEL	PEL	3.000 mg/m ³	
	CZ OEL	NPK-P	4.500 mg/m ³	*

* u NPK-P brán zřetel na fyzikálně-chemické vlastnosti (například výbušnost).

D Při expozici se významně uplatňuje pronikání látky kůží

CY

Συστατικά	Βάση	Τιμή	Παράμετροι ελέγχου	Σημείωση
Isopentane	CY OEL	TWA	1.000 ppm, 3.000 mg/m ³	
n-Pentane	CY OEL	TWA	1.000 ppm, 3.000 mg/m ³	

CH

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
Cyclopentane	CH SUVA	MAK-Wert	600 ppm, 1.720 mg/m ³	
Isopentane	CH SUVA	MAK-Wert	600 ppm, 1.800 mg/m ³	NIOSH, SSc,
	CH SUVA	KZGW	1.200 ppm, 3.600 mg/m ³	NIOSH, SSc,
	CH SUVA	MAK-Wert	600 ppm, 1.800 mg/m ³	NIOSH, SSc,
	CH SUVA	KZGW	1.200 ppm, 3.600 mg/m ³	NIOSH, SSc,
2,2-Dimethylbutane	CH SUVA	MAK-Wert	200 ppm, 700 mg/m ³	NIOSH,
	CH SUVA	KZGW	400 ppm, 1.400 mg/m ³	NIOSH,
	CH SUVA	MAK-Wert	500 ppm, 1.800 mg/m ³	NIOSH,
	CH SUVA	KZGW	1.000 ppm, 3.600 mg/m ³	NIOSH,
n-Pentane	CH SUVA	MAK-Wert	600 ppm, 1.800 mg/m ³	NIOSH, SSc,
	CH SUVA	KZGW	1.200 ppm, 3.600 mg/m ³	NIOSH, SSc,
	CH SUVA	MAK-Wert	600 ppm, 1.800 mg/m ³	NIOSH, SSc,
	CH SUVA	KZGW	1.200 ppm, 3.600 mg/m ³	NIOSH, SSc,

NIOSH National Institute for Occupational Safety and Health

SSc Eine Schädigung der Leibesfrucht braucht bei Einhaltung des MAK-Wertes nicht befürchtet zu werden.

BG

Съставки	Основа	Стойност	Параметри на контрол	Бележка
Isopentane	BG OEL	TWA	1.000 ppm, 3.000 mg/m ³	-,
n-Pentane	BG OEL	TWA	1.000 ppm, 3.000 mg/m ³	-,

- Химични агенти, за които са определени гранични стойности във въздуха на работната среда за Европейската общност. Граничните стойности на тези химични агенти във въздуха на работната среда, определени с наредбата, са съобразени със съответните стойности, приети за Европейската общност, като могат да бъдат равни или по-ниски от тях.

BE

Bestanddelen	Basis	Waarde	Controleparameters	Opmerking
Cyclopentane	BE OEL	TGG 8 hr	600 ppm, 1.800 mg/m ³	
Isopentane	BE OEL	TGG 8 hr	600 ppm, 1.800 mg/m ³	
	BE OEL	TGG 15 min	750 ppm, 2.250 mg/m ³	
2,2-Dimethylbutane	BE OEL	TGG 8 hr	500 ppm, 1.786 mg/m ³	
	BE OEL	TGG 15 min	1.000 ppm, 3.551 mg/m ³	
n-Pentane	BE OEL	TGG 8 hr	600 ppm, 1.800 mg/m ³	
	BE OEL	TGG 15 min	750 ppm, 2.250 mg/m ³	

AT

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
Isopentane	AT OEL	TMW	600 ppm, 1.800 mg/m ³	
	AT OEL	KZW	1.200 ppm, 3.600 mg/m ³	
2,2-Dimethylbutane	AT OEL	TMW	200 ppm, 715 mg/m ³	
	AT OEL	KZW	800 ppm, 2.860 mg/m ³	
n-Pentane	AT OEL	TMW	600 ppm, 1.800 mg/m ³	
	AT OEL	KZW	1.200 ppm, 3.600 mg/m ³	

Engineering measures

Adequate ventilation to control airborne concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

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Personal protective equipment

- Respiratory protection : Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as:. Air-Purifying Respirator for Organic Vapors. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.
- Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
- Eye protection : Eye wash bottle with pure water. Tightly fitting safety goggles.
- Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate:. Flame retardant antistatic protective clothing. Workers should wear antistatic footwear.
- Hygiene measures : When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

SECTION 9: Physical and chemical properties**Information on basic physical and chemical properties****Appearance**

- Form : Liquid
- Physical state : Liquid
- Color : Colorless
- Odor : Mild

Safety data

- Flash point : -35 °C (-31 °F)
Method: Tag closed cup
- Lower explosion limit : 1,4 %(V)
- Upper explosion limit : 9,4 %(V)
- Oxidizing properties : no
- Autoignition temperature : 361 °C (682 °F)
estimated

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Molecular formula	: C ₅ H ₁₀
Molecular weight	: 70,15 g/mol
pH	: Not applicable
Freezing point	: No data available
Pour point	No data available
Boiling point/boiling range	: 49 °C (120 °F)
Vapor pressure	: 9,91 PSI at 37,8 °C (100,0 °F)
Relative density	: 0,74 at 16 °C (61 °F)
Density	: 0,74 G/ML
Water solubility	: insoluble
Partition coefficient: n-octanol/water	: No data available
Viscosity, dynamic	: 0,44 cP
Relative vapor density	: 2,42 (Air = 1.0)
Evaporation rate	: No data available
Percent volatile	: > 99 %

SECTION 10: Stability and reactivity

Chemical stability	: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
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Possibility of hazardous reactions

Conditions to avoid	: Heat, sparks, fire, and oxidizing agents. Heat, flames and sparks.
Materials to avoid	: May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Hazardous decomposition products	: Hydrocarbons Carbon oxides
Other data	: No decomposition if stored and applied as directed.

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SECTION 11: Toxicological information**Cyclopentane****Acute oral toxicity**

: LD50 Oral: > 5.000 mg/kg
 Species: Rat
 Method: Acute toxicity estimate

Cyclopentane**Acute inhalation toxicity**

: No data available

Acute dermal toxicity

Cyclopentane

: LD50: unknown

n-Pentane

LD50: unknown

Cyclopentane**Skin irritation**

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

Cyclopentane**Eye irritation**

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

Cyclopentane**Sensitization**

: No adverse effects expected. Estimated based on individual component values.

Repeated dose toxicity

Cyclopentane

: Species: Rat, males
 Sex: males
 Dose: 0, 0.22, 1.12, 5.29 mg/l
 Exposure time: 28 DAYS
 Number of exposures: 6 h/d
 NOEL: 1,12 mg/l
 Lowest observable effect level: 5,29 mg/l

Species: Rat, females
 Sex: females
 Dose: 0, 0.22, 1.12, 5.29 mg/l
 Exposure time: 28 DAYS
 Number of exposures: 6 h/d
 NOEL: 5,29 mg/l
 Lowest observable effect level: > 5,29 mg/l

Isopentane

Species: Rat, male and female
 Sex: male and female
 Application Route: Inhalation
 Dose: 668, 2220, 6646 ppm
 Exposure time: 13 wk
 Number of exposures: 6 h/d, 5 d/wk
 NOEL: > 2220 ppm
 Lowest observable effect level: > = 6646 ppm
 Method: OECD Guideline 413
 Target Organs: Kidney
 Information given is based on data obtained from similar substances.

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n-Pentane

Species: Rat, Male and female
 Sex: Male and female
 Application Route: inhalation (gas)
 Dose: 0, 5000, 10,000, 20,000 mg/m³
 Exposure time: 13 wk
 Number of exposures: 6 h/d, 5 d/wk
 NOEL: 20,000 mg/m³
 Method: OECD Test Guideline 413

Reproductive toxicity

Cyclopentane

: Species: Rat
 Sex: males
 Application Route: Inhalation
 Dose: 0, 500, 2000, 7000 ppm
 Number of exposures: 6 h/day
 NOAEL Parent: 2000 ppm
 NOAEL F1: 2000 ppm
 NOAEL F2: 2000 ppm

Isopentane

Species: Rat
 Sex: male and female
 Application Route: inhalation (vapor)
 Dose: 0, 500, 2000, 7000 ppm
 Number of exposures: 6 h/d 5 d/wk
 Method: OECD Test Guideline 416
 NOAEL Parent: 7000 ppm
 NOAEL F1: 2000 ppm
 NOAEL F2: 2000 ppm
 Information given is based on data obtained from similar substances.

Species: Rat
 Sex: female
 Application Route: oral gavage
 Dose: 0, 100, 300, 1000 mg/kg/d
 Method: OECD Test Guideline 415
 NOAEL Parent: ≥ 1.000 mg/kg
 NOAEL F1: ≥ 1.000 mg/kg

Species: Rat
 Sex: male
 Application Route: oral gavage
 Dose: 0, 100, 300, 1000 mg/kg/d
 Method: OECD Test Guideline 415
 NOAEL Parent: ≥ 300 mg/kg

n-Pentane

Species: Rat
 Sex: male
 Application Route: Inhalation
 Dose: 0, 5, 10, 20 mg/l
 Exposure time: 13 wk
 Test period: 6hrs/day, 5 days/wk
 NOAEL Parent: 20 mg/l
 no abnormalities observed

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Species: Rat
 Sex: female
 Application Route: Inhalation
 Dose: 0, 5, 10, 20 mg/l
 Exposure time: 13 wk
 Test period: 6hrs/day, 5days/wk
 NOAEL Parent: 20 mg/l
 no abnormalities observed

Developmental Toxicity

Isopentane

: Species: Rat
 Application Route: oral gavage
 Dose: 0, 100, 500, 1000 mg/kg/d
 Exposure time: GD 6-15
 Number of exposures: daily
 Method: OECD Guideline 414
 NOAEL Teratogenicity: 1.000 mg/kg
 NOAEL Maternal: 1.000 mg/kg
 Information given is based on data obtained from similar substances.

Species: Rat
 Application Route: Inhalation
 Dose: 0, 500, 2000, 7000 ppm
 Exposure time: GD 6-15
 Number of exposures: 5 d/wk
 Method: OECD Guideline 414
 NOAEL Teratogenicity: 7000 ppm
 NOAEL Maternal: 500 - 2000 ppm
 Information given is based on data obtained from similar substances.

Species: Rabbit
 Application Route: Inhalation
 Dose: 0, 500, 2000, 7000 ppm
 Exposure time: GD 6-18
 Method: OECD Guideline 414
 NOAEL Teratogenicity: 7000 ppm
 NOAEL Maternal: 7000 ppm
 Information given is based on data obtained from similar substances.

n-Pentane

Species: Rat
 Application Route: Inhalation
 Dose: 0, 1000, 3000, 10000 ppm
 Number of exposures: 6 h/d
 Test period: GD 6-15
 NOAEL Teratogenicity: 10,000 ppm

**Cyclopentane
Aspiration toxicity**

: May be fatal if swallowed and enters airways.
 Substances known to cause human aspiration toxicity hazards or to be regarded as if they cause human aspiration toxicity hazard.

CMR effects

Isopentane

: Carcinogenicity: Not available

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Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects., In vivo tests did not show mutagenic effects
 Teratogenicity: Animal testing did not show any effects on fetal development.
 Reproductive toxicity: Animal testing did not show any effects on fertility.

**Cyclopentane
Further information**

: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Concentrations substantially above the TLV value may cause narcotic effects. Solvents may degrease the skin.

SECTION 12: Ecological information**Toxicity to fish**

Cyclopentane : NOEC: > 100 mg/l
 Exposure time: 24 h
 Species: Oncorhynchus kisutch (Marine, fresh water)

Isopentane LC50: 4,26 mg/l
 Exposure time: 96 h
 Species: Oncorhynchus mykiss (rainbow trout)
 semi-static test Method: OECD Test Guideline 203
 Information given is based on data obtained from similar substances.

n-Pentane LC50: 4,3 mg/l
 Exposure time: 96 h
 Species: Oncorhynchus mykiss (rainbow trout)

Toxicity to daphnia and other aquatic invertebrates

Cyclopentane : EL50: 10,5 mg/l
 Exposure time: 24 h
 Species: Daphnia magna (Water flea)

Isopentane EC50: 2,3 mg/l
 Exposure time: 48 h
 Species: Daphnia magna (Water flea)
 static test Method: OECD Test Guideline 202

n-Pentane EC50: 2,7 mg/l
 Exposure time: 48 h
 Species: Daphnia magna (Water flea)

Toxicity to algae

Isopentane : EC50: 7,51 mg/l
 Exposure time: 72 h
 Species: Scenedesmus capricornutum (fresh water algae)
 Growth inhibition Method: OECD Test Guideline 201
 Information given is based on data obtained from similar substances.

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shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)

UN1146, CYCLOPENTANE, 3, II

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)

UN1146, CYCLOPENTANE, 3, II, (-35 °C)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)

UN1146, CYCLOPENTANE, 3, II

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))

UN1146, CYCLOPENTANE, 3, II, (D/E)

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))

UN1146, CYCLOPENTANE, 3, II

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)

UN1146, CYCLOPENTANE, 3, II

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**SECTION 15: Regulatory information****National legislation**

Major Accident Hazard Legislation : 96/82/EC Update:
Not applicable

Water contaminating class (Germany) : WGK 1 slightly water endangering

Notification status

Europe REACH : On the inventory, or in compliance with the inventory
Switzerland CH INV : On the inventory, or in compliance with the inventory
United States of America TSCA : On the inventory, or in compliance with the inventory

Cyclopentane

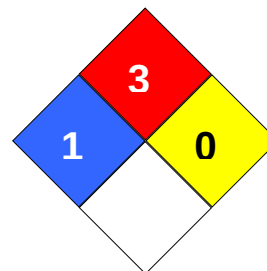
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Canada DSL	:	On the inventory, or in compliance with the inventory
Australia AICS	:	On the inventory, or in compliance with the inventory
New Zealand NZIoC	:	On the inventory, or in compliance with the inventory
Japan ENCS	:	On the inventory, or in compliance with the inventory
Korea KECI	:	On the inventory, or in compliance with the inventory
Philippines PICCS	:	On the inventory, or in compliance with the inventory
China IECSC	:	On the inventory, or in compliance with the inventory

SECTION 16: Other information

NFPA Classification : Health Hazard: 1
 Fire Hazard: 3
 Reactivity Hazard: 0

**Further information**

Legacy SDS Number : 26590

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

The information in this SDS pertains only to the product as shipped.

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 may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Key or legend to abbreviations and acronyms used in the safety data sheet

ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration	PRNT	Presumed Not Toxic

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	Values		
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		

Full text of H-Statements referred to under sections 2 and 3.

H224	Extremely flammable liquid and vapor.
H225	Highly flammable liquid and vapor.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H401	Toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.