

**TrusTec™ PRF Octane No. Blends 80-98**

Version 1.12

Revision Date 2024-12-14

MSDS number: AA00974-0000000613

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

Product Name : TrusTec™ PRF Octane No. Blends 80-98
Material : 1024452, 1024451, 1024450, 1024448, 1024447, 1024446,
1024444, 1024443, 1024442, 1024440, 1024439, 1024438,
1024436, 1024435, 1024434, 1024432, 1024431, 1024430,
1024428, 1024427, 1024426, 1024424, 1024423, 1024422,
1024420, 1024419, 1024418, 1024416, 1024415, 1024414,
1024412, 1024411, 1024410, 1024408, 1024407, 1024406,
1024404, 1024403, 1024402, 1024400, 1024399, 1024398,
1024396, 1024395, 1024394, 1024392, 1024391, 1024390,
1024388, 1024384, 1024383, 1024382, 1024381, 1024380,
1024379, 1024378, 1024341, 1024340, 1024339, 1024386,
1024387, 1024453, 1024449, 1024445, 1024441, 1024437,
1024433, 1024429, 1024425, 1024421, 1024342, 1024417,
1024413, 1024409, 1024405, 1024401, 1024397, 1024393,
1024389, 1024385

Recommended use of the product : Reference Fuel
Restrictions on use : None known.

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

Address : CHEVRON PHILLIPS CHEMICALS ASIA PTE. LTD.
C/O DONG WOO CORPORATION
#B-2601,JEONGJAIL-RO,
BUNDANG-GU,SEONGNAMI-SI,
GYEONGGI-DO,13557
SOUTH KOREA
Telephone no.: +612-9186-1132

Emergency telephone:

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Health:

866.442.9628 (North America)

1.832.813.4984 (International)

Transport:

CHEMTREC 800.424.9300 or 703.527.3887(int'l)

Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090

Mexico CHEMTREC 01-800-681-9531 (24 hours)

South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

Argentina: +(54)-1159839431

EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Austria: VIZ +43 1 406 43 43 (24 hours/day, 7 days/week)

Belgium: 070 245 245 (24 hours/day, 7 days/week)

Bulgaria: +359 2 9154 233

Croatia: +3851 2348 342 (24 hours/day, 7 days/week)

Cyprus: 1401

Czech Republic: Toxicological Information Center +420 224 919 293, +420 224 915 402

Denmark: Danish Poison Center (Gifflinjen): +45 8212 1212

Estonia: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Finland: 0800 147 111 09 471 977 (24 hours/day)

France: ORFILA number (INRS): + 33 (0) 1 45 42 59 59 (24 hours/day, 7 days/week)

Germany: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Greece: (0030) 2107793777 (24 hours/day, 7 days/week)

Hungary: +36-80-201-199 (24 hours/day, 7 days/week)

Iceland: 543 2222 (24 hours/day, 7 days/week)

Ireland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Italy: POISON CENTER MILAN – Azienda Ospedaliera Niguarda Ca' Grande Tel. +39 02

66101029; POISON CENTER ROME – Policlinico "Agostino Gemelli", Servizio di tossicologia

clinica Tel. +39 06 3054343; POISON CENTER ROME – Ospedale Pediatrico Bambino Gesù

Tel. +39 06 68593726; POISON CENTER ROME – Policlinico "Umberto I" Tel. +39 06 4997 8000;

POISON CENTER FOGGIA – Azienda Ospedaliera Universitaria Riuniti Tel. +39 0881 732326;

POISON CENTER NAPLES – Azienda Ospedaliera "Antonio Cardarelli" Tel. +39 081 7472870;

POISON CENTER FLORENCE – Azienda Ospedaliera universitaria Careggi Tel. +39 055

7947819; POISON CENTER PAVIA – IRCCS Fondazione Salvatore Maugeri Tel. +39 0382

24444; POISON CENTER BERGAMO – Azienda Ospedaliera "Papa Giovanni XXIII" Tel. 800 883

300; POISON CENTER VERONA – Azienda Ospedaliera Universitaria integrata Tel. 800 011

858;

Latvia: State Fire and Rescue Service, phone number: 112; Toxicology and Sepsis Clinic

Poisoning and Drug Information Center, Hipokrāta 2, Riga, Latvia, LV-1038, phone number +371

67042473. (24 hours.)

Liechtenstein: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Lithuania: +370 (85) 2362052

Luxembourg: (+352) 8002 5500 (24 hours/day, 7 days/week)

Malta: +356 2395 2000

The Netherlands: NVIC: +31 (0)88 755 8000

Norway: 22 59 13 00 (24 hours/day, 7 days/week)

Poland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Portugal: CIAV phone number: +351 800 250 250

Romania: +40213183606

Slovakia: +421 2 5477 4166

Slovenia: Phone number: 112

Spain: National Emergency Telephone Number of Spanish Poison Centre: +34 91 562 04 20 (24 hours/day, 7 days/week)

Sweden: 112 – ask for Poisons Information

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Responsible Department : Product Safety and Toxicology Group
 E-mail address : SDS@CPChem.com
 Website : www.CPChem.com
 Appointees : 회사명: 리이치24시코리아㈜.
 주소: 서울특별시 강남구 강남대로 94길 34,4층
 전화: +82-02-6245-1610

SECTION 2: Hazards identification**Hazard classification**

**Standards for classification and labeling of chemical substances and material safety data sheet
 (ministry of employment and labor public notice No. 2020-130)**

Classification

: Flammable liquids, Category 2
 Skin corrosion/irritation, Category 2
 Specific target organ toxicity - single exposure, Category 3,
 Respiratory system, Central nervous system
 Aspiration hazard, Category 1
 Short-term (acute) aquatic hazard, Category 1
 Long-term (chronic) aquatic hazard, Category 1

Warning label elements including precautionary statements

Symbol(s) : 

Signal Word : Danger

Hazard Statements : H225: Highly flammable liquid and vapor.
 H304: May be fatal if swallowed and enters airways.
 H315: Causes skin irritation.
 H335: May cause respiratory irritation.
 H336: May cause drowsiness or dizziness.
 H400: Very toxic to aquatic life.
 H410: Very toxic to aquatic life with long lasting effects.

Precautionary Statements : **Prevention:**
 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.

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P243: Take precautionary measures against static discharge.
 P261: Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
 P264: Wash the contact area thoroughly after handling.
 P273: Avoid release to the environment.
 P280: Wear protective gloves/ eye protection/ face protection.

Response:

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.

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

P304 + P340 + P312: 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.

P321: Specific treatment (see supplemental first aid instructions on this label).

P331: Do NOT induce vomiting.

P362 + P364: Take off contaminated clothing and wash it before reuse.

P370 + P378: In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

P391: Collect spillage.

Storage:

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P403 + P235: Store in a well-ventilated place. Keep cool.

Disposal:

P501: Dispose of contents and container according to wastes control act.

Other hazards which do not result in classification : None

SECTION 3: Composition/information on ingredients

Synonyms : Primary Reference Fuel
 Octane Reference Fuel

Molecular formula : Mixture

Common name	Synonyms	CAS-No.	Concentration	KECI Number
2,2,4-Trimethylpentane (Isooctane)	2,2,4-trimethylpentane	540-84-1	80 % - 98%	KE-34634

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n-Heptane	heptane	142-82-5	0 % - 20%	KE-18271
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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.
- 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.
- In case of skin contact : If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.
- If inhaled : Consult a physician after significant exposure. If unconscious, place in recovery position and seek medical advice.
- If swallowed : Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

Other cautions for Doctors

- Symptoms : No data available.
- Risks : No data available.
- Treatment : No data available.

SECTION 5: Firefighting measures

- Flash point : -8°C (18°F)
Method: Tag closed cup
- Autoignition temperature : No data available
- 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 : Wear self-contained breathing apparatus for firefighting if

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equipment for fire-fighters	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 a naked flame or any 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	: 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.
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).

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. Avoid contact with skin and eyes. 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 a naked flame or any incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only

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explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

Secure 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.
- Uses advised against : None known.
- Specific Use : Reference Fuel

SECTION 8: Exposure controls/personal protection**KR**

Components	Basis	Value	Control parameters	Note
n-Heptane	KR OEL	TWA	400 ppm,	
	KR OEL	STEL	500 ppm,	

Chemical exposure standards, biological exposure standards, etc.

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.

Personal protective equipment

- Respiratory protection : If ventilation or other engineering controls are not adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure, a supplied-air NIOSH approved respirator may be appropriate. If exposure to harmful levels of airborne material may occur, a NIOSH approved respirator that provides protection may be appropriate, such as:. Air-Purifying Respirator for Organic Vapors. A positive pressure, air-supplying respirator may be appropriate if there is potential for uncontrolled release, aerosolization, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.
- Eye protection : Eye wash bottle with pure water. Tightly fitting safety goggles.
- 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

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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.

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

Physical state : liquid
 Color : Colorless
 Odor : gasoline-like
 Odor Threshold : No data available

pH : Not applicable

Melting point/freezing point : No data available

Pour point : No data available

Boiling point/boiling range : 96-103°C (205-217°F)

Flash point : -8°C (18°F)
 Method: Tag closed cup

Evaporation rate : 1

Flammability (solid, gas) : No data available

Lower explosion limit : 1 %(V)

Upper explosion limit : 7 %(V)

Vapor pressure : 1.70 PSI
 at 37.8°C (100.0°F)

Solubility : negligible

Relative density : 0.693
 at 15.6 °C (60.1 °F)

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Density	:	No data available
Vapor density	:	3 (Air = 1.0)
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	No data available
Viscosity, kinematic	:	No data available
Molecular weight	:	Not applicable

SECTION 10: Stability and reactivity

Reactivity	:	Stable under recommended storage conditions.
Chemical stability	:	This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Possibility of hazardous reactions		
Hazardous reactions	:	Hazardous reactions: Hazardous polymerization does not occur. Hazardous reactions: Vapors may form explosive mixture with air.
Conditions to avoid	:	Heat, flames and sparks.
Materials to avoid	:	May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Hazardous decomposition products	:	Carbon oxides
Other data	:	No decomposition if stored and applied as directed.

SECTION 11: Toxicological information**Information on exposure routes****Acute oral toxicity**

2,2,4-Trimethylpentane (Isooctane)	:	LD50: > 5,000 mg/kg Species: Rat Sex: male and female Method: OECD Test Guideline 401
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Symptoms: Salivation

n-Heptane

LD50: > 5,000 mg/kg

Species: Rat

Method: OECD Test Guideline 401

Information given is based on data obtained from similar substances.

Acute inhalation toxicity2,2,4-Trimethylpentane
(Isooctane)

: LC50: > 33.52 mg/l

Exposure time: 4 h

Species: Rat

Sex: male and female

Test atmosphere: vapor

Method: OECD Test Guideline 403

n-Heptane

LC50: > 29.29 mg/l

Exposure time: 4 h

Species: Rat

Sex: male and female

Test atmosphere: vapor

Method: OECD Test Guideline 403

Acute dermal toxicity2,2,4-Trimethylpentane
(Isooctane)

: LD50: > 2,000 mg/kg

Species: Rabbit

Sex: male and female

Method: OECD Test Guideline 402

n-Heptane

LD50: > 2,000 mg/kg

Species: Rabbit

Sex: male and female

Method: OECD Test Guideline 402

Information given is based on data obtained from similar substances.

TrusTec™ PRF Octane No. Blends 80-98**Skin corrosion or irritation**

: Skin irritation

largely based on animal evidence.

TrusTec™ PRF Octane No. Blends 80-98**Eye corrosion or irritation**

: Vapors may cause irritation to the eyes, respiratory system and the skin.

TrusTec™ PRF Octane No. Blends 80-98**Respiratory Sensitization**

: Did not cause sensitization on laboratory animals.

TrusTec™ PRF Octane No. Blends 80-98**Skin sensitization**

No data available

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Repeated dose toxicity

2,2,4-Trimethylpentane (Isooctane) : Species: Rat, Male and female
Sex: Male and female
Application Route: Inhalation
Dose: 0, 668, 2220, 6646 ppm
Exposure time: 13 weeks
Number of exposures: 6 hr/day 5 d/wk
NOEL: 8.117 mg/l 2220 ppm
Method: OECD Guideline 413
Information given is based on data obtained from similar substances.

n-Heptane Species: Rat, male
Sex: male
Application Route: Inhalation
Dose: 12.47 mg/l
Exposure time: 16 wk
Number of exposures: 12 h/d, 7 d/wk
NOEL: 12.47 mg/l
No adverse effect has been observed in chronic toxicity tests.

Species: Rat, Male and female
Sex: Male and female
Application Route: Inhalation
Dose: 12.35 mg/l
Exposure time: 26 wk
Number of exposures: 6 h/d, 5 d/wk
Method: OECD Test Guideline 413
No adverse effect has been observed in chronic toxicity tests.

Germ cell mutagenicity (in vitro)

2,2,4-Trimethylpentane (Isooctane) : Test Type: Ames test
Method: Mutagenicity (Escherichia coli - reverse mutation assay)
Result: negative

Test Type: Mouse lymphoma assay
Method: OECD Guideline 476
Result: negative

Test Type: Sister Chromatid Exchange Assay
Result: negative

Test Type: Unscheduled DNA synthesis assay
Result: negative

n-Heptane Test Type: Ames test
Method: Mutagenicity (Escherichia coli - reverse mutation assay)
Result: negative

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Test Type: Mammalian cell gene mutation assay
 Method: OECD Guideline 476
 Result: negative

Test Type: Chromosome aberration test in vitro
 Method: OECD Guideline 473
 Result: negative

Test Type: Mitotic recombination
 Result: negative

Germ cell mutagenicity (in vivo)

2,2,4-Trimethylpentane (Isooctane) : Test Type: Unscheduled DNA synthesis assay
 Species: Mouse
 Dose: 500 mg/kg
 Result: negative

Test Type: Unscheduled DNA synthesis assay
 Species: Rat
 Dose: 500 mg/kg
 Result: negative

Developmental Toxicity

2,2,4-Trimethylpentane (Isooctane) : Species: Rat
 Application Route: Inhalation
 Dose: 0, 400, 1200 ppm
 Number of exposures: 6h/d
 Test period: GD6-15
 NOAEL Teratogenicity: 1200 ppm
 NOAEL Maternal: 1200 ppm
 Information given is based on data obtained from similar substances.

Species: Rat
 Application Route: Inhalation
 Dose: 0, 900, 3000, 9000 ppm
 Number of exposures: 6h/d
 Test period: GD6-15
 Method: OECD Guideline 414
 NOAEL Teratogenicity: 9000 ppm
 NOAEL Maternal: 3000 ppm
 Information given is based on data obtained from similar substances.

n-Heptane : Species: Rat
 Application Route: Inhalation
 Dose: 0, 900, 3000, 9000 ppm
 Exposure time: GD6-15
 Number of exposures: 6 hrs/d
 NOAEL Teratogenicity: 9000 ppm
 NOAEL Maternal: 3000 ppm

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**Specific Target Organ
Toxicity (Single Exposure)**

No data available

**Specific Target Organ
Toxicity (Repeated
Exposure)**

No data available

TrusTec™ PRF Octane No. Blends 80-98**Aspiration toxicity** : May be fatal if swallowed and enters airways.**CMR effects**

2,2,4-Trimethylpentane (Isooctane) : Mutagenicity: Tests on bacterial or mammalian cell cultures 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.

n-Heptane : Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
 Teratogenicity: Animal testing did not show any effects on fetal development.
 Reproductive toxicity: No toxicity to reproduction

Reproductive toxicity

2,2,4-Trimethylpentane (Isooctane) : Species: Rat
 Sex: male and female
 Application Route: Inhalation
 Dose: 0, 900, 3000, 9000 ppm
 Number of exposures: 6 h/d 5 d/wk
 Method: OECD Test Guideline 416
 NOAEL Parent: 3000 ppm
 NOAEL F1: 3000 ppm
 NOAEL F2: 3000 ppm
 Information given is based on data obtained from similar substances.

n-Heptane : Species: Rat
 Sex: male and female
 Application Route: Inhalation
 Dose: 0, 900, 3000, 9000 ppm
 Number of exposures: 6 hr/d, 5 d/wk

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Test period: 13 wk
Method: OECD Test Guideline 416
NOAEL Parent: 3000ppm
NOAEL F1: 3000 ppm
NOAEL F2: 3000 ppm
Information given is based on data obtained from similar substances.

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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

Ecological Toxicity

Toxicity to fish

2,2,4-Trimethylpentane (Isooctane) : LC50: 0.11 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-Heptane LL50: 5.738 mg/l
Exposure time: 96 h
Species: Oncorhynchus mykiss (rainbow trout)
Method: QSAR modeled data

Toxicity to daphnia and other aquatic invertebrates

2,2,4-Trimethylpentane (Isooctane) : EC50: 0.4 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
static test Information given is based on data obtained from similar substances.

n-Heptane EC50: 1.5 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
static test Toxic to aquatic organisms.

LC50: 0.1 mg/l
Exposure time: 96 h
Species: Mysidopsis bahia (mysid shrimp)
semi-static test Very toxic to aquatic organisms.

Toxicity to algae

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2,2,4-Trimethylpentane (Isooctane) : EL50: 2.943 mg/l
Exposure time: 72 h
Method: QSAR modeled data

n-Heptane : EL50: 4.338 mg/l
Exposure time: 72 h
Species: Pseudokirchneriella subcapitata (microalgae)
Method: QSAR

Toxicity to fish (Chronic toxicity)

n-Heptane : NOELR: 1.284 mg/l
Exposure time: 28 d
Species: Oncorhynchus mykiss (rainbow trout)
Method: QSAR modeled data

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

2,2,4-Trimethylpentane (Isooctane) : NOEL: 0.17 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 211
Information given is based on data obtained from similar substances.

Persistence and degradability

2,2,4-Trimethylpentane (Isooctane) : Result: Not readily biodegradable.
Method: OECD Test Guideline 301
Expected to be inherently biodegradable., Information given is based on data obtained from similar substances.

n-Heptane : Result: Readily biodegradable.
70 %
Testing period: 10 d

Bioaccumulative

2,2,4-Trimethylpentane (Isooctane) : Bioconcentration factor (BCF): 231
Method: QSAR modeled data
This material is not expected to bioaccumulate.

n-Heptane : Bioconcentration factor (BCF): 552
Method: QSAR modeled data
This material is not expected to bioaccumulate.

Mobility

2,2,4-Trimethylpentane (Isooctane) : Medium: Air
Method: Calculation, Mackay Level I Fugacity Model

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	After release, disperses into the air.
n-Heptane	: Medium: Air Method: Calculation, Mackay Level I Fugacity Model After release, disperses into the air.
Results of PBT assessment	
2,2,4-Trimethylpentane (Isooctane)	: Non-classified PBT substance, Non-classified vPvB substance
n-Heptane	: Non-classified PBT substance, Non-classified vPvB substance
Other adverse effects	: Very toxic to aquatic life with long lasting effects.
Ecotoxicology Assessment	
Short-term (acute) aquatic hazard	
2,2,4-Trimethylpentane (Isooctane)	: Very toxic to aquatic life.
n-Heptane	: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard	
2,2,4-Trimethylpentane (Isooctane)	: Very toxic to aquatic life with long lasting effects.
n-Heptane	: Very toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

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

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Disposal method	: The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.
Disposal precaution	: Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

SECTION 14: Transport information

The shipping descriptions shown here are for bulk shipments only, and may not apply to 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.,

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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.

UN Number	:	UN1268
UN Product Shipping Name	:	Petroleum distillates, n.o.s.
Hazard Class	:	3
Packing Group	:	II - Hazardous Properties
Marine Pollutant	:	Yes
Special Safety Measures on Mode of Transport	:	No data available

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)

UN1268, PETROLEUM DISTILLATES, N.O.S., 3, II, MARINE POLLUTANT, (2,2,4-TRIMETHYLPENTANE (ISOOCTANE), N-HEPTANE)

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)

UN1268, PETROLEUM DISTILLATES, N.O.S., 3, II, (-8°C), MARINE POLLUTANT, (2,2,4-TRIMETHYLPENTANE (ISOOCTANE), N-HEPTANE)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)

UN1268, PETROLEUM DISTILLATES, N.O.S., 3, II

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

UN1268, PETROLEUM DISTILLATES, N.O.S., 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS, (2,2,4-TRIMETHYLPENTANE (ISOOCTANE), N-HEPTANE)

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

UN1268, PETROLEUM DISTILLATES, N.O.S., 3, II, ENVIRONMENTALLY HAZARDOUS, (2,2,4-TRIMETHYLPENTANE (ISOOCTANE), N-HEPTANE)

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

UN1268, PETROLEUM DISTILLATES, N.O.S., 3, II, ENVIRONMENTALLY HAZARDOUS, (2,2,4-TRIMETHYLPENTANE (ISOOCTANE), N-HEPTANE)

Maritime transport in bulk according to IMO instruments

SECTION 15: Regulatory information**National legislation****Regulation under the Occupational Safety and Health Act**

A Material Safety Datasheet (MSDS) for this product is not required according to article 41 of the ISHA.

Regulation	Chemical name	Threshold limits
Harmful Substances Prohibited from Manufacturing	: Not applicable	
Harmful Substances Required Permission for Manufacture	: Not applicable	

Act on the Registration and Evaluation, etc. of Chemical Substances, Chemicals Control Act

Regulation	Chemical name	Threshold limits
Toxic Chemicals	: Not applicable	
Prohibited Chemicals	: Not applicable	
Restricted Chemicals	: Not applicable	
Toxic Release Inventory	: Not applicable	

Dangerous Substances Safety Management Act

Dangerous Substances Safety Management Act : Flammable liquids, Type 1 petroleums, Water insoluble liquid

Regulations by the Waste Management Act : Not applicable

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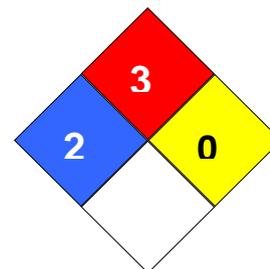
Regulations by other domestic and foreign laws

Europe REACH	:	This product is in full compliance according to REACH regulation 1907/2006/EC.
Switzerland CH INV	:	On the inventory, or in compliance with the inventory
United States of America (USA) TSCA	:	On or in compliance with the active portion of the TSCA inventory
Australia AIIC	:	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	:	All substances in this product were registered, notified to be registered, or exempted from registration by CPChem through an Only Representative according to K-REACH regulations. Importation of this product is permitted if the Korean Importer of Record was included on CPChem's notifications or if the Importer of Record themselves notified the substances.
Philippines PICCS	:	On the inventory, or in compliance with the inventory
Taiwan TCSI	:	On the inventory, or in compliance with the inventory
China IECSC	:	On the inventory, or in compliance with the inventory
Other regulations	:	No data available

SECTION 16: Other information

Source of data	:	Korea. GHS based classification
Date of initial writing	:	2024-10-30
Revision number	:	1
Last revision date	:	2029-10-30

NFPA Classification : Health Hazard: 2
Fire Hazard: 3
Reactivity Hazard: 0

**Other information**

None.

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

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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%
AIIC	Australian Inventory of Industrial Chemicals	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 Values	PRNT	Presumed Not Toxic
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%	ATE	Acute toxicity estimate