

Version 1.4 Revision Date 2016-02-22

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

**Product information** 

Product Name : Toluene Standardization Fuel 89.3

Material : 1024317, 1024314, 1024315, 1024316

Use : Reference Fuel

Company : Chevron Phillips Chemical Company LP

Specialty Chemicals 10001 Six Pines Drive The Woodlands, TX 77380

#### **Emergency telephone:**

Health:

866.442.9628 (North America) 1.832.813.4984 (International)

Transport:

CHEMTREC 800.424.9300 or 703.527.3887(int'l)

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

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

This product has been classified in accordance with the hazard communication standard 29 CFR 1910.1200; the SDS and labels contain all the information as required by the standard.

#### **Emergency Overview**

Danger

Form: Liquid Physical state: Liquid Color: Clear Odor: Strong gasoline

OSHA Hazards : Flammable Liquid, Moderate skin irritant, Aspiration hazard,

Reproductive hazard, Target Organ Effects

Classification

: Flammable liquids, Category 2

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Skin irritation, Category 2 Eye irritation, Category 2A

Specific target organ systemic toxicity - single exposure,

Category 3, Central nervous system

Specific target organ systemic toxicity - repeated exposure,

Category 2 , Auditory organs Aspiration hazard , Category 1 Reproductive toxicity , Category 2

#### Labeling

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.

H319: Causes serious eye irritation.

H336: May cause drowsiness or dizziness.

H361: Suspected of damaging fertility or the unborn child. H373: May cause damage to organs (Auditory organs) through

prolonged or repeated exposure.

#### 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.

P243 Take precautionary measures against static discharge.

P260 Do not breathe dust/fume/gas/mist/vapor/spray.

P264 Wash skin thoroughly after handling.

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

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 person to fresh

air and keep comfortable for breathing. Call a POISON

CENTER or doctor/ physician if you feel unwell.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present

and easy to do. Continue rinsing.

P314 Get medical advice/ attention if you feel unwell.

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 Take off contaminated clothing and wash before reuse.

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P370 + P378 In case of fire: Use dry sand, dry chemical or

alcohol-resistant foam to extinguish.

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 an approved waste

disposal plant.

Carcinogenicity:

IARC No ingredient of this product present at levels greater than or

equal to 0.1% is identified as probable, possible or confirmed

human carcinogen by IARC.

NTP No ingredient of this product present at levels greater than or

equal to 0.1% is identified as a known or anticipated carcinogen

by NTP.

ACGIH No ingredient of this product present at levels greater than or

equal to 0.1% is identified as a carcinogen or potential carcinogen

by ACGIH.

#### **SECTION 3: Composition/information on ingredients**

Synonyms : Reference Fuel

Molecular formula : Mixture

Component	CAS-No.	Weight %
Toluene	108-88-3	70
n-Heptane	142-82-5	30

### **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.

In case of skin contact : If skin irritation persists, call a physician. 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. Never give anything by mouth to

an unconscious person. If symptoms persist, call a physician.

Take victim immediately to hospital.

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# **SECTION 5: Firefighting measures**

Flash point 4 °C (39 °F)

Method: closed cup

estimated

528.9 °C (984.0 °F) Autoignition temperature

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.

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.

: Contain spillage, and then collect with non-combustible Methods for cleaning up

> absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to

local / national regulations (see section 13).

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#### **SECTION 7: Handling and storage**

#### Handling

Advice on safe handling

Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary, but may not by themselves be sufficient. Review all operations, which have the potential to generating and accumulation of electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106 "Flammable and Combustible Liquids"; National Fire Protection Association (NFPA 77), "Recommended Practice on Static Electricity"; and/or the American Petroleum Institute (API) Recommended Practice 2003, "Protection Against Ignitions Arising Out of Static, Lightning, and stray Currents". 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 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

US

Ingredients	Basis	Value	Control parameters	Note
Toluene	ACGIH	TWA	20 ppm,	BEI, A4,
	OSHA Z-2	TWA	200 ppm,	
	OSHA Z-2	CEIL	300 ppm,	
	OSHA Z-2	Peak	500 ppm,	
	OSHA Z-1-A	TWA	100 ppm, 375 mg/m3	
	OSHA Z-1-A	STEL	150 ppm, 560 mg/m3	
n-Heptane	OSHA Z-1	TWA	500 ppm, 2,000 mg/m3	(b),
	OSHA Z-1-A	TWA	400 ppm, 1,600 mg/m3	
	OSHA Z-1-A	STEL	500 ppm, 2,000 mg/m3	
	ACGIH	TWA	400 ppm,	

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ACGIH STEL 500 ppm,

b) The value in mg/m3 is approximate.

A4 Not classifiable as a human carcinogen

BEI Substances for which there is a Biological Exposure Index or Indices (see BEI® section)

#### **Engineering measures**

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 : 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 according to the amount and

concentration of the dangerous substance at the 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 : Clear

Odor : Strong gasoline

Safety data

Flash point : 4 °C (39 °F)

Method: closed cup

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estimated

Lower explosion limit : 1.1 %(V)

Upper explosion limit : 7.1 %(V)

Oxidizing properties : no

Autoignition temperature : 528.9 °C (984.0 °F)

Molecular formula : Mixture

Molecular weight : No data available

pH : Not applicable

Freezing point : -94.44 °C (-137.99 °F)

Pour point No data available

Boiling point/boiling range : 99 °C (210 °F)

Vapor pressure : 30.00 MMHG

estimated

Relative density : 0.87

at 15.6 °C (60.1 °F)

Density : 0.9 g/cm3

Water solubility : Negligible

Partition coefficient: n-

octanol/water

: No data available

Viscosity, kinematic : No data available

Relative vapor density : 3.2

(Air = 1.0)

Evaporation rate : 4.5

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.

#### Possibility of hazardous reactions

Conditions to avoid : Heat, flames and sparks.

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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.

#### **SECTION 11: Toxicological information**

**Toluene Standardization Fuel 89.3** 

Acute oral toxicity : LD50 Oral: > 5,000 mg/kg

Species: Rat

Method: Acute toxicity estimate

Acute inhalation toxicity

Toluene : LC50: 25.7 - 30 mg/l

Exposure time: 4 h

Species: Rat

Test atmosphere: vapor

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Acute dermal toxicity : LD50 Dermal: > 2,000 mg/kg

Species: Rabbit

Method: Acute toxicity estimate

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**Skin irritation** : May cause skin irritation in susceptible persons. Information

refers to the main ingredient.

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**Eye irritation** : Vapors may cause irritation to the eyes, respiratory system

and the skin.

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Sensitization : Contains no substance or substances classified as sensitizing.

Repeated dose toxicity

Toluene : Species: Rat

Application Route: Inhalation Dose: 0, 100, 625, 1250, 3000 ppm

Exposure time: 15 wk

Number of exposures: 6.5 h/d, 5 d/wk

NOEL: 625 ppm

Species: Mouse

Application Route: Inhalation Dose: 0, 100, 625, 1250, 3000 ppm

Exposure time: 14 wk

Number of exposures: 6.5 h/d, 5 d/wk

NOEL: 100 ppm

n-Heptane Species: Rat, male

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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.

Carcinogenicity

Toluene : Species: Rat

Dose: 0, 600, 1200 ppm Exposure time: 2 yrs

Number of exposures: 6.5 h/d, 5 d/wk Remarks: No evidence of carcinogenicity

Species: Mouse Dose: 0, 600, 1200 ppm Exposure time: 2 yrs

Number of exposures: 6.5 h/d, 5 d/wk Remarks: No evidence of carcinogenicity

Reproductive toxicity

Toluene : Species: Rat

Application Route: Inhalation Dose: 0, 100, 500, 2000 ppm

Test period: 95 d

NOAEL Parent: 2000 ppm

n-Heptane Species: Rat

Application Route: Inhalation Dose: 0, 900, 3000, 9000 ppm Number of exposures: 6 hr/d, 5 d/wk

Test period: 13 wk

Method: OECD Test Guideline 416

NOAEL Parent: 9000 ppm NOAEL F1: 3000 ppm NOAEL F2: 3000 ppm

**Developmental Toxicity** 

Toluene : Species: Rat

Application Route: Inhalation Dose: 0, 100, 500, 2000 ppm

Test period: 95 d

NOAEL Teratogenicity: 400-750 ppm

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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**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.

**Toxicology Assessment** 

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CMR effects : Carcinogenicity:

Contains no ingredient listed as a carcinogen

Mutagenicity:

Contains no ingredient listed as a mutagen

Teratogenicity:

Suspected of damaging the unborn child.

Reproductive toxicity: No toxicity to reproduction

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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**

Toxicity to fish

Toluene : LC50: 18 - 36 mg/l

Exposure time: 96 h

Species: Pimephales promelas (fathead minnow)

n-Heptane LL50: 1.284 mg/l

Exposure time: 96 h

Species: Oncorhynchus mykiss (rainbow trout)

Method: QSAR

LC50: 375 mg/l Exposure time: 96 h

Species: Tilapia mosambica (Fish)

# Toxicity to daphnia and other aquatic invertebrates

Toluene : EC50: 3.78 mg/l

Exposure time: 48 h

Species: Daphnia magna (Water flea)

n-Heptane EC50: 1.5 mg/l

Exposure time: 48 h

Species: Daphnia magna (Water flea) static test Toxic to aquatic organisms.

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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

Toluene : EC50: 134 mg/l

Exposure time: 72 h

Species: Chlamydomonas angulosa (Green algae)

n-Heptane EL50: 4.338 mg/l

Exposure time: 72 h

Species: Pseudokirchneriella subcapitata (microalgae)

Method: QSAR

Elimination information (persistence and degradability)

Biodegradability : Expected to be biodegradable

#### **Ecotoxicology Assessment**

Acute aquatic toxicity

Toluene : Toxic to aquatic life.

n-Heptane : Very toxic to aquatic life.

Chronic aquatic toxicity

Toluene : Harmful to aquatic life with long lasting effects.

n-Heptane : Very toxic to aquatic life with long lasting effects.

Results of PBT assessment : This mixture contains no substance considered to be

persistent, bioaccumulating and toxic (PBT)., This mixture contains no substance considered to be very persistent and

very bioaccumulating (vPvB).

Additional ecological

information

: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal., 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.

Product : 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

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waste management company.

Contaminated packaging : 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., 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)**

UN1268, PETROLEUM DISTILLATES, N.O.S., 3, II, MARINE POLLUTANT, (HEPTANE)

#### **IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)**

UN1268, PETROLEUM DISTILLATES, N.O.S., 3, II, (4 °C), MARINE POLLUTANT, (HEPTANE)

#### IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)

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

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

UN1268, PETROLEUM PRODUCTS, N.O.S., 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS, (HEPTANE)

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

UN1268, PETROLEUM PRODUCTS, N.O.S., 3, II, ENVIRONMENTALLY HAZARDOUS, (HEPTANE)

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

UN1268, PETROLEUM PRODUCTS, N.O.S., 3, II, ENVIRONMENTALLY HAZARDOUS, (HEPTANE)

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

#### **SECTION 15: Regulatory information**

**National legislation** 

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SARA 311/312 Hazards : Fire Hazard

Acute Health Hazard Chronic Health Hazard

**CERCLA Reportable** 

Quantity

: 1333 lbs

Toluene

SARA 302 Reportable

Quantity

: This material does not contain any components with a SARA

302 RQ.

SARA 302 Threshold

Planning Quantity

: No chemicals in this material are subject to the reporting

requirements of SARA Title III, Section 302.

SARA 304 Reportable

Quantity

: This material does not contain any components with a section

304 EHS RQ.

SARA 313 Ingredients : The following components are subject to reporting levels

established by SARA Title III, Section 313:

: Toluene - 108-88-3

#### Clean Air Act

Ozone-Depletion

Potential

: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR

82, Subpt. A, App.A + B).

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

: Toluene - 108-88-3

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489):

: Toluene - 108-88-3

#### **US State Regulations**

Pennsylvania Right To Know

: Toluene - 108-88-3 n-Heptane - 142-82-5

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New Jersey Right To Know

: Toluene - 108-88-3 n-Heptane - 142-82-5

California Prop. 65

Ingredients

: WARNING: This product contains a chemical known in the State of California to cause birth defects or other reproductive

orm

harm.

**Notification status** 

Europe REACH : On the inventory, or in compliance with the inventory

United States of America TSCA : On TSCA Inventory

Canada DSL : All components of this product are on the Canadian

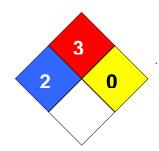
DSL

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: 2

Fire Hazard: 3 Reactivity Hazard: 0



**Further information** 

Legacy SDS Number : 429870

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.

LD50	Lethal Dose 50%
LOAEL	Lowest Observed Adverse Effect Level
	LOAEL

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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	PICCS	Philippines Inventory of
	Chemical Substances		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%		-

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