SAFETY DATA SHEET	
	Chevron Phillips CHEMICAL
TrusTec™ n-Heptane	e Primary Reference Fuel (PRF)
Version 1.11	Revision Date 2022-11-04
SECTION 1: Identification of t	the substance/mixture and of the company/undertaking
Product information	
Product Name Material	 TrusTec™ n-Heptane Primary Reference Fuel (PRF) 1084146, 1021846, 1021847, 1021848, 1021849, 1021850, 1031134
Company	 Chevron Phillips Chemical Company LP Specialty Chemicals 10001 Six Pines Drive The Woodlands, TX 77380
Emergency telephone: Health: 866.442.9628 (North Ar 1.832.813.4984 (Interna	
Transport:	200 or 702 527 2997(int/l)
	1300 or 703.527.3887(int'l) 612 9186 1132) China: 0532 8388 9090
	I-800-681-9531 (24 hours) otec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600 39431
EUROPE: BIG +32.14.	584545 (phone) or +32.14583516 (telefax)
	43 43 (24 hours/day, 7 days/week) 24 hours/day, 7 days/week)
Bulgaria: +359 2 9154 2 Croatia: +3851 2348 34	233 I2 (24 hours/day, 7 days/week)
Cyprus: 1401	
	blogical Information Center +420 224 919 293, +420 224 915 402 on Center (Giftlinjen): +45 8212 1212
	4545 (phone) or +32.14583516 (telefax) 09 471 977 (24 hours/day)
France: ORFILA numbe	er (INRS): + 33 (0) 1 45 42 59 59 (24 hours/day, 7 days/week)
	584545 (phone) or +32.14583516 (telefax) 3777 (24 hours/day, 7 days/week)
Hungary: +36-80-201-1	99 (24 hours/day, 7 days/week)
	nours/day, 7 days/week) 4545 (phone) or +32.14583516 (telefax)
Italy: BIG +32.14.58454 Latvia: State Fire and R	45 (phone) or +32.14583516 (telefax) Rescue Service, phone number: 112; Toxicology and Sepsis Clinic formation Center, Hipokrāta 2, Riga, Latvia, LV-1038, phone number +371
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Lithuania: +370 (85) 2362 Luxembourg: (+352) 8002 Malta: +356 2395 2000 The Netherlands: NVIC: - Norway: 22 59 13 00 (24 Poland: BIG +32.14.5845 Portugal: CIAV phone nu Romania: +40213183606 Slovakia: +421 2 5477 41 Slovenia: Phone number:	2 5500 (24 hours/day, 7 days/week) +31 (0)88 755 8000 hours/day, 7 days/week) 545 (phone) or +32.14583516 (telefax) mber: +351 800 250 250 5 166 : 112 cy Telephone Number of Spanish Poison Centre: +34 91 562 04 20 (24
Responsible Department E-mail address Website	 Product Safety and Toxicology Group SDS@CPChem.com www.CPChem.com
SECTION 2: Hazards identificat	tion
	 ified in accordance with the hazard communication standard 29 CFR els contain all the information as required by the standard. Flammable liquids, Category 2 Skin irritation, Category 2 Specific target organ toxicity - single exposure, Category 3, Central nervous system Aspiration hazard, Category 1
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. H336: May cause drowsiness or dizziness.
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. P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray. P264 Wash skin thoroughly after handling.
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	P280 Wear protective gloves/ eye protection/ face protection.	
	Response: P301 + P310 IF SWALLOWED: Immediately call a POISON	
	CENTER/ doctor.	
	P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/	
	shower. P331 Do NOT induce vomiting.	
	P362 Take off contaminated clothing and wash before reuse. 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. 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	
NTP	human carcinogen by IARC. 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.	
SECTION 3: Composition/info	rmation on ingredients	
Synonyms	: Normal Heptane Dipropilmetano	
Molecular formula	: C7H16	
		1
Component n-Heptane	CAS-No. Weight % 142-82-5 99 - 100	
	142-02-3 33 - 100	J
SECTION 4: First aid measure	S	
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.	
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all a physician.	
Dry chemical.	
ains or water	
efighting if	
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.	
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.	
equate acuate umulating to umulate in low	
further leakage minates rivers s.	
bustible eous earth,	
f r s	

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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 Do not spray on a naked flame or any incandescent material. against fire and explosion 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 No smoking. Keep container tightly closed in a dry and wellareas and containers 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 Control parameters Note Components Basis Value n-Heptane OSHA Z-1 TWA 500 ppm, 2,000 mg/m3 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, STEL ACGIH 500 ppm. Immediately Dangerous to Life or Health Concentrations (IDLH)

Substance name	CAS-No.	Control parameters	Update
n-Heptane	142-82-5	Immediately Dangerous to Life or Health Concentration Value 750 parts per million	1995-03-01

Engineering measures

Adequate ventilation to control airborned 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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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 tha 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.
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.
TION 9: Physical and cher	nical	properties
Information on basic phys	sical	and chemical properties
Appearance		
Form Physical state Color Odor	:	: liquid : liquid : Clear : Sweet
Safety data		
	:	: -4°C (25°F) Method: Tag closed cup
Safety data	:	
Safety data Flash point		Method: Tag closed cup
Safety data Flash point Lower explosion limit	:	Method: Tag closed cup : 1 %(V)

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Molecular formula	:	C7H16
Molecular weight	:	100.23 g/mol
рН	:	Not applicable
Pour point	:	No data available
Boiling point/boiling range	:	98°C (208°F)
Vapor pressure	:	1.60 PSI at 38°C (100°F)
Relative density	:	0.69 at 16 °C (61 °F)
Density	:	5.75 L/G at 20°C (68°F)
Water solubility	:	negligible
Partition coefficient: n- octanol/water	:	No data available
Relative vapor density	:	3.4 (Air = 1.0)
Evaporation rate	:	3.46
Percent volatile	:	> 99 %
Conductivity	:	< 1 pSm at 20 °C

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 re	eactions
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.
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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.
TION 11: Toxicological infor	mation
Acute oral toxicity	
n-Heptane	: LD50: > 5,000 mg/kg
	Species: Rat
	Method: OECD Test Guideline 401 Information given is based on data obtained from similar substances.
Skin irritation	
n-Heptane	: Skin irritation Information given is based on data obtained from similar substances.
Eye irritation	
n-Heptane	 No eye irritation Information given is based on data obtained from similar substances.
Sensitization	
n-Heptane	 Did not cause sensitization on laboratory animals. Information given is based on data obtained from similar substances.
Repeated dose toxicity	
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.
Senotoxicity in vitro	
n-Heptane	: Test Type: Ames test Method: Mutagenicity (Escherichia coli - reverse mutation

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	assay) Result: negative
	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
Reproductive toxicity	
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 Test period: 13 wk Method: OECD Test Guideline 416 NOAEL Parent: 9000 ppm NOAEL F1: 3000 ppm NOAEL F2: 3000 ppm Information given is based on data obtained from similar substances.
Developmental Toxicity	
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
TrusTec™ n-Heptane Prima	rv Reference Fuel (PRF)
Aspiration toxicity	: May be fatal if swallowed and enters airways.
CMR effects	
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
TrusTec™ n-Heptane Prima 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.
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TION 12: Ecological inf	ormation
Toxicity to fish	
n-Heptane	: LL50: 5.738 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) Method: QSAR modeled data
Toxicity to daphnia and	d other aquatic invertebrates
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	
n-Heptane	: EL50: 4.338 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (microalgae) Method: QSAR
Toxicity to fish (Chroni	ic toxicity)
n-Heptane	: NOELR: 1.284 mg/l Exposure time: 28 d Species: Oncorhynchus mykiss (rainbow trout) Method: QSAR modeled data
Biodegradability	
n-Heptane	: Result: Readily biodegradable. 70 % Testing period: 10 d
Bioaccumulation	
n-Heptane	: Bioconcentration factor (BCF): 552 Method: QSAR modeled data This material is not expected to bioaccumulate.
Mobility	
n-Heptane	: Medium: Air Method: Calculation, Mackay Level I Fugacity Model

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	Content: 100 % After release, disperses into the air.				
Results of PBT assessment n-Heptane	: Non-classified PBT substance, Non-classified vPvB substance				
Additional ecological information Ecotoxicology Assessment	: Very toxic to aquatic life with long lasting effects.				
Short-term (acute) aquatic hazar n-Heptane	rd : Very toxic to aquatic life.				
Long-term (chronic) aquatic haza n-Heptane	ard : Very toxic to aquatic life with long lasting effects.				
ECTION 13: Disposal consideration	ons				
The information in this SDS pert	ains 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 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.				
CTION 14: Transport information	n				
The shipping descriptions sho shipments in non-bulk packag	own here are for bulk shipments only, and may not apply to les (see regulatory definition).				
Goods Regulations for additiona etc.) Therefore, the information	c or international mode-specific and quantity-specific Dangerous I shipping description requirements (e.g., technical name or names, shown here, may not always agree with the bill of lading shipping shpoints for the material may vary slightly between the SDS and the				
	US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION) UN1206, HEPTANES, 3, II, MARINE POLLUTANT, (N-HEPTANE)				
IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS) UN1206, HEPTANES, 3, II, (-4 °C c.c.), MARINE POLLUTANT, (N-HEPTANE)					
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IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION) UN1206, HEPTANES, 3, II ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE)) UN1206, HEPTANES, 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS, (N-HEPTANE) **RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))** 33, UN1206, HEPTANES, 3, II, ENVIRONMENTALLY HAZARDOUS, (N-HEPTANE) ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS) UN1206, HEPTANES, 3, II, ENVIRONMENTALLY HAZARDOUS, (N-HEPTANE) Maritime transport in bulk according to IMO instruments **SECTION 15: Regulatory information National legislation** SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids) Aspiration hazard Skin corrosion or irritation Specific target organ toxicity (single or repeated exposure) : This material does not contain any components with a CERCLA CERCLA Reportable Quantity RQ. SARA 302 Reportable : This material does not contain any components with a SARA 302 RQ. Quantity SARA 302 Threshold : This material does not contain any components with a section Planning Quantity 302 EHS TPQ. SARA 304 Reportable : This material does not contain any components with a section Quantity 304 EHS RQ.

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SARA 313 Components :	This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.		
Clean Air Act			
Potential Class II O	oduct neither contains, nor was manufactured with a Class I or ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR opt. A, App.A + B).		
This product does not contain ar Act Section 112 (40 CFR 61).	ny hazardous air pollutants (HAP), as defined by the U.S. Clean <i>i</i>		
This product does not contain ar Accidental Release Prevention (ny chemicals listed under the U.S. Clean Air Act Section 112(r) fo 40 CFR 68.130, Subpart F).		
This product does not contain ar Intermediate or Final VOC's (40	ny chemicals listed under the U.S. Clean Air Act Section 111 SO CFR 60.489).		
Pennsylvania Right To Know			
	n-Heptane - 142-82-5		
California Prop. 65 : Components	This product, as shipped, does not contain any carcinogens or reproductive toxins presently known by the State of California to cause cancer or reproductive toxicity at a level of exposure subject to the requirements of California Proposition 65.		
Notification status Europe REACH	: This product is in full compliance according to REACH		
	regulation 1907/2006/EC.On the inventory, or in compliance with the inventoryOn or in compliance with the active portion of the		
Europe REACH Switzerland CH INV United States of America (USA)	regulation 1907/2006/EC. On the inventory, or in compliance with the inventory		
Europe REACH Switzerland CH INV United States of America (USA) TSCA	 regulation 1907/2006/EC. On the inventory, or in compliance with the inventory On or in compliance with the active portion of the TSCA inventory All components of this product are on the Canadian 		

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	CPCr K-RE permi incluc	em through an ACH regulation tted if the Kore led on CPChen	exempted from registration by Only Representative according to s. Importation of this product is an Importer of Record was n's notifications or if the Importer of notified the substances.
Philippines P Faiwan TCSI China IECSC	: On th	e inventory, or	in compliance with the inventory in compliance with the inventory in compliance with the inventory
ION 16: Oth	er information	••	
NFPA Classi			
	Fire Hazard: 3 Reactivity Haz		2 0
Further infor	mation		\sim
egacy SDS I	Number : 26960		
previous vers	ions. on in this SDS pertains only to the	product as shi	pped.
Drevious vers The information The information of ormation ar guidance for so not to be cons	ions. on in this SDS pertains only to the on provided in this Safety Data Sh nd belief at the date of its publicati safe handling, use, processing, sto sidered a warranty or quality spec	product as shi eet is correct to on. The inform orage, transpor fication. The in	pped. o the best of our knowledge, ation given is designed only as a tation, disposal and release and is formation relates only to the
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SAFETY DATA SHEET

TrusTec[™] n-Heptane Primary Reference Fuel (PRF)

Version 1.11

Revision Date 2022-11-04

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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