

**Di-tert-Nonyl Polysulfide (TNPS 537)**

Version 1.7

Revision Date 2016-06-06

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

Product Name : Di-tert-Nonyl Polysulfide (TNPS 537)
Material : 1104364, 1024830, 1024829, 1024547, 1024554, 1024551,
1024552, 1024550, 1024549, 1024553, 1024548, 1024555,
1024546

Use : Presulfiding Agent, Lubricant Additive

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

Form: Liquid **Physical state:** Liquid **Color:** Yellow to yellow-orange **Odor:** Mildly unpleasant

OSHA Hazards : No OSHA Hazards

Classification

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:

Not a hazardous substance or mixture.

Labeling

Not a hazardous substance or mixture.

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 : t-Nonyl polysulfide
Di-tert-nonyl polysulfide
tertiary-Nonyl polysulfide
Petroleum Oil, TNPS 537

Molecular formula : C₁₈H₃₈S_x (x= average of 5)

Component	CAS-No.	Weight %
Di-t-nonyl Polysulfide	68425-16-1	100

SECTION 4: First aid measures

General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance.

If inhaled : If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician.

In case of eye contact : Immediately flush eye(s) with plenty of water. 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.

SECTION 5: Firefighting measures

Flash point : 136 - 144 °C (277 - 291 °F)
Method: PMCC

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Autoignition temperature	: 240 °C (464 °F)
Unsuitable extinguishing media	: High volume water jet.
Special protective equipment for fire-fighters	: Wear self-contained breathing apparatus for firefighting if necessary.
Further information	: Standard procedure for chemical fires. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Fire and explosion protection	: Normal measures for preventive fire protection.
Hazardous decomposition products	: Carbon oxides. Sulfur oxides.

SECTION 6: Accidental release measures

Personal precautions	: Use personal protective equipment.
Environmental precautions	: 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	: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

SECTION 7: Handling and storage**Handling**

Advice on safe handling	: Do not breathe vapors/dust. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations.
Advice on protection against fire and explosion	: Normal measures for preventive fire protection.

Storage

Requirements for storage areas and containers	: Keep container tightly closed in a dry and well-ventilated place. Electrical installations / working materials must comply with the technological safety standards.
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SECTION 8: Exposure controls/personal protection**Engineering measures**

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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 Dusts and Mists / P100. 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: Protective suit. Safety shoes. |
| 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 | : | Yellow to yellow-orange |
| Odor | : | Mildly unpleasant |

Safety data

- | | | |
|-----------------------|---|---|
| Flash point | : | 136 - 144 °C (277 - 291 °F)
Method: PMCC |
| Lower explosion limit | : | No data available |
| Upper explosion limit | : | No data available |

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Oxidizing properties	: No
Autoignition temperature	: 240 °C (464 °F)
Molecular formula	: C ₁₈ H ₃₈ S _x (x= average of 5)
Molecular weight	: Varies
pH	: Not applicable
Melting point/range	: < -20.0 °C (< -4.0 °F)
Freezing point	< -20.0 °C (< -4.0 °F)
Boiling point/boiling range	: 208.3 - 263.8 °C (406.9 - 506.8 °F) at 99.80 kPa Decomposes
Vapor pressure	: 0.00 Pa at 25 °C (77 °F)
Relative density	: 1.03 at 20.0 °C (68.0 °F)
Water solubility	: 0.154 MG/L at 20 °C (68 °F)
Partition coefficient: n-octanol/water	: log Pow: > 5.2 at 20 °C (68 °F) Method: OECD Test Guideline 123
Solubility in other solvents	: Medium: Hydrocarbons Soluble Medium: Water Insoluble
Viscosity, kinematic	: 129 mm ² /s at 20 °C (68 °F) 34.4 mm ² /s at 40 °C (104 °F)
Relative vapor density	: No data available
Evaporation rate	: < 1

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 : No data available.
Hazardous decomposition products : Carbon oxides
Sulfur oxides

Other data : No decomposition if stored and applied as directed.

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

Di-t-nonyl Polysulfide : LD50: 19,550 mg/kg
Species: Rat
Method: OECD Test Guideline 401

Acute inhalation toxicity

Di-t-nonyl Polysulfide : LC50: > 15.5 mg/l
Exposure time: 4 h
Species: Rat
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Skin irritation

Di-t-nonyl Polysulfide : slight irritation. Information given is based on data obtained from similar substances.

Eye irritation

Di-t-nonyl Polysulfide : slight irritation. Information given is based on data obtained from similar substances.

Sensitization

Di-t-nonyl Polysulfide : Did not cause sensitization on laboratory animals.
Information given is based on data obtained from similar substances.

Repeated dose toxicity

Di-t-nonyl Polysulfide : Species: Rat, Male and female
Sex: Male and female
Application Route: oral gavage
Dose: 50, 250, 1000 mg/kg
Exposure time: (28 Days)
Number of exposures: daily
NOEL: 1,000 mg/kg
Method: OECD Test Guideline 407
No adverse effects expected
Information given is based on data obtained from similar substances.

Reproductive toxicity

Di-t-nonyl Polysulfide : No adverse effects expected

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Developmental Toxicity

Di-t-nonyl Polysulfide : Species: Rat
Application Route: oral gavage
Dose: 50, 250, 1000 mg/kg/bw
Number of exposures: daily
Test period: GD6-15
Method: OECD Guideline 414
NOAEL Teratogenicity: 1,000 mg/kg
NOAEL Maternal: 1,000 mg/kg
Animal testing did not show any effects on fetal development.
Information given is based on data obtained from similar substances.

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Further information : No data available.

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

Di-t-nonyl Polysulfide : > 100 mg/l
Exposure time: 96 h
Species: Danio rerio (Zebra Fish)
static test Method: OECD Test Guideline 203
Information given is based on data obtained from similar substances.
No toxicity at the limit of solubility.

Toxicity to daphnia and other aquatic invertebrates

Di-t-nonyl Polysulfide : NOEC: < 0.1 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
static test Method: Directive 67/548/EEC, Annex V, C.2.
No toxicity at the limit of solubility.
Information given is based on data obtained from similar substances.

Toxicity to algae

Di-t-nonyl Polysulfide : NOEC: < 0.08 mg/l
Exposure time: 72 h
Species: Pseudokirchneriella subcapitata (green algae)
Growth inhibition Method: OECD Test Guideline 201
No toxicity at the limit of solubility.
Information given is based on data obtained from similar substances.

Toxicity to bacteria

Di-t-nonyl Polysulfide : NOEC: 10,000 mg/l
Exposure time: 72 h

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Species: *Pseudomonas putida*

Growth inhibition

Elimination information (persistence and degradability)

Additional advice : No data available

Environmental fate and pathways

Biodegradability : This material is not expected to be readily biodegradable.

Chronic aquatic toxicity

Di-t-nonyl Polysulfide : May cause long lasting harmful effects to aquatic life.

Results of PBT assessment

Di-t-nonyl Polysulfide : No conclusion can be reached based on available information. Further testing proposed.

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 : Do not dispose of waste into sewer. 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.

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)

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

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IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)

UN3334, AVIATION REGULATED LIQUID, N.O.S., (DI-T-NONYL POLYSULFIDE), 9, III

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

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

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

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

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

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

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

SECTION 15: Regulatory information**National legislation****SARA 311/312 Hazards** : No SARA Hazards

CERCLA Reportable Quantity : This material does not contain any components with a CERCLA RQ.

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 : 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.

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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).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

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).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM Intermediate or Final VOC's (40 CFR 60.489).

US State Regulations**Pennsylvania Right To Know**

: No components are subject to the Pennsylvania Right to Know Act.

New Jersey Right To Know

: No components are subject to the New Jersey Right to Know Act.

**California Prop. 65
Ingredients**

: This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

Notification status

Europe REACH	: On the inventory, or in compliance with the inventory
United States of America TSCA	: On the inventory, or in compliance with the inventory
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	: Not 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

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SECTION 16: Other information

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

**Further information**

Legacy SDS Number : 168730

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 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	TWA	Time Weighted Average

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	Substances in China		
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%		