

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

Version 1.10

Revision Date 2021-09-30

**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

Local : See Company Address

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

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

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

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****GHS Classification and labelling according to JIS Z 7252-2019 and JIS Z 7253-2019 (GHS 2015)****Classification**

: Skin sensitization, Category 1

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**Labeling**

Symbol(s)

:



Signal Word

: Warning

Hazard Statements

: H317: May cause an allergic skin reaction.

Precautionary Statements

: **Prevention:**  
 P261: Avoid breathing dust/fume/gas/mist/vapors/spray.  
 P280: Wear protective gloves.

**Response:**  
 P302 + P352: IF ON SKIN: Wash with plenty of water.  
 P333 + P313: If skin irritation or rash occurs: Get medical advice/ attention.  
 P362 + P364: Take off contaminated clothing and wash it before reuse.

**Disposal:**  
 P501: Dispose of contents/ container to an approved waste disposal plant.

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

Synonyms

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

Molecular formula

: C<sub>18</sub>H<sub>38</sub>S<sub>x</sub> (x= average of 5)

Chemical name	CAS-No.	Concentration	ENCS/ISHL number
Di-t-nonyl Polysulfide	68425-16-1	100%	2-473

**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 skin contact

: If on skin, rinse well with water.

In case of eye contact

: Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

If swallowed

: Keep respiratory tract clear. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious

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person. If symptoms persist, call a physician.

**SECTION 5: Firefighting measures**

Flash point	:	136-144°C (277-291°F) Method: PMCC
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 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	:	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 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. Dispose of rinse water in accordance with local and national regulations. Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.

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**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.

Use : Presulfiding Agent, Lubricant Additive

**SECTION 8: Exposure controls/personal protection****Engineering measures**

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

**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:. Use a positive pressure, air-supplying respirator 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:. Remove and wash contaminated clothing before re-use. Skin should be washed after contact. Footwear protecting against chemicals.

Hygiene measures : Wash hands before breaks and at the end of workday.

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**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

Oxidizing properties : No

Autoignition temperature : 240°C (464°F)

Molecular formula : C<sub>18</sub>H<sub>38</sub>S<sub>x</sub> (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 : 0.063 µg/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<sup>2</sup>/s

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at 20°C (68°F)  
 34.4 mm<sup>2</sup>/s  
 at 40°C (104°F)

Relative vapor density : No data available

Evaporation rate : < 1

**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** : Further information: No decomposition if stored and applied as directed.

**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  
 Sex: male and female  
 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

**Acute dermal toxicity**

Di-t-nonyl Polysulfide : LD50: > 2,000 mg/kg  
 Species: Rabbit  
 Sex: male and female

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Method: OECD Test Guideline 402  
Information given is based on data obtained from similar substances.

**Skin irritation**

Di-t-nonyl Polysulfide : slight irritation.

**Eye irritation**

Di-t-nonyl Polysulfide : No eye irritation

**Sensitization**

Di-t-nonyl Polysulfide : May cause sensitization by skin contact.

**Repeated dose toxicity**

Di-t-nonyl Polysulfide : Species: Rat, female  
Sex: female  
Application Route: oral gavage  
Dose: 500, 1000 mg/kg  
Exposure time: 14 d  
Number of exposures: daily  
No significant adverse effects were reported

Species: Rat, male  
Sex: male  
Application Route: oral gavage  
Dose: 100, 300, 1000 mg/kg  
Exposure time: 90 d  
Number of exposures: daily  
NOEL: 100 mg/kg  
Method: OECD Test Guideline 408  
Target Organs: Kidney, Liver, spleen

Species: Rat, female  
Sex: female  
Application Route: oral gavage  
Dose: 100, 300, 1000 mg/kg  
Exposure time: 90 d  
Number of exposures: daily  
NOEL: 1,000 mg/kg  
Method: OECD Test Guideline 408  
Target Organs: Liver, spleen

**Genotoxicity in vitro**

Di-t-nonyl Polysulfide : Test Type: Ames test  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative

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Test Type: Chromosome aberration test in vitro  
 Test system: Human lymphocytes  
 Metabolic activation: with and without metabolic activation  
 Method: OECD Guideline 473  
 Result: negative

Test Type: Mouse lymphoma assay  
 Metabolic activation: with and without metabolic activation  
 Method: OECD Test Guideline 490  
 Result: negative

**Reproductive toxicity**

Di-t-nonyl Polysulfide : No adverse effects expected  
 Information given is based on data obtained from similar substances.

**Developmental Toxicity**

Di-t-nonyl Polysulfide : Species: Rat  
 Application Route: oral gavage  
 Dose: 100, 300, 1000 mg/kg  
 Number of exposures: daily  
 Test period: GD 6-20  
 Method: OECD Guideline 414  
 NOAEL Teratogenicity: 1,000 mg/kg  
 NOAEL Maternal: 1,000 mg/kg

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**Further information** : No data available.

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

Di-t-nonyl Polysulfide : LC50: > 100 mg/l  
 Exposure time: 96 h  
 Species: Danio rerio (Zebra Fish)  
 static test Method: OECD Test Guideline 203  
 No toxicity at the limit of solubility.  
 Information given is based on data obtained from similar substances.

**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**



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Di-t-nonyl Polysulfide : ErL50: > 0.78 µg/l  
Exposure time: 72 h  
Species: Raphidocelis subcapitata (freshwater green alga)  
Growth inhibition Method: OECD Test Guideline 201

**Toxicity to bacteria**

Di-t-nonyl Polysulfide : NOEC: 10,000 mg/l  
Exposure time: 72 h  
Species: Pseudomonas putida  
Growth inhibition  
Information given is based on data obtained from similar substances.

**Toxicity to fish (Chronic toxicity)**

Di-t-nonyl Polysulfide : NOEC: Not determinable  
Exposure time: 32 d  
Species: Pimephales promelas (fathead minnow)  
semi-static test  
Method: OECD Test Guideline 210  
Information given is based on data obtained from similar substances.

**Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)**

Di-t-nonyl Polysulfide : NOEC: Not determinable  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
semi-static test  
Method: OECD Test Guideline 211  
Information given is based on data obtained from similar substances.

**Biodegradability**

Di-t-nonyl Polysulfide : aerobic  
0 %  
Testing period: 28 d  
Method: OECD Test Guideline 301F  
Information given is based on data obtained from similar substances.

**Bioaccumulation**

Di-t-nonyl Polysulfide : Species: Cyprinus carpio (Carp)  
Exposure time: 14 d  
Method: OECD Test Guideline 305  
Does not bioaccumulate.  
Information given is based on data obtained from similar substances.

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**Mobility**

Di-t-nonyl Polysulfide : No data available

**Results of PBT assessment**

Di-t-nonyl Polysulfide : This substance is not considered to be persistent, bioaccumulating and toxic (PBT)., This substance is not considered to be very persistent and very bioaccumulating (vPvB).

**Additional ecological information**

: This material is not expected to be harmful to aquatic organisms.

**Ecotoxicology Assessment****Short-term (acute) aquatic hazard**

Di-t-nonyl Polysulfide : This material is not expected to be harmful to aquatic organisms.

**Long-term (chronic) aquatic hazard**

Di-t-nonyl Polysulfide : This material is not expected to be harmful to aquatic organisms.

**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

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TRANSPORTATION BY THIS AGENCY.

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

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

**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.

**Maritime transport in bulk according to IMO instruments**

**SECTION 15: Regulatory information****National legislation****Poisonous and Deleterious Substances Control Law**

: Not applicable

**Industrial Safety and Health Law**

Substances Subject to be : Not applicable

Notified Names

Enforcement Order of the :

Industrial Safety and Health

Law - Attached table 1

(Dangerous Substances)

Harmful Substances Required : Not applicable

Permission for Manufacture

Hazardous Substances : Not applicable

Subject to Labeling

Requirements

Ordinance on Prevention of : Not applicable

Organic Solvent Poisoning

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Ordinance on Prevention of Lead Poisoning  
Harmful Substances Prohibited from Manufacture  
Ordinance on Prevention of Hazards Due to Specified Chemical Substances  
Ordinance on Prevention of Tetraalkyl Lead Poisoning

: Not applicable  
: Not applicable  
: Not applicable  
: Not applicable  
: Not applicable  
: Not applicable

Substances Prevented From Impairment of Health Listed

: Not applicable

**Chemical Substance Control Law**

: Not applicable for Specified Chemical Substance, Monitoring Chemical Substance and Priority Assessment Chemical Substance.

**Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof**

: Not applicable

**Other regulations**

Fire Service Law

: Flammable liquids  
Type 3 petroleums  
Hazardous rank III

High Pressure Gas Safety Act

: Not applicable

Explosive Control Law

: Not applicable

Vessel Safety Law

: Not regulated as a dangerous good

Aviation Law

: Miscellaneous dangerous substances and articles (Article 194 of The Enforcement Rules of Aviation Law and its Attached Table 1)

**Notification status**

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

Other AIIC : 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 : A substance(s) in this product was not registered, notified to be registered, or exempted from registration

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by CPChem according to K-REACH regulations. Importation or manufacture of this product is still permitted provided the Korean Importer of Record has themselves notified the substance or the exported amount does not exceed the minimum threshold quantity of the non-registered substance(s).

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

**SECTION 16: Other information****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 Substances in China	TWA	Time Weighted Average

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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%		