

GPS Safety Summary

Substance Name:

Polysulfides, di-tert-Butyl

1. General Statement

Polysulfides, di-tert-Butyl is a colourless liquid organic compound, with a low viscosity and a slight characteristic odour. It is used as an additive in industrial lubricants. Products containing polysulfides, di-tert-Butyl are commercially available to industrial customers only.

Causing skin sensitization and very toxic to aquatic life with long lasting effects, this substance must be carefully handled and stored to preserve human health and environment.

2. Chemical Identity

Name:	Polysulfides, di-tert-Butyl
Brand name:	TPS® 44
Chemical name (IUPAC):	/
CAS number:	68937-96-2
EC number:	273-103-3
Molecular formula:	Not applicable (UVCB* substance)
Structure:	Not applicable (UVCB substance)

3. Use and applications

TPS 44 is an extreme pressure additive for metal working fluids and industrial lubricants (gear oils). TPS 44 is soluble in mineral oils and in synthetic base oils and most common solvents. It is insoluble in water.

4. Physical / Chemical properties

Property	Value
Physical state	Liquid at 20°C and 1013 hPa
Colour	Clear yellow
Odour	Slight, characteristic
Density	0.9995 at 20°C
Vapour pressure	0.156 hPa at 20°C
Freezing / boiling points	-11°C / 186°C at 1013hPa
Flammability	Combustible liquid
Flash point	89°C
Self-ignition temperature	225°C at 1013 hPa
Explosive properties	Not explosive due to chemical structure

* UVCB : *Unknown or Variable composition, Complex reaction products or Biological materials*

Oxidizing properties	Not oxidising due to chemical structure
Water solubility	7 mg/L at 20°C
Octanol-water partition coefficient (Log K _{ow})	5.6 at 20°C

5. Health Effects

Effect Assessment	Result
Acute Toxicity Oral / dermal	Of low toxicity by oral and dermal routes
Irritation / corrosion Skin / eye	Irritating to the skin and slightly irritating to the eyes.
Sensitisation	Skin sensitizer
Toxicity after repeated exposure Oral / inhalation / dermal	Effects on the blood were observed following repeated oral exposure with the substance
Genotoxicity / Mutagenicity	Not genotoxic
Carcinogenicity	No data available
Reproductive / Developmental Toxicity	Studies with the substance and with an analogue substance did not suggest toxic effects on the fertility and the development

6. Environmental Effects

Effect Assessment	Result
Aquatic Toxicity	Very toxic to aquatic organisms

Fate and behaviour	Result
Biodegradation	Not readily biodegradable
Bioaccumulation potential	No experimental data available to assess its bioaccumulation potential
PBT / vPvB conclusion	Further assessment is needed

7. Exposure

7.1 Human health

The most likely route of human exposure (workers) to polysulfides, di-tert-Butyl is through inhalation and/or to a much lesser extent dermal contact. In industrial settings, ingestion is not an anticipated route of exposure.

The probability of exposure to workers is expected to be low because on manufacturing, formulation and application site, enclosed controlled equipments are used and the product is transported in well sealed containers. However, workers may be exposed during (un)loading, mixing, sampling, analysis and maintenance operations.

The exposure must be kept as minimum as possible by the use of appropriate risk management measures as suitable collective and personal protective equipment, good industrial hygiene practices and risk communication through appropriate training of workers.

For more information about conditions recommended, refer to the extended safety data sheet in Europe.

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7.2 Environment

Based on its physico-chemical properties, polysulfides, di-tert-butyl is slightly soluble in water and volatilises significantly from the aquatic compartment. The substance is not readily biodegradable and it is expected to strongly adsorb on soil and sediment particles. Its bioaccumulation potential can not be assessed as no experimental data are currently available.

Releases of this product to sewage, drainage systems and water bodies must be avoided under normal use conditions: collection of waste oil via the recycling programmes in place in most countries must be organised. Spillage should be quickly collected in the event of an accidental release. More information about release measures and accidental release measures are available in the extended safety data sheet.

8. Risk Management recommendations

Human health measures	
Organizational	Implement a good basic standard of occupational hygiene. Ensure operatives are well informed of the hazards and trained to minimize exposures. Hygiene measures must be respected and incompatible materials must be clearly identified.
Protection	Eye/Face protection: Safety glasses
	Skin protection: At the workplace: combination with delayed penetration. Intervention at incident: anti-acid suit.
	Hand protection: Splash contact, intermittent and prolonged: gloves nitrile rubber (complying with EN 374), glove thickness: 0.75 mm.
	Respiratory protection: In case of insufficient ventilation, wear suitable respiratory equipment.
Engineering controls	Ensure sufficient air exchange and/or exhaust in work area. Ensure that eyewash stations and safety showers are close to workstation locations.
Environmental protective measures	
Do not release into the environment. Do not let product enter drains. For recovery, pump into a labelled inert emergency tank. Absorb the remainder with an inert absorbent material. Destroy by incineration in accordance with local and national regulations.	

9. Regulatory Information / Classification and Labelling

9.1 Regulatory Information



This substance has been registered under:

- EU Regulation EC 1907/2006 (REACH)

This substance is listed on inventories in the USA, in Canada, in Australia, in New Zealand, in Korea, in Philippines and in China.

9.2 Classification and labelling

Under GHS substances are classified according to their physical, health, and environmental hazards. The hazards are communicated via specific labels and the safety data sheet. GHS attempts to standardize hazard communication so that the intended audience (workers, consumers, transport workers, and emergency responders) can better understand the hazards of the chemicals in use. Substances registered for REACH are classified according to CLP (EC) 1272/2008, implementation of the GHS in the European Union.

Classification	
According to REGULATION (EC) no 1272/2008: <ul style="list-style-type: none">– Skin sensitization, cat. 1B– Acute aquatic toxicity, cat. 1 - M factor = 1– Chronic aquatic toxicity cat. 1 - M factor = 1	
Signal Word	
Warning	
Pictogram	
– GHS07: Exclamation mark	
– GHS09: Environment	
Hazard statement	
<ul style="list-style-type: none">– H317: May cause an allergic skin reaction– H410: Very toxic to aquatic life with long lasting effects	
Additional classification according to Globally Harmonized System (GHS)	
Flammable liquid, cat. 4 (H227: Combustible liquid) Skin irritation, cat. 3 (H316: Cause mild skin irritation)	

10. Contact Information within Company

For further information on this substance or product safety summary in general, please contact:

- Arkema web site : on the product page, an actualised contact name is provided
<http://www.arkema.com>
- **ICCA portal where the GPS Safety Summary is posted:**
<http://www.icca-chem.org/en/Home/ICCA-initiatives/global-product-strategy/>

11. Date of Issues / Revision

- Date of issue: 2014/12/03
- Date of revision:

12. Disclaimer

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