

GPS Safety Summary

Substance Name:

Polysulfides, di-tert-dodecyl

1. General Statement

Polysulfides, di-tert-dodecyl is a colourless liquid organic compound, with a slight characteristic odour. It is used as an extreme pressure additive for lubricants. Products containing polysulfides, di-tert-dodecyl are commercially available to industrial and professional workers only.

May cause long lasting harmful effects to aquatic life, this substance must be carefully handled and stored to preserve human health and environment.

2. Chemical Identity

Name:	Polysulfides, di-tert-dodecyl
Brand names:	TPS® 20, TPS® 32
Chemical name (IUPAC):	/
CAS number(s):	68425-15-0
EC number:	270-335-7
Molecular formula:	Not applicable (UVCB* substance)
Structure:	Not applicable (UVCB substance)

3. Use and applications

Polysulfides di tert-dodecyl are extreme-pressure additives for lubricants. The grade TPS 32 is an additive for straight and soluble cutting oils used with non copper alloys. Its tertiary dodecyl chain being extremely stable. TPS 32 has a high active sulphur content and corrodes copper.

The grade TPS 20 is an additive for:

- neat and soluble cutting oils used with copper and copper alloys
- cold rolling oils
- gear oils and EP greases

TPS 20 does not corrode copper.

4. Physical / Chemical properties

Property	Value
Physical state	Liquid at 20°C and 1013 hPa
Colour	Yellow to colourless
Odour	Slight, characteristic

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

Density	1,0028 at 20°C
Vapour pressure	4.17E-06 hPa at 20°C
Freezing / boiling points	-48°C / 193.7°C at 1013hPa
Flammability	Not flammable based on flash point
Flash point	144°C
Self-ignition temperature	240°C at 1013 hPa
Explosive properties	Not explosive due to chemical structure
Oxidizing properties	Not oxidising due to chemical structure
Water solubility	<0.154 mg/L at 20°C
Octanol-water partition coefficient (Log K _{ow})	> 12 at 20°C

5. Health Effects

Effect Assessment	Result
Acute Toxicity Oral / inhalation / dermal	Of low toxicity by oral, dermal and inhalation routes
Irritation / corrosion Skin / eye/ respiratory tract	Slightly irritating to the skin and eyes. Not irritating for the respiratory tract
Sensitisation	Not a skin sensitiser
Toxicity after repeated exposure Oral / inhalation / dermal	An oral study did not suggest a significant systemic toxicity following repeated exposure
Genotoxicity / Mutagenicity	Not genotoxic
Carcinogenicity	No data available
Reproductive / Developmental Toxicity	Studies with the substance did not suggest toxic effects on the fertility and the development

6. Environmental Effects

Effect Assessment	Result
Aquatic Toxicity	No effect up to the limit of solubility for the acute tests.

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-dodecyl is through inhalation and/or to a much lesser extent dermal contact. In industrial and professional settings, ingestion is not an anticipated route of exposures.

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 of batch processes. 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.

7.2 Environment

Based on its physico-chemical properties, polysulfides, di-tert-dodecyl is not soluble in water. The substance is not readily biodegradable and it is expected to strongly adsorb on 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	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: #e0f7fa;">Eye/Face protection:</td> <td>Safety glasses.</td> </tr> <tr> <td style="background-color: #e0f7fa;">Skin protection:</td> <td>At the workplace: combination with delayed penetration. Intervention at incident: anti-acid suit.</td> </tr> <tr> <td style="background-color: #e0f7fa;">Hand protection:</td> <td>Splash contact, intermittent and prolonged: gloves nitrile rubber (complying with EN 374), glove thickness: 0.75 mm.</td> </tr> <tr> <td style="background-color: #e0f7fa;">Respiratory protection:</td> <td>In case of insufficient ventilation, wear suitable respiratory equipment. High concentrations or prolonged activity: self contained breathing apparatus.</td> </tr> </table>	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. High concentrations or prolonged activity: self contained breathing apparatus.
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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:	
– Chronic aquatic toxicity cat. 4	
Signal Word	
– No signal word	
Pictogram	
– No pictogram	
Hazard statement	
– H413: May cause long lasting harmful effects to aquatic life.	
Additional classification according to Globally Harmonized System (GHS)	
Skin irritation: Category 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: 2014/12/15

- Date of revision:

12. Disclaimer

The information contained in this paper is intended as advice only and whilst the information is provided in utmost good faith and has been based on the best information currently available, is to be relied upon at the user's own risk.

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