

Safety Data Sheet

PETRONAS HYDRAULIC ZF 46

Revision Date: 30/3/2025

version 1



SECTION 1: IDENTIFICATION OF THE HAZARDOUS CHEMICAL AND OF THE SUPPLIER

1.1. PRODUCT IDENTIFIER

MIXTURE IDENTIFICATION:

TRADE NAME: PETRONAS HYDRAULIC ZF 46

Trade code: 77558

1.2. RECOMMENDED USE OF THE CHEMICAL AND RESTRICTIONS ON USE

RECOMMENDED USE:

Lubricant for hydraulic system.

USES ADVISED AGAINST:

This product should not be used for other purposes than those specified without the advice of an expert.

1.3. DETAILS OF THE SUPPLIER

COMPANY:

PETRONAS LUBRICANTS (INDIA) PVT. LTD.

Plot no : E-1/2, Chavne Village, Addl. Patalganga MIDC,
Rasayani, Panvel, Dt. Raigad – 410 220, Maharashtra.

Tel - +(91) 2192-352700.

COMPETENT PERSON FOR SAFETY DATA OF PRODUCT:

Information on the legislation compliance info-regulation.eu@pli-petronas.com (english)

1.4. EMERGENCY PHONE NUMBER

Emergency Answer Service (24h/7d) :

+65 3158 1198

000 800 100 7479 (access from India only)

SECTION 2: HAZARD IDENTIFICATION

2.1. CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

Short-term (acute) aquatic hazard - Category 3 Harmful to aquatic life

Long-term (chronic) aquatic hazard - Category 3 Harmful to aquatic life with long lasting effects.

ADVERSE PHYSICOCHEMICAL, HUMAN HEALTH AND ENVIRONMENTAL EFFECTS:

No other hazards

2.2. LABEL ELEMENTS

Hazard statements

H402 Harmful to aquatic life

H412 Harmful to aquatic life with long lasting effects.

Precautionary statements

P273 Avoid release to the environment.

P501 Dispose of contents/container in accordance with local, regional, national,
international regulation

Safety Data Sheet
PETRONAS HYDRAULIC ZF 46

Revision Date: 30/3/2025
version 1



2.3. OTHER HAZARDS WHICH DO NOT RESULT IN A CLASSIFICATION

No other hazards

SECTION 3: COMPOSITION & INFORMATION OF THE INGREDIENTS OF THE HAZARDOUS CHEMICAL

3.1. SUBSTANCES

3.2. MIXTURES

Severely refined mineral and/or synthetic oils, additives.

Hazardous components within the meaning of the "GHS" regulation and related classification:

Table with 4 columns: QTY, NAME, IDENT. NUMB., CLASSIFICATION. Row 1: 0.3-<0.5 %, 2,6-di-tert-butylphenol, CAS:128-39-2 EC:204-884-0, Skin Irrit. 2, H315; Aquatic Acute 1, H400; Aquatic Chronic 1, H410

H-phrases and list of abbreviations: see heading 16.

SECTION 4: FIRST-AID MEASURES

4.1. DESCRIPTION OF NECESSARY FIRST-AID MEASURES

IN CASE OF INGESTION: Do not induce vomiting to avoid aspiration into the respiratory tracts. Wash out thoroughly the mouth with water. Obtain immediate medical attention.
IN CASE OF EYES CONTACT: Rinse thoroughly with plenty of water for at least 10 minutes keeping eyelids open. Remove contact lenses if this can be done easily. Obtain medical attention in case of development and persistence of pain and redness. In case of contact with hot product, rinse thoroughly with plenty of water to dissipate heat. Obtain immediate medical attention to assess eye conditions and the correct treatment to be practiced.
IN CASE OF SKIN CONTACT: Remove contaminated clothes and shoes and rinse thoroughly with plenty of water and soap.
IN CASE OF INHALATION: Expose affected person to fresh air and obtain medical attention if necessary.

4.2. MOST IMPORTANT SYMPTOMS/EFFECTS, ACUTE AND DELAYED

Refer to section 11.

4.3. INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED, IF NECESSARY

Refer to section 4.1.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. EXTINGUISHING MEDIA

Safety Data Sheet

PETRONAS HYDRAULIC ZF 46

Revision Date: 30/3/2025

version 1



This product has no special fire risk. In case of fire use foam, carbon dioxide, dry chemical powder and water mist.

Cool down with water the containers don't get involved in fire to avoid their possible explosion.

Avoid high pressure water jet. Use water jet only to cool down surfaces exposed to fire.

SUITABLE EXTINGUISHING MEDIA:

Water.

Carbon dioxide (CO₂).

UNSUITABLE EXTINGUISHING MEDIA:

None in particular.

5.2. SPECIAL HAZARDS ARISING FROM THE CHEMICAL

Don't breathe combustion fumes: fire can form harmful compounds.

Do not inhale explosion and combustion gases.

Burning produces heavy smoke.

HAZARDOUS COMBUSTION PRODUCTS: Oxides of carbon, compounds of sulphur, phosphorus, nitrogen and products of incomplete combustion.

5.3. SPECIAL PROTECTIVE ACTIONS FOR FIRE-FIGHTERS

Use suitable breathing apparatus .

Move undamaged containers from immediate hazard area if it can be done safely.

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Avoid ingestion of product. Avoid contact with skin and eyes by wearing appropriate protective clothing. Avoid to breathe fumes and aerosols.

Surfaces on which the product has been spilled may become slippery.

Wear personal protection equipment.

See protective measures under point 7 and 8.

6.2. ENVIRONMENTAL PRECAUTIONS

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

Retain contaminated washing water and dispose it.

In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

6.3. METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP

Avoid flame and/or spark near leak and produced waste. Do not smoke. In case of large spills dike, absorb and shovel up into suitable containers for disposal. Contain small spills with absorbent material. Put dirty material in suitable container. Dispose of dirty material in accordance with local or national regulations.

See also section 8 and 13

Safety Data Sheet
PETRONAS HYDRAULIC ZF 46

Revision Date: 30/3/2025
version 1



SECTION 7: HANDLING AND STORAGE

7.1. PRECAUTIONS FOR SAFE HANDLING

Avoid ingestion. Avoid frequent and prolonged skin contact and contact with eyes. Provide adequate ventilation to avoid mist or aerosol. Don't smoke or use open flames; avoid contact with spark or other sources of ignition. Don't work near open container to avoid high concentration of vapours. Don't eat or drink during use.

7.2. CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Store under cover in the original container securely closed away from heat and sources of ignition. Do not store in the open air. Assure a correct ventilation of premises and the control of possible leak. Keep out of flame or spark and avoid the accumulation of electrostatic charges. Keep out of reach of children and away from food and drink.
Storage class (TRGS 510, Germany): 10
Refer to the uses listed in Section 1.2.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1. CONTROL PARAMETERS

OEL: oil mists - TLV/TWA (8 h) : 5 mg/m3 - TLV/STEL: 10 mg/m3

Predicted No Effect Concentration (PNEC) values

Table with 4 columns: Substance, PNEC Limit, Exposure Route, Exposure Frequency, Remark. Rows include 2,6-di-tert-butylphenol in Fresh Water, Soil, Freshwater sediments, and Marine water sediments.

Derived No Effect Level (DNEL) values

Table with 6 columns: Substance, Worker (Industrial/Professional/General), Consumer, Exposure Route, Exposure Frequency, Remark. Rows include 2,6-di-tert-butylphenol for Human Inhalation and Human Dermal exposure.

Safety Data Sheet
PETRONAS HYDRAULIC ZF 46

Revision Date: 30/3/2025
version 1



6.75 mg/kg Human Oral Long Term, systemic effects

8.2. INDIVIDUAL PROTECTION MEASURES, SUCH AS PERSONAL PROTECTIVE EQUIPMENT (PPE)

TECHNICAL PRECAUTIONS:

Avoid production and diffusion of mist and aerosol with utilization of localized ventilation/aspiration or other required precautions. Adopt all required precaution to avoid product immission in environment (e.g., blasting systems, catch basins, ...).
RESPIRATORY PROTECTION:
None required under normal conditions of use. Use approved full face respirator with organic vapour filter cartridge if the recommended exposure limits are exceeded.
EYE PROTECTION:
Chemical goggles and face shield in case of oil splashes.
PROTECTION FOR HANDS:
Wear suitable gloves (i.e. neoprene, nitrile). Gloves should be changed when they show wear. The kind of gloves and the term of use must be decided from employer with regard to processing and to allow for DPI legislation and glove producer's indications. Wear gloves only with clean hands.
PROTECTION FOR SKIN:
Wear suitable protective clothing (for further information, refer to CEN-EN 14605); change it immediately in case of large contamination and wash it before subsequent use.
Practice reasonable personal cleanliness.
ENVIRONMENTAL EXPOSURE CONTROLS:
Refer to technical precautions and also to sections 6.2, 6.3, 7.2, 12 and 13.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Table with 3 columns: CHEMICAL-PHYSICAL PROPERTY, VALUE, METHOD. Rows include: PHYSICAL STATE (LIQUID), APPEARANCE AND COLOUR (VISCOUS AMBER), ODOUR (NOT RELEVANT), ODOUR THRESHOLD (NOT RELEVANT), PH (N.A.), MELTING POINT / FREEZING POINT (N.A.), INITIAL BOILING POINT AND BOILING RANGE (>300 °C (572 °F)), FLASH POINT (254 °C (489 °F)), EVAPORATION RATE (N.A.), UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS (N.A.), VAPOUR DENSITY (N.A.), VAPOUR PRESSURE (N.A.), DENSITY (0.8482 g/cm3), SOLUBILITY IN WATER (IMMISCIBLE), SOLUBILITY IN OIL (N.A.), PARTITION COEFFICIENT (N.A.), AUTO-IGNITION TEMPERATURE (N.A.), DECOMPOSITION TEMPERATURE (N.A.).

Safety Data Sheet
PETRONAS HYDRAULIC ZF 46

Revision Date: 30/3/2025
version 1



KINEMATIC VISCOSITY AT 100°C	N.A.	
KINEMATIC VISCOSITY AT 40°C	47.36 cSt	(ASTM D445)
EXPLOSIVE PROPERTIES	N.A.	
OXIDIZING PROPERTIES	N.A.	
FLAMMABILITY (SOLID, GAS)	N.A.	

SECTION 10: STABILITY AND REACTIVITY

10.1. REACTIVITY

Read carefully all information provided in other sections of heading 10.

10.2. CHEMICAL STABILITY

The product is stable under normal conditions of use.

10.3. POSSIBILITY OF HAZARDOUS REACTIONS

Not expected under normal conditions of use.

10.4. CONDITIONS TO AVOID

This product must be kept far from heat sources. In any case, avoid exposing product to temperatures above the flash point.

10.5. INCOMPATIBLE MATERIALS

Strong oxidizing agents, hard acids and bases.

10.6. HAZARDOUS DECOMPOSITION PRODUCTS

Oxides of carbon, compounds of sulphur, phosphorus, nitrogen and hydrogen sulfide.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. INFORMATION ON TOXICOLOGICAL EFFECTS

ACUTE TOXICITY:

This product is not classified in this hazard class.
Unlike to cause harm if accidentally swallowed in small doses, though ingestion of large quantities may cause gastro-intestinal effects.

SKIN CORROSION OR IRRITATION:

This product is not classified in this hazard class, but prolonged or repeated skin contact sometimes may cause irritations and dermatitis.

SERIOUS EYE DAMAGE OR EYE IRRITATION:

This product is not classified in this hazard class, but direct contact may cause slight irritations.

RESPIRATORY SENSITIZATION:

This product is not classified in this hazard class.

Safety Data Sheet

PETRONAS HYDRAULIC ZF 46

Revision Date: 30/3/2025

version 1



SKIN SENSITIZATION:

This product is not classified in this hazard class.

GERM CELL MUTAGENICITY:

Based on the available data, the product is not classified under this hazard class.

CARCINOGENICITY:

Based on the available data, the product is not classified under this hazard class.

REPRODUCTIVE TOXICITY:

Based on the available data, the product is not classified under this hazard class.

SPECIFIC TARGET ORGAN TOXICITY (STOT) – SINGLE EXPOSURE:

This product is not classified in this hazard class, but inhalation of mists and vapours generated at elevated temperatures sometimes may cause respiratory irritation.

SPECIFIC TARGET ORGAN TOXICITY (STOT) – REPEATED EXPOSURE:

This product is not classified in this hazard class.

ASPIRATION HAZARD:

This product is not classified in this hazard class.

Toxicological Information of the Preparation

There is no toxicological data available on the mixture. Consider the individual concentration of each component to assess toxicological effects resulting from exposure to the mixture.

Toxicological information on main components of the mixture:

2,6-di-tert-butylphenol

CAS: 128-39-2 a) acute toxicity	LD50 Oral Rat > 5000 mg/kg
	LD50 Skin Rabbit > 10000 mg/kg

SECTION 12: ECOLOGICAL INFORMATION

12.1. TOXICITY

Eco-Toxicological Information:

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

List of Eco-Toxicological properties of the product

No data available

12.2. PERSISTENCE AND DEGRADABILITY

Data on biodegradability of product are not available.

12.3. BIOACCUMULATIVE POTENTIAL

Not available.

12.4. MOBILITY IN SOIL

Safety Data Sheet
PETRONAS HYDRAULIC ZF 46

Revision Date: 30/3/2025
version 1



As the dispersion in the environment may result in contamination of environmental matrix (soil, subsoil, surface water and groundwater), do not release in the environment

12.5. OTHER ADVERSE EFFECTS

vPvB substances: None - PBT substances: None

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. DISPOSAL METHODS

Prevent contamination of soil, drains and surface waters. Do not discharge in sewers, tunnels or water courses. Dispose in accordance with local or national regulations via authorised person/licensed waste disposal contractor.
The used product is to be considered a special waste to be classified in accordance to Directive 2008/98/EC on wastes and related legislation.
Recover, if possible. Send to authorised disposal plants or for incineration under controlled conditions. In so doing, comply with the local and national regulations currently in force.

SECTION 14: TRANSPORT INFORMATION

Not classified as dangerous in the meaning of transport regulations.

14.1. UN NUMBER

N/A

14.2. UN PROPER SHIPPING NAME

ADR-Shipping Name: N/A
IATA-Shipping Name: N/A
IMDG-Shipping Name: N/A

14.3. TRANSPORT HAZARD CLASS(ES)

ADR-Class: N/A
IATA-Class: N/A
IMDG-Class: N/A

14.4. PACKING GROUP, IF APPLICABLE

ADR-Packing Group: N/A
IATA-Packing group: N/A
IMDG-Packing group: N/A

14.5. ENVIRONMENTAL HAZARDS

Toxic ingredients quantity: 0.00
Very toxic ingredients quantity: 0.00
Marine pollutant: No

Safety Data Sheet

PETRONAS HYDRAULIC ZF 46

Revision Date: 30/3/2025

version 1



Environmental Pollutant: N.A.

14.6. TRANSPORT IN BULK ACCORDING TO ANNEX II OF MARPOL73/78 AND THE IBC CODE

N.A.

14.7. SPECIAL PRECAUTIONS FOR USER

Road and Rail (ADR-RID):

ADR exempt: No

ADR-Label: N/A

ADR - Hazard identification number: N/A

ADR-Transport category (Tunnel restriction code): N/A

Air (IATA):

IATA-Passenger Aircraft: N/A

IATA-Cargo Aircraft: N/A

IATA-Label: N/A

IATA-Subsidiary hazards: N/A

IATA-Erg: N/A

IATA-Special Provisions: N/A

Sea (IMDG):

IMDG-Stowage and handling: N/A

IMDG-Segregation: N/A

IMDG-Subsidiary hazards: N/A

IMDG-Special Provisions: N/A

IMDG-EMS: N/A

SECTION 15: REGULATORY INFORMATION

15.1. SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS SPECIFIC FOR THE PRODUCT IN QUESTION

Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Rev. 4th

Regulation (EC) No 1272/2008, with all National and European related legislations, on classification, labelling and packaging of substances and mixtures (CLP)

Regulation (EC) No 1907/2006, with all National and European related legislations, concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

Manufacture, Storage and Import of Hazardous Chemical Rules, 1989, as amended on 2000 (MSIHC)

Hazardous Substances (Classification, Packaging and Labelling) Rules, 2011

Ozone Depleting Substance (R&C) Rules, 2000

SECTION 16: OTHER INFORMATION

The mineral base oils contained in this product are severely refined and are therefore not to be considered as carcinogen. They contain less than 3% DMSO extract according to IP 346 method ("Determination of polycyclic aromatics in unused lubricating base oils and asphaltene free petroleum fractions – Dimethyl sulphoxide extraction refractive index method", Institute of Petroleum, London).

Safety Data Sheet
PETRONAS HYDRAULIC ZF 46

Revision Date: 30/3/2025
version 1



This document was prepared by a competent person who has received appropriate training.
This product must not be used in applications other than recommended without first seeking the advice of the Technical Department.
Date of first edition: 30/03/2025
Revision Date:: 30/03/2025 - version 1
This SDS cancels and replaces any preceding release.

This product must be stored, handled and used according to correct industrial hygienic practices and in compliance with laws in force.
The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be considered as any guarantee of specific properties.

Caption about heading 3 and H-statements:

Table with 3 columns: CODE, DESCRIPTION, HAZARD CLASS AND HAZARD CATEGORY. It lists hazard codes (H315, H400, H410) and their corresponding descriptions and hazard categories.

Legend to abbreviations and acronyms used in the safety data sheet:

- ACGIH: American Conference of Governmental Industrial Hygienists
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
AND: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ATE: Acute Toxicity Estimate
ATEmix: Acute toxicity Estimate (Mixtures)
BCF: Biological Concentration Factor
BEI: Biological Exposure Index
BOD: Biochemical Oxygen Demand
CAS: Chemical Abstracts Service (division of the American Chemical Society).
CAV: Poison Center
CE: European Community
CLP: Classification, Labeling, Packaging.
CMR: Carcinogenic, Mutagenic and Reprotoxic
COD: Chemical Oxygen Demand
COV: Volatile Organic Compound
CSA: Chemical Safety Assessment
CSR: Chemical Safety Report
DMEL: Derived Minimal Effect Level
DNEL: Derived No Effect Level.
DPD: Dangerous Preparations Directive
DSD: Dangerous Substances Directive

Safety Data Sheet

PETRONAS HYDRAULIC ZF 46

Revision Date: 30/3/2025

version 1



EC50: Half Maximal Effective Concentration

ECHA: European Chemicals Agency

EINECS: European Inventory of Existing Commercial Chemical Substances.

ES: Exposure Scenario

GefStoffVO: Ordinance on Hazardous Substances, Germany.

GHS: Globally Harmonized System of Classification and Labeling of Chemicals.

IARC: International Agency for Research on Cancer

IATA: International Air Transport Association.

IATA-DGR: Dangerous Goods Regulation by the "International Air Transport Association" (IATA).

IC50: half maximal inhibitory concentration

ICAO: International Civil Aviation Organization.

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO).

IMDG: International Maritime Code for Dangerous Goods.

INCI: International Nomenclature of Cosmetic Ingredients.

IRCCS: Scientific Institute for Research, Hospitalization and Health Care

KAFH: Keep away from heat

KSt: Explosion coefficient.

LC50: Lethal concentration, for 50 percent of test population.

LD50: Lethal dose, for 50 percent of test population.

LDLo: Leathal Dose Low

N.A.: Not Applicable

N/A: Not Applicable

N/D: Not defined/ Not available

NA: Not available

NIOSH: National Institute for Occupational Safety and Health

NOAEL: No Observed Adverse Effect Level

OSHA: Occupational Safety and Health Administration

PBT: Persistent, Bioaccumulative and Toxic

PGK: Packaging Instruction

PNEC: Predicted No Effect Concentration.

PSG: Passengers

RID: Regulation Concerning the International Transport of Dangerous Goods by Rail.

STEL: Short Term Exposure limit.

STOT: Specific Target Organ Toxicity.

TLV: Threshold Limiting Value.

TWATLV: Threshold Limit Value for the Time Weighted Average 8 hour day. (ACGIH Standard).

vPvB: Very Persistent, Very Bioaccumulative.

WGK: German Water Hazard Class.