

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 Date of issue: 8/7/2018 Version: 1.0

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

1.1. Product identifier

Trade name : P46-8DPE PAG 46 + U/V Dye and Performance Enhancer

Product code : P46-8DPE

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Industrial/Professional use spec : Industrial

For professional use only

Use of the substance/mixture : Polyalkylene Glycol based lubricant with ultraviolet leak detection dye to help detect leaks

in air conditioning systems. Includes performance enhancer to improve system function.

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Holger Christiansen A/S - A Bosch Group Company

Hedelundvej 13 6705 Esbjerg Ø

Danmark www.hc-cargo.com

1.4. Emergency telephone number

Emergency number : Holger Christiansen A/S +45 76 14 33 22 (8:00 – 16:00)

USA PHONE:1-800-373-7542, INT'L: 1-484-951-2432 DGA/AAG ENVIRONMENTAL CONTRACT: DGA4000-048

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute toxicity (oral) Category 4 H302
Acute toxicity (dermal) Category 4 H312
Skin sensitization, Category 1 H317
Reproductive toxicity Category 2 H361
Hazardous to the aquatic environment - Acute Hazard Category 1 H400
Hazardous to the aquatic environment - Chronic Hazard Category 1 H410

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labeling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)







GHS07

GHS08

GHS09

Signal word (CLP) : Warning

Hazardous ingredients : PPG-3 METHYL ETHER; tricresyl phosphates, mixture of isomers, conc o-tricresyl

phosphate>95%; 3,4-epoxycyclohexylmethyl-3,4-epoxycyclohexylcarboxylate

Hazard statements (CLP) : H302+H312 - Harmful if swallowed or in contact with skin.

H317 - May cause an allergic skin reaction.

H361 - Suspected of damaging fertility or the unborn child. H410 - Very toxic to aquatic life with long lasting effects.

EN (English US) 1/8

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Precautionary statements (CLP)

: P201 - Obtain special instructions before use.

P202 - Do not handle until all safety precautions have been read and understood.

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.

P264 - Wash hands, forearms and face thoroughly after handling.

P270 - Do not eat, drink or smoke when using this product.

P272 - Contaminated work clothing should not be allowed out of the workplace.

P273 - Avoid release to the environment.

P280 - Wear protective gloves/protective clothing/eye protection/face protection.

P301+P312 - IF SWALLOWED: Call a POISON CENTRE or doctor if you feel unwell.

P302+P352 - IF ON SKIN: Wash with plenty of water.

P308+P313 - IF exposed or concerned: Get medical advice/attention.

P312 - Call a POISON CENTRE or doctor if you feel unwell.

P321 - Specific treatment (see supplemental first aid instruction on this label).

P330 - Rinse mouth.

P333+P313 - If skin irritation or rash occurs: Get medical advice/attention. P362+P364 - Take off contaminated clothing and wash it before reuse.

P391 - Collect spillage. P405 - Store locked up.

P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards

No additional information available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
PPG-3 METHYL ETHER	(CAS-No.) 37286-64-9	85 - 96.14	Acute Tox. 4 (Oral), H302 Aquatic Chronic 3, H412
2,6-di-tert-butyl-p-cresol	(CAS-No.) 128-37-0 (EC-No.) 204-881-4	1 - 2	Acute Tox. 4 (Oral), H302 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
3,4-epoxycyclohexylmethyl-3,4- epoxycyclohexylcarboxylate	(CAS-No.) 2386-87-0 (EC-No.) 219-207-4	1 - 2	Skin Sens. 1B, H317
tricresyl phosphates, mixture of isomers, conc o- tricresyl phosphate>95%	(CAS-No.) 1330-78-5 (EC-No.) 215-548-8	1 - 1.7	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Repr. 2, H361 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Full text of H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general

: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation

: Allow victim to breathe fresh air. Allow the victim to rest.

First-aid measures after skin contact

: Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.

First-aid measures after eye contact

: Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness

First-aid measures after ingestion

: Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects

: Not expected to present a significant hazard under anticipated conditions of normal use.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

: Foam. Dry powder. Carbon dioxide. Water spray. Sand. Suitable extinguishing media

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

No additional information available

8/7/2018 (Version: 1.0) EN (English US) 2/8

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any

chemical fire.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible.

Collect spillage. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or

smoking and when leaving work. Provide good ventilation in process area to prevent

formation of vapor.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container closed when not in use.

Incompatible products : Strong bases. Strong acids.
Incompatible materials : Sources of ignition. Direct sunlight.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

2,6-di-tert-butyl-p-cresol (128-37-0)		
Belgium	Limit value (mg/m³)	2 mg/m³ (2,6-Di-tert-butyl-p-crésol (vapeur et aérosol); Belgium; Time-weighted average exposure limit 8 h)
France	VME (mg/m³)	10 mg/m³ (2,6-Di-tert-butyl-p-crésol; France; Time-weighted average exposure limit 8 h; VL: Valeur non réglementaire indicative)
United Kingdom	WEL TWA (mg/m³)	10 mg/m³ 2,6-Di-tert-butyl-p-cresol; United Kingdom; Time-weighted average exposure limit 8 h; Workplace exposure limit (EH40/2005)
USA - ACGIH	ACGIH TWA (mg/m³)	2 mg/m³ (Butylated hydroxytoluene (BHT); USA; Time- weighted average exposure limit 8 h; TLV - Adopted Value; Inhalable fraction and vapor)

8.2. Exposure controls

Personal protective equipment:

Avoid all unnecessary exposure.

Hand protection:

The use of gloves impervious to the specific material handled is advised to prevent skin contact. Suggested protective material: Nitrile, 4.5 mil thickness, tested at 3.5 ml and above with no breakthrough time after 240 minutes.

Eye protection:

Chemical goggles or safety glasses

Respiratory protection:

Where there is potential for airborne exposure above the exposure limit an approved air purifying respirator equipped with Type P2 - Medium efficiency particle filters may be used.

: No data available

: Unknown.

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Other information:

Freezing point

Solubility

Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid Appearance : Clear. Color : Yellow-green. Odor : Characteristic. Odor threshold : No data available pН : No data available Relative evaporation rate (butyl acetate=1) : No data available Melting point : No data available

: > 200 °C (calculated value) Boiling point : 174 °C (Closed cup) Flash point Auto-ignition temperature : No data available Decomposition temperature : No data available Flammability (solid, gas) : Non flammable. : No data available Vapor pressure Relative vapor density at 20 °C : No data available Relative density : No data available

Log Pow : No data available

Viscosity, kinematic : 41.4 - 50.6 mm²/s @40°C

Viscosity, dynamic : No data available
Explosive properties : No data available
Oxidizing properties : No data available
Explosion limits : No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Not established.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Oral: Harmful if swallowed.

Acute toxicity (dermal) : Dermal: Harmful in contact with skin.

Acute toxicity (inhalation) : Not classified

ATE CLP (oral)	514.721 mg/kg body weight
ATE CLP (dermal)	1100 mg/kg body weight

2,6-di-tert-butyl-p-cresol (128-37-0)	
LD50 oral rat	890 mg/kg (Rat; OECD 401: Acute Oral Toxicity; Experimental value; >6000 mg/kg bodyweight; Rat)
LD50 dermal rat	> 2000 mg/kg (Rat; Literature study; OECD 402: Acute Dermal Toxicity; >2000 mg/kg bodyweight; Rat; Experimental value)

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

LD50 oral rat	4490 mg/kg (Rat, Oral)
LD50 dermal rat	> 2000 mg/kg (OECD 402: Acute Dermal Toxicity, Rat, Male/female, Experimental value, Dermal)
LD50 dermal rabbit	> 2000 mg/kg (Rabbit, Dermal)
LC50 inhalation rat (mg/l)	> 20 mg/l (4 h, Rat, Inhalation)
Skin corrosion/irritation	: Not classified
Additional information	: Based on available data, the classification criteria are not met
Serious eye damage/irritation	: Not classified
Additional information	: Based on available data, the classification criteria are not met
Respiratory or skin sensitization	: May cause an allergic skin reaction.
Additional information	: Based on available data, the classification criteria are not met
Germ cell mutagenicity	: Not classified
Additional information	: Based on available data, the classification criteria are not met
Carcinogenicity	: Not classified
Additional information	: Based on available data, the classification criteria are not met
2,6-di-tert-butyl-p-cresol (128-37-0)	
IARC group	3 - Not classifiable

IARC group	3 - Not classifiable
Reproductive toxicity	: Suspected of damaging fertility or the unborn child.
Additional information	: Based on available data, the classification criteria are not met
Specific target organ toxicity – single exposure	: Not classified
Additional information	: Based on available data, the classification criteria are not met
Specific target organ toxicity – repeated exposure	: Not classified
Additional information	: Based on available data, the classification criteria are not met
Aspiration hazard	: Not classified
Additional information	: Based on available data, the classification criteria are not met

P46-8DPE PAG 46 + U/V Dye and Performance Enhancer	
Viscosity, kinematic	41.4 - 50.6 mm²/s @40°C
Potential Adverse human health effects and symptoms	: Based on available data, the classification criteria are not met.

12.1. TOXICITY	
Ecology - water	: Toxic to aquatic life.
Aquatic acute	: Very toxic to aquatic life.

Aquatic chronic : Very toxic to aquatic life with long lasting effects.

2,6-di-tert-butyl-p-cresol (128-37-0)	
LC50 fish 1	>= 0.57 mg/l (LC0; EU Method C.1; 96 h; Brachydanio rerio; Semi-static system; Fresh water; Experimental value)
LC50 fish 2	0.199 mg/l (LC50; ECOSAR v1.00; 96 h; Pisces)
EC50 Daphnia 1	0.48 mg/l (EC50; OECD 202: Daphnia sp. Acute Immobilisation Test; 48 h; Daphnia magna; Static system; Fresh water; Experimental value)
EC50 Daphnia 2	0.15 mg/l (NOEC; OECD 202: Daphnia sp. Acute Immobilisation Test; 48 h; Daphnia magna; Static system; Fresh water; Experimental value)

3,4-epoxycyclohexylmethyl-3,4-epoxycyclohexylcarboxylate (2386-87-0)	
LC50 fish 1	24 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Oncorhynchus mykiss, Flow-through system, Fresh water, Experimental value, GLP)
EC50 Daphnia 1	40 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, GLP)
EC50 72h algae [mg/l] 1	> 110 mg/l (OECD 201: Alga, Growth Inhibition Test, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, GLP)

8/7/2018 (Version: 1.0) EN (English US) 5/8

Safety Data Sheet

12.2. Persistence and degradability	
P46-8DPE PAG 46 + U/V Dye and Perfe	ormance Enhancer
Persistence and degradability	Not established.
tricresyl phosphates, mixture of isom	ers, conc o-tricresyl phosphate>95% (1330-78-5)
Persistence and degradability	Readily biodegradable in water.
2,6-di-tert-butyl-p-cresol (128-37-0)	
Persistence and degradability	Not readily biodegradable in water. Biodegradable in the soil. Adsorbs into the soil. Low potential for mobility in soil. Photooxidation in the air.
Biochemical oxygen demand (BOD)	0.51 g O ₂ /g substance
Chemical oxygen demand (COD)	2.27 g O ₂ /g substance
ThOD	2.977 g O ₂ /g substance
BOD (% of ThOD)	0.17
3,4-epoxycyclohexylmethyl-3,4-epoxy	cyclohexylcarboxylate (2386-87-0)
Persistence and degradability	Biodegradability in soil: no data available. Readily biodegradable in water.
ThOD	2.16 g O ₂ /g substance
12.3. Bioaccumulative potential	
P46-8DPE PAG 46 + U/V Dye and Perfe	ormance Enhancer
Bioaccumulative potential	Not established.
tricresyl phosphates, mixture of isome	ers, conc o-tricresyl phosphate>95% (1330-78-5)
Log Pow	5.11 (Experimental value)
2,6-di-tert-butyl-p-cresol (128-37-0)	
BCF fish 1	230 - 2500 (BCF: OFCD 305: Bioconcentration: Flow-Through Fish Test: 56 days:
DOLUMENT I	TZOU = ZOUU IDGE - CIEGIZ OUD. DIUCUNCENNAMON. EIOW-THIOUGH FISH TEST OD NAVS

2,6-di-tert-butyl-p-cresol (128-37-0)	
BCF fish 1	230 - 2500 (BCF; OECD 305: Bioconcentration: Flow-Through Fish Test; 56 days; Cyprinus carpio; Flow-through system; Fresh water; Experimental value)
Log Pow	5.1 (Experimental value)
Bioaccumulative potential	Potential for bioaccumulation (500 ≤ BCF ≤ 5000).

3,4-epoxycyclohexylmethyl-3,4-epoxycyclohexylcarboxylate (2386-87-0)		
Log Pow	1.34 (Experimental value, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method, 20 °C)	
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).	
12.4. Mobility in soil		
2,6-di-tert-butyl-p-cresol (128-37-0)		
Log Koc	Koc,PCKOCWIN v1.66; 23030; Calculated value; log Koc; PCKOCWIN v1.66; 4.362; Calculated value	
Ecology - soil	May be harmful to plant growth, blooming and fruit formation.	

3,4-epoxycyclohexylmethyl-3,4-epoxycyclohexylcarboxylate (2386-87-0)	
Log Koc	1.4195 (log Koc, QSAR)
Ecology - soil	Low potential for adsorption in soil. Highly mobile in soil.
12.5 Results of PRT and vPvR assessment	

12.5. Results of PBT and vPvB assessmen

Component	
3,4-epoxycyclohexylmethyl-3,4-epoxycyclohexylcarboxylate (2386-87-0)	This substance/mixture does not meet the PBT criteria of REACH, annex XIII This substance/mixture does not meet the vPvB criteria of REACH, annex XIII
12.6. Other adverse effects	

Additional information : Avoid release to the environment.

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR) : Not applicable
UN-No. (IMDG) : Not applicable
UN-No. (IATA) : Not applicable
UN-No. (ADN) : Not applicable
UN-No. (RID) : Not applicable

14.2. UN proper shipping name

Proper Shipping Name (ADR) : Not applicable
Proper Shipping Name (IMDG) : Not applicable
Proper Shipping Name (IATA) : Not applicable
Proper Shipping Name (ADN) : Not applicable
Proper Shipping Name (RID) : Not applicable

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR) : Not applicable

IMDG

Transport hazard class(es) (IMDG) : Not applicable

IATA

Transport hazard class(es) (IATA) : Not applicable

ADN

Transport hazard class(es) (ADN) : Not applicable

RID

Transport hazard class(es) (RID) : Not applicable

14.4. Packing group

Packing group (ADR) : Not applicable
Packing group (IMDG) : Not applicable
Packing group (IATA) : Not applicable
Packing group (ADN) : Not applicable
Packing group (RID) : Not applicable

14.5. Environmental hazards

Dangerous for the environment : Yes
Marine pollutant : Yes

Other information : No supplementary information available

14.6. Special precautions for user

Overland transport

Not applicable

Transport by sea

Not applicable

Air transport

Not applicable

Inland waterway transport

Not applicable

Rail transport

Not applicable

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Contains no REACH substances with Annex XVII restrictions

Contains no REACH candidate substance

Contains no REACH Annex XIV substances.

Directive 2012/18/EU (SEVESO III)

15.1.2. National regulations

Germany

Reference to AwSV : Water hazard class (WGK) 2, significant hazardous to water (Classification according to

AwSV, Annex 1)

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV

: Is not subject of the 12. BlmSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen

SZW-lijst van mutagene stoffen

NIET-limitatieve lijst van voor de voortplanting

giftige stoffen – Borstvoeding

NIET-limitatieve lijst van voor de voortplanting

giftige stoffen - Vruchtbaarheid

NIET-limitatieve lijst van voor de voortplanting

giftige stoffen - Ontwikkeling

: None of the components are listed: None of the components are listed: None of the components are listed

: None of the components are listed

: None of the components are listed

Denmark

Danish National Regulations : Young people below the age of 18 years are not allowed to use the product

Pregnant/breastfeeding women working with the product must not be in direct contact with

the product

The requirements from the Danish Working Environment Authorities regarding work with

carcinogens must be followed during use and disposal

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Other information : None.

Full text of H- and EUH-phrases:		
Acute Tox. 4 (Dermal)	Acute toxicity (dermal) Category 4	
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4	
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1	
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1	
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3	
Repr. 2	Reproductive toxicity Category 2	
Skin Sens. 1B	Skin sensitization, category 1B	
H302	Harmful if swallowed	
H312	Harmful in contact with skin	
H317	May cause an allergic skin reaction	
H361	Suspected of damaging fertility or the unborn child	
H400	Very toxic to aquatic life	
H410	Very toxic to aquatic life with long lasting effects	
H412	Harmful to aquatic life with long lasting effects	

SDS EU (REACH Annex II)

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