



TETRABUTYLPHOSPHONIUM CHLORIDE

Safety Data Sheet OMPH064

Date of issue: 20/08/2015

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Version: 1.1

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

1.1. Product identifier

Product form	: Substance
Physical state	: Solid
Substance name	: TETRABUTYLPHOSPHONIUM CHLORIDE
Product code	: OMPH064
Formula	: C16H36ClP
Synonyms	: PHOSPHONIUM, TETRABUTYL-, CHLORIDE (1:1)
Chemical family	: PHOSPHORUS COMPOUND

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

1.2.1. Relevant identified uses

Use of the substance/mixture : Chemical intermediate

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

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1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

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 2	H310
Skin corrosion/irritation, Category 1B	H314
Serious eye damage/eye irritation, Category 1	H318
Full text of H statements : see section 16	

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS05

GHS06

Signal word (CLP) :

Danger

Hazard statements (CLP) :

H302 - Harmful if swallowed.
H310 - Fatal in contact with skin.

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Precautionary statements (CLP)

H314 - Causes severe skin burns and eye damage.
: P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P260 - Do not breathe dust.
P264 - Wash hands thoroughly after handling.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P310 - Immediately call a POISON CENTER or doctor/physician

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Mono-constituent
Name : TETRABUTYLPHOSPHONIUM CHLORIDE
CAS-No. : 2304-30-5
EC-No. : 218-964-8

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Tetrabutylphosphonium chloride	(CAS-No.) 2304-30-5 (EC-No.) 218-964-8	> 95	Acute Tox. 4 (Oral), H302 Acute Tox. 2 (Dermal), H310 Skin Corr. 1B, H314 Eye Dam. 1, H318

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Call a POISON CENTER/doctor.
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. If you feel unwell, seek medical advice.
First-aid measures after skin contact : Wash with plenty of water/.... Get immediate medical advice/attention.
First-aid measures after eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.
First-aid measures after ingestion : Never give anything by mouth to an unconscious person. Get immediate medical advice/attention.

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

Symptoms/effects : Causes severe skin burns and eye damage.
Symptoms/effects after inhalation : May be harmful if inhaled. May cause irritation to the respiratory tract. Overexposure may cause: Cough. Headache. Nausea.
Symptoms/effects after skin contact : Fatal in contact with skin. Causes (severe) skin burns. Causes alkali burns. Repeated exposure to this material can result in absorption through skin causing significant health hazard.
Symptoms/effects after eye contact : Causes serious eye damage.
Symptoms/effects after ingestion : Harmful if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Not combustible.
Unsuitable extinguishing media : None known.

5.2. Special hazards arising from the substance or mixture

Fire hazard : None known.

5.3. Advice for firefighters

Firefighting instructions : Exercise caution when fighting any chemical fire.

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Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Avoid contact with skin and eyes. Do not breathe dust.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Wear protective equipment as described in Section 8.

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for cleaning up : Sweep or shovel spills into appropriate container for disposal.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid contact with skin and eyes. Do not breathe dust. Provide local exhaust or general room ventilation to minimize exposure to dust.

Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container tightly closed. Store locked up.

Incompatible materials : None known.

Storage area : Store in a well-ventilated place. Store away from heat.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

Appropriate engineering controls:

Provide local exhaust or general room ventilation.

Personal protective equipment:

Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hand protection:

Rubbers. Neoprene or nitrile rubber gloves

Eye protection:

Chemical goggles. Contact lenses should not be worn

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified dust and mist (orange cartridge) respirator.

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Resinous or crystalline solid.
Molecular mass	: 294.89 g/mol
Colour	: Pale yellow-gray.
Odour	: No data available
Odour threshold	: No data available
Refractive index	: No additional information available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: 62 - 66 °C
Freezing point	: No data available
Boiling point	: > 200 °C
Flash point	: No data available
Auto-ignition temperature	: > 450 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: > 1
Solubility	: Slightly. Soluble in water.
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive 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

Stable.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

None known.

10.5. Incompatible materials

None known.

10.6. Hazardous decomposition products

Carbon dioxide. Phosphorus oxides. Tributylphosphine oxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Harmful if swallowed. Fatal in contact with skin.

TETRABUTYLPHOSPHONIUM CHLORIDE (2304-30-5)

ATE CLP (oral)	964.211 mg/kg bodyweight
ATE CLP (dermal)	127.368 mg/kg bodyweight

Tetrabutylphosphonium chloride (2304-30-5)

LD50 oral rat	916 mg/kg
LD50 oral rabbit	325 mg/kg
LD50 dermal rabbit	121 mg/kg

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Tetrabutylphosphonium chloride (2304-30-5)

LD50 intravenous mouse	32 mg/kg
LC50 inhalation rat (mg/l)	> 3 mg/m ³ (Exposure time: 1 h)
ATE CLP (oral)	916 mg/kg bodyweight
ATE CLP (dermal)	121 mg/kg bodyweight

Skin corrosion/irritation	: Causes severe skin burns and eye damage.
Serious eye damage/irritation	: Causes serious eye damage.
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified negative Ames test for mutagenicity reported.
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
Potential adverse human health effects and symptoms	: Signs of toxicity include staggered gait, loss of righting reflex and decrease in spontaneous activity and reactivity.
Symptoms/effects after inhalation	: May be harmful if inhaled. May cause irritation to the respiratory tract. Overexposure may cause: Cough. Headache. Nausea.
Symptoms/effects after skin contact	: Fatal in contact with skin. Causes (severe) skin burns. Causes alkali burns. Repeated exposure to this material can result in absorption through skin causing significant health hazard.
Symptoms/effects after eye contact	: Causes serious eye damage.
Symptoms/effects after ingestion	: Harmful if swallowed. Swallowing a small quantity of this material will result in serious health hazard.
Reason for classification	: Expert judgment

SECTION 12: Ecological information

12.1. Toxicity

Hazardous to the aquatic environment, short-term (acute)	: Not classified
Hazardous to the aquatic environment, long-term (chronic)	: Not classified

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Other adverse effects : This substance may be hazardous to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Sewage disposal recommendations	: Do not dispose of waste into sewer.
Product/Packaging disposal recommendations	: Landfill. Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility..
Ecology - waste materials	: Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number

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

14.1. UN number

UN-No. (ADR)	: 2928
UN-No. (IMDG)	: 2928

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UN-No. (IATA) : 2928
UN-No. (ADN) : 2928
UN-No. (RID) : 2928

14.2. UN proper shipping name

Proper Shipping Name (ADR) : TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S.
Proper Shipping Name (IMDG) : TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S.
Proper Shipping Name (IATA) : Toxic solid, corrosive, organic, n.o.s.
Proper Shipping Name (ADN) : TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S.
Proper Shipping Name (RID) : TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S.
Transport document description (ADR) : UN 2928 TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S. (TETRABUTYLPHOSPHONIUM CHLORIDE), 6.1 (8), II, (D/E)
Transport document description (IMDG) : UN 2928 TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S. (TETRABUTYLPHOSPHONIUM CHLORIDE), 6.1 (8), II
Transport document description (IATA) : UN 2928 Toxic solid, corrosive, organic, n.o.s. (TETRABUTYLPHOSPHONIUM CHLORIDE), 6.1, II
Transport document description (ADN) : UN 2928 TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S. (TETRABUTYLPHOSPHONIUM CHLORIDE), 6.1 (8), II
Transport document description (RID) : UN 2928 TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S. (TETRABUTYLPHOSPHONIUM CHLORIDE), 6.1 (8), II

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR) : 6.1 (8)
Danger labels (ADR) : 6.1, 8



IMDG

Transport hazard class(es) (IMDG) : 6.1 (8)
Danger labels (IMDG) : 6.1, 8



IATA

Transport hazard class(es) (IATA) : 6.1 (8)
Danger labels (IATA) : 6.1, 8



ADN

Transport hazard class(es) (ADN) : 6.1 (8)
Danger labels (ADN) : 6.1, 8



RID

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Transport hazard class(es) (RID) : 6.1 (8)
Danger labels (RID) : 6.1, 8



14.4. Packing group

Packing group (ADR) : II
Packing group (IMDG) : II
Packing group (IATA) : II
Packing group (ADN) : II
Packing group (RID) : II

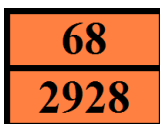
14.5. Environmental hazards

Dangerous for the environment : No
Marine pollutant : No
Other information : No supplementary information available

14.6. Special precautions for user

- Overland transport

Classification code (ADR) : TC2
Special provisions (ADR) : 274
Limited quantities (ADR) : 500g
Excepted quantities (ADR) : E4
Packing instructions (ADR) : P002, IBC06
Mixed packing provisions (ADR) : MP10
Portable tank and bulk container instructions (ADR) : T3
Portable tank and bulk container special provisions (ADR) : TP33
Tank code (ADR) : SGAH, L4BH
Tank special provisions (ADR) : TU15, TE19
Vehicle for tank carriage : AT
Transport category (ADR) : 2
Special provisions for carriage - Packages (ADR) : V11
Special provisions for carriage - Loading, unloading and handling (ADR) : CV13, CV28
Special provisions for carriage - Operation (ADR) : S9, S19
Hazard identification number (Kemler No.) : 68
Orange plates :



Tunnel restriction code (ADR) : D/E
EAC code : 2X

- Transport by sea

Special provisions (IMDG) : 274
Limited quantities (IMDG) : 500 g
Excepted quantities (IMDG) : E4
Packing instructions (IMDG) : P002
IBC packing instructions (IMDG) : IBC06
IBC special provisions (IMDG) : B2
Tank instructions (IMDG) : T3
Tank special provisions (IMDG) : TP33
EmS-No. (Fire) : F-A

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EmS-No. (Spillage)	: S-B
Stowage category (IMDG)	: B
Stowage and handling (IMDG)	: SW2
Properties and observations (IMDG)	: Toxic if swallowed, by skin contact or by inhalation. Causes burns to skin, eyes and mucous membranes.

- Air transport

PCA Excepted quantities (IATA)	: E4
PCA Limited quantities (IATA)	: Y644
PCA limited quantity max net quantity (IATA)	: 1kg
PCA packing instructions (IATA)	: 668
PCA max net quantity (IATA)	: 15kg
CAO packing instructions (IATA)	: 675
CAO max net quantity (IATA)	: 50kg
Special provisions (IATA)	: A5
ERG code (IATA)	: 6C

- Inland waterway transport

Classification code (ADN)	: TC2
Special provisions (ADN)	: 274, 802
Limited quantities (ADN)	: 500 g
Excepted quantities (ADN)	: E4
Equipment required (ADN)	: PP, EP
Number of blue cones/lights (ADN)	: 2

- Rail transport

Classification code (RID)	: TC2
Special provisions (RID)	: 274
Limited quantities (RID)	: 500g
Excepted quantities (RID)	: E4
Packing instructions (RID)	: P002, IBC06
Mixed packing provisions (RID)	: MP10
Portable tank and bulk container instructions (RID)	: T3
Portable tank and bulk container special provisions (RID)	: TP33
Tank codes for RID tanks (RID)	: SGAH, L4BH
Special provisions for RID tanks (RID)	: TU15
Transport category (RID)	: 2
Special provisions for carriage – Packages (RID)	: W11
Special provisions for carriage - Loading, unloading and handling (RID)	: CW13, CW28, CW31
Colis express (express parcels) (RID)	: CE9
Hazard identification number (RID)	: 68

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

No REACH Annex XVII restrictions

TETRABUTYLPHOSPHONIUM CHLORIDE is not on the REACH Candidate List

TETRABUTYLPHOSPHONIUM CHLORIDE is not on the REACH Annex XIV List

TETRABUTYLPHOSPHONIUM CHLORIDE is not subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.

TETRABUTYLPHOSPHONIUM CHLORIDE is not subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

15.1.2. National regulations

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Germany

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed

SZW-lijst van mutagene stoffen : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not 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

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Abbreviations and acronyms:

Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor

Other information : Prepared by safety and environmental affairs.

Full text of H- and EUH-statements:

Acute Tox. 2 (Dermal)	Acute toxicity (dermal), Category 2
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
H302	Harmful if swallowed.
H310	Fatal in contact with skin.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.

SDS EU (REACH Annex II) - Custom

The information contained in this document has been gathered from reference materials and/or Gelest, Inc. test data and is to the best knowledge and belief of Gelest, Inc. accurate and reliable. Such information is offered solely for your consideration, investigation and verification. It is not suggested or guaranteed that the hazard precautions or procedures described are the only ones which exist. Gelest, Inc. makes no warranties, express or implied, with respect to the use of such information and assumes no responsibility therefore. Information on this safety data sheet is not intended to constitute a basis for product specifications.

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