O-T-BUTYLPHENOL

Version: *11*.06 **Revision Date 2016/03/02**

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Trade name	**O-T-BUTYLPHENOL**
REACH No.	01-2119971072-42-0000
Substance name (REACH / CLP)	2-tert-Butylphenol

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

Use	Industrial use raw material for synthesis processes in the chemical industry
Uses advised against	

1.3 Details of the supplier of the safety data sheet

Company	SASOL Germany GmbH Anckelmannsplatz 1 20537 Hamburg Telephone: +49 40 63684-1000 Telefax: +49 40 63684-3700
Information (Product safety):	Telephone: + 49 (0) 23 65 - 49 47 05 Telefax: + 49 (0) 23 65 - 49 92 40
E-mail address	msds-info.germany@de.sasol.com

1.4 Emergency telephone number

Emergency telephone number	+ 49 (0) 23 65 - 49 22 32

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Acute toxicity Category 4 (Inhalation)	Harmful if inhaled.
Acute toxicity Category 3 (Dermal)	Toxic in contact with skin.
Acute toxicity Category 4 (Oral)	Harmful if swallowed.
Skin corrosion Category 1B	Causes severe skin burns and eye damage.
Chronic aquatic toxicity Category 2	Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms

Signal word	Danger

Hazard statements

H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H302	Harmful if swallowed.
H332	Harmful if inhaled.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements

P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
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 hazards to be specially mentioned.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

This product is a substance in the meaning of regulation (EC) 1907/2006.

COMPONENTS TO BE NAMED IN ACCORDANCE WITH REGULATION (EC) 1907/2006 AS WELL AS OTHER HAZARDOUS INGREDIENTS AND CONTAINED SUBSTANCES WITH WORK PLACE LIMIT VALUES

2-tert-Butylphenol

component type: Active ingredient

EC-No.: 201-807-2 **Index-No.:** **CAS-No.:** 88-18-6
REACH No.: 01-2119971072-42-0000
Substance name (REACH / CLP): 2-tert-Butylphenol

Classification (Regulation (EC) No 1272/2008):	Acute Tox. 4 (Inhalation)	H332	
	Acute Tox. 3 (Dermal)	H311	
	Acute Tox. 4 (Oral)	H302	
	Skin Corr. 1B	H314	
	Eye Dam. 1	H318	
	Aquatic Chronic	2	H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice	Take off all contaminated clothing immediately. If you feel unwell, seek medical advice (show the label where possible).

If inhaled	Move to fresh air. If symptoms persist, call a physician.
In case of skin contact	Wash off immediately with plenty of water. Consult a physician.
In case of eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Protect unharmed eye.
If swallowed	Do NOT induce vomiting. Rinse mouth. If swallowed, seek medical advice immediately and show this container or label.

4.2 Most important symptoms and effects, both acute and delayed

Most important symptoms and effects, both acute and delayed	Symptoms: No information available. Risks: Risk of product entering the lungs on vomiting after ingestion.

4.3 Indication of any immediate medical attention and special treatment needed

Indication of any immediate medical attention and special treatment needed	Treatment: Call a physician immediately.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media	Water spray, Dry powder, Foam, Carbon dioxide (CO2)

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting	Dangerous gases or fumes may occur in case of fire.

5.3 Advice for firefighters

Further information	Standard procedure for chemical fires.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	Use personal protective equipment.

6.2 Environmental precautions

Environmental precautions	Should not be released into the environment.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For personal protection see section 8.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling	Wear personal protective equipment.
Advice on protection against fire and explosion	Normal measures for preventive fire protection.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	Keep container tightly closed. Keep in a cool, well-ventilated place.
Storage class (TRGS 510)	8AL: Combustible liquids, corrosive

7.3 Specific end use(s)

Specific use(s)	This information is not available.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

COMPONENTS WITH WORKPLACE CONTROL PARAMETERS

National occupational exposure limits

No data available

EUROPEAN OCCUPATIONAL EXPOSURE LIMITS

No data available

DERIVED NO EFFECT LEVEL (DNEL)

Substance name: 2-tert-Butylphenol			
End Use	**Exposure routes**	**Value**	**Note**
Workers	dermal, Acute/short-term exposure - systemic effects		Not relevant / not applicable
	Inhalation, Acute/short-term exposure - systemic effects		Not relevant / not applicable
	dermal, Acute/short-term exposure - local effects		Not relevant / not applicable
	Inhalation, Acute/short-term exposure - local effects		Not relevant / not applicable
	dermal, long-term exposure - systemic effects		Not relevant / not applicable
	Inhalation, long-term exposure - systemic effects	1.47 mg/m3	
	dermal, long-term exposure - local effects		Not relevant / not applicable
	Inhalation, long-term exposure - local effects		Not relevant / not applicable
Consumers	dermal, Acute/short-term exposure - systemic effects		Not relevant / not applicable
	Inhalation, Acute/short-term exposure - systemic effects		Not relevant / not applicable
	Oral, Acute/short-term exposure - systemic		Not relevant / not applicable

	effects		
	dermal, Acute/short-term exposure - local effects		Not relevant / not applicable
	Inhalation, Acute/short-term exposure - local effects		Not relevant / not applicable
	dermal, long-term exposure - systemic effects		Not relevant / not applicable
	Inhalation, long-term exposure - systemic effects	0.36 mg/m3	
	Oral, long-term exposure - systemic effects	0.17 mg/kg	based on body weight and day
	dermal, long-term exposure - local effects		Not relevant / not applicable
	Inhalation, long-term exposure - local effects		Not relevant / not applicable

PREDICTED NO EFFECT CONCENTRATION (PNEC)

Substance name: 2-tert-Butylphenol		
Environmental Compartment	**Value**	**Note**
Fresh water	0.0231 mg/l	
Marine water	0.00231 mg/l	
intermittent release	0.024 mg/l	
treatment plant	0.1 mg/l	
Fresh water sediment	2.2845 mg/kg	based on dry weight
Marine sediment	0.2284 mg/kg	based on dry weight
Soil	0.4433 mg/kg	based on dry weight
food		Not relevant / not applicable

8.2 Exposure controls

PERSONAL PROTECTIVE EQUIPMENT

Respiratory protection

In inadequately ventilated areas, where workplace limits are exceeded, where unpleasant odours exist or where aerosols are in use, or smoke and mist occur, use self-contained breathing apparatus or breathing apparatus with a type A filter or appropriate combined filter (e.g. where aerosols are in use, or smoke and mist occur, A-P2 or ABEK-P2), in compliance with EN 141.

Hand protection

The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other., Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time., Be aware that in daily use the durability of a chemical resistant protective glove can be notably shorter than the break through time measured according to EN 374, due to the numerous outside influences (e.g. temperature).

gloves suitable for permanent contact:
Material: Fluorinated rubber
Break through time: >= 480 min
Layer thickness: 0.4 mm

Material: butyl-rubber
Break through time: >= 480 min
Layer thickness: 0.5 mm

unsuitable gloves
Material: Natural rubber/natural latex, Polychloroprene, Nitrile rubber/nitrile latex, Polyvinylchloride

Eye protection	Tightly fitting safety goggles
Skin and body protection	Protective suit, Safety shoes
Hygiene measures	Take off all contaminated clothing immediately. Handle in accordance with good industrial hygiene and safety practice.
Protective measures	Wear suitable gloves and eye/face protection. Avoid contact with the skin and the eyes.

ENVIRONMENTAL EXPOSURE CONTROLS

General advice	Should not be released into the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	liquid; 20 °C; 1,013 hPa
Form	liquid
Colour	clear
Odour	phenol-like
Odour Threshold	No valid method available
pH	No data available
Melting point/range	-25 °C
Boiling point/boiling range	223 °C; 1,013 hPa
Flash Point	ca. 102 °C
Evaporation rate	No data available
Flammability (solid, gas)	not applicable (liquid)
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapour pressure	0.5 hPa; 38 °C
Relative vapour density	> 1
Density	0.98 g/cm3; 20 °C
Water solubility	0.97 g/l; 20 °C; ASTM E 1148
Partition coefficient: n-octanol/water	log Pow: 3.31; pH: 5.7; OECD Test Guideline 117

Ignition temperature	ca. 355 °C
Auto-ignition temperature	No data available
Viscosity, kinematic	14.7 mm2/s; 20 °C
	5.8 mm2/s; 40 °C
Explosive properties	Constituents do not contain chemical groups associated with explosivity.
Oxidizing properties	not expected based on structure and functional groups

9.2 Other data

Additional advice	no explosion limits under standard conditions

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Note	Stable under recommended storage conditions.

10.2 Chemical stability

Note	No decomposition if stored normally.

10.3 Possibility of hazardous reactions

Hazardous reactions	No dangerous reaction known under conditions of normal use.

10.4 Conditions to avoid

Conditions to avoid	Direct heating, dirt, chemical contamination, sunlight, UV or ionising radiation.

10.5 Incompatible materials to avoid

Materials to avoid	None known.;

10.6 Hazardous decomposition products

Hazardous decomposition products	Stable under normal conditions.
Thermal decomposition	No decomposition if used as directed.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity	2-tert-Butylphenol: LD50 Rat: > 300 - 2,000 mg/kg; OECD Test Guideline 401 (literature value) Harmful if swallowed.
Acute inhalation toxicity	2-tert-Butylphenol: study scientifically unjustified Justification: Corrosive

Harmful if inhaled.

Acute dermal toxicity

2-tert-Butylphenol:
LD50 Rat: > 200 - 1,000 mg/kg; OECD Test Guideline 402
(literature value)
Toxic in contact with skin.

Skin corrosion/irritation

Skin irritation

2-tert-Butylphenol:
Rabbit: Corrosive; OECD Test Guideline 404
(literature value)
Causes severe skin burns and eye damage.

Serious eye damage/eye irritation

Eye irritation

2-tert-Butylphenol:
Rabbit: Irreversible effects on the eye; OECD Test Guideline 405

Respiratory or skin sensitisation

Sensitisation

2-tert-Butylphenol:
Maximisation Test (GPMT) Guinea pig: not sensitizing; OECD Test Guideline 406
(literature value)
Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Genotoxicity in vivo

2-tert-Butylphenol:
Micronucleus test; Mouse: negative; OECD Test Guideline 474

Remarks

2-tert-Butylphenol:
Based on available data, the classification criteria are not met.

Carcinogenicity

Carcinogenicity

2-tert-Butylphenol:
The substance has been shown to be not genotoxic, therefore it is not expected to have a carcinogenic potential.

Reproductive toxicity

Reproductive toxicity

2-tert-Butylphenol:
Rat; Oral
NOAEL ((parents)): 300 mg/kg (based on body weight and day)
NOAEL (F1): 300 mg/kg (based on body weight and day); OECD Test Guideline 422
(literature value)
The data are derived from the evaluations or test results achieved with similar products (conclusion by analogy).
Test substance: o-sec butyl phenol

Teratogenicity

2-tert-Butylphenol:
Testing proposal
OECD Test Guideline 414

STOT - single exposure

Remarks

2-tert-Butylphenol:
The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT - repeated exposure

Remarks

2-tert-Butylphenol:
The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Repeated dose toxicity

2-tert-Butylphenol:

Rat; Oral; 28-day
NOAEL: 100 mg/kg (based on body weight and day)
LOAEL: 500 mg/kg (based on body weight and day); OECD Test Guideline 407 (literature value)

Aspiration hazard

Aspiration toxicity 2-tert-Butylphenol:
Not applicable

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish 2-tert-Butylphenol:
LC50 (96 h) Fish: > 1 - 10 mg/l ; QSAR
(literature value)

Toxicity to fish - Chronic toxicity 2-tert-Butylphenol:
NOEC (30 d) Fish: 0.231 mg/l; QSAR
(literature value)

Toxicity to daphnia and other aquatic invertebrates 2-tert-Butylphenol:
EC50 (48 h) Daphnia magna (Water flea): > 1 - 10 mg/l ; static test; OECD Test Guideline 202

Toxicity to daphnia and other aquatic invertebrates - Chronic toxicity 2-tert-Butylphenol:
NOEC (21 d) Daphnia magna (Water flea): 0.32 mg/l; reproduction rate; OECD Test Guideline 211; (literature value)
The data are derived from the evaluations or test results achieved with similar products (conclusion by analogy).
Test substance: o-sec butyl phenol

Toxicity to aquatic plants 2-tert-Butylphenol:
EC50 (72 h) Desmodesmus subspicatus (green algae): > 1 - 10 mg/l ; static test; OECD Test Guideline 201

Toxicity to bacteria 2-tert-Butylphenol:
(3 h) activated sludge: > 10 mg/l; Respiration inhibition; OECD Test Guideline 209 (literature value)
The data are derived from the evaluations or test results achieved with similar products (conclusion by analogy).
Test substance: o-sec butyl phenol

Toxicity to soil dwelling organisms 2-tert-Butylphenol:
The study is not necessary.
Justification:
unlikely direct and indirect exposure of the soil compartment

Toxicity to terrestrial flora 2-tert-Butylphenol:
The study is not necessary.
Justification:
unlikely direct and indirect exposure of the soil compartment

Toxicity for other terrestrial non-mammalian fauna 2-tert-Butylphenol:
The study is not necessary.
Justification:
unlikely direct and indirect exposure of the soil compartment

12.2 Persistence and degradability

Biodegradability 2-tert-Butylphenol:
inherently biodegradable; Abiotic degradation

(literature value)
Category approach

12.3 Bioaccumulative potential

Bioaccumulation 2-tert-Butylphenol:
Cyprinus carpio (Carp); 28 d; Bioconcentration factor (BCF): 78; OECD Test Guideline 305
Bioaccumulation is unlikely.
(literature value)

12.4 Mobility in soil

Mobility 2-tert-Butylphenol:
Koc: 952; QSAR
Moderately mobile in soils

12.5 Results of PBT and vPvB assessment

Results of PBT assessment 2-tert-Butylphenol:
Based on available data, the classification criteria are not met.

12.6 Other adverse effects

General advice 2-tert-Butylphenol:
Toxic to aquatic life with long lasting effects.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

waste code of the European Union: EWC A waste code in accordance with the European Waste Catalogue (EWC) may not be assigned to this product since it admits of a classification only when the consumer uses it for some purpose. The waste code must be determined in agreement with the regional waste disposal authority or company.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number

ADR	2922
RID	2922
ADN	2922
IMDG	2922
ICAO/IATA	2922

14.2 Proper shipping name

ADR	CORROSIVE LIQUID, TOXIC, N.O.S. (2-tert-Butylphenol)
RID	CORROSIVE LIQUID, TOXIC, N.O.S. (2-tert-Butylphenol)
ADN	CORROSIVE LIQUID, TOXIC, N.O.S. (2-tert-Butylphenol)
IMDG	CORROSIVE LIQUID, TOXIC, N.O.S. (2-tert-Butylphenol)
ICAO/IATA	CORROSIVE LIQUID, TOXIC, N.O.S. (2-tert-Butylphenol)

14.3 Transport hazard class

ADR	8
RID	8
ADN	8
IMDG	8
ICAO/IATA	8

14.4 Packing group

ADR	II
RID	II
ADN	II
IMDG	II
ICAO/IATA	II

14.5 Environmental hazards

ADR	Environmentally hazardous	yes
RID	Environmentally hazardous	yes
ADN	Environmentally hazardous	yes
IMDG	Marine pollutant	yes
ICAO/IATA	Environmentally hazardous	yes

14.6 Special precautions for user

ADR	Hazard Identification Number		86
	Labels		8 (6.1)
	Tunnel restriction code		(E)
IMDG	Labels	8 (6.1)	
	EmS Number 1	F-A	
	EmS Number 2	S-B	
ICAO/IATA	Labels		8 (6.1)

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Remarks No information available.

SECTION 15: REGULATORY INFORMATION

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

Occupational restrictions Employment restrictions for children and young workers in accordance with Directive 94/33/EC and the respective national provisions are to be observed.

NATIONAL/OTHER REGULATIONS

Legislation on the control of major-accident hazards involving dangerous substances

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

list entry in the directive:: ENVIRONMENTAL HAZARDS; E2

Qualifiying quantity 1: 200 t; Qualifiying quantity 2: 500 t;

NOTIFICATION STATUS

Switzerland. Consolidated Inventory	CH INV	listed (product or constituents are listed)
US. Toxic Substances Control Act	TSCA	listed (product or constituents are listed)
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL)	DSL	listed (product or constituents are listed)
Australia. Industrial Chemical (Notification and Assessment) Act	AICS	listed (product or constituents are listed)
Japan. Kashin-Hou Law List	ENCS (JP)	listed (product or constituents are listed)
Japan. Industrial Safety & Health Law (ISHL) List	ISHL (JP)	listed (product or constituents are listed)
Korea. Existing Chemicals Inventory (KECI)	KECI (KR)	listed (product or constituents are listed)
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	PICCS (PH)	listed (product or constituents are listed)
China. Inventory of Existing Chemical Substances	INV (CN)	listed (product or constituents are listed)

Please note: the names and CAS numbers which are used for this product in the stated inventories may deviate from the information which is listed in chapter 3.

15.2 Chemical Safety Assessment

2-tert-Butylphenol

A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H332	Harmful if inhaled.
H411	Toxic to aquatic life with long lasting effects.

Safety datasheet sections which have been updated:

14. Transport information

Further information: The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material

designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
This safety datasheet only contains information relating to safety and does not replace any product information or product specification.

Key or legend to abbreviations and acronyms used in the safety data sheet

ADN	Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure
ADR	Accord européen relatif au transport international des marchandises Dangereuses par Route
AICS	Australian Inventory of Chemical Substances
ANSI	American National Standards Institute
ASTM	American Society of Testing and Materials (US)
BCF	Bioconcentration factor
CLP	Regulation on Classification, Labelling and Packaging of Substances and Mixtures
DIN	Deutsches Institut für Normung
DNEL	Derived No-Effect Level
DSL	Domestic Substances List
EC…	Effect concentration ... %
ENCS	Existing Notified Chemical Substances (Japan)
EWC	European Waste Catalogue
IATA	International Air Transport Association
IBC	Intermediate Bulk Container
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
ISHL	Industrial Safety and Health Law (Japan)
ISO	International Organization for Standardization
IUAPC	International Union of Pure and Applied Chemistry
KECI	Korea Existing Chemicals Inventory
LC…	Lethal Concentration, ...%
LD…	Lethal Dose, ...%
MARPOL	International Convention for the Prevention of Pollution From Ships
NDSL	Non-Domestic Substances List
NOAEL	no observable adverse effect level
NOEL/NOEC	No Observed-effect level/concentration
NZIoC	New Zealand Inventory of Chemicals
OECD	Organisation for Economic Co-operation and Development
PBT	persistent, bioaccumulative, toxic
PICCS	Philippine Inventory of Chemicals and Chemical Substances
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport international ferroviaire de marchandises dangereuses
TG	Test Guideline
TRGS	Technische Regeln für Gefahrstoffe
TSCA	Toxic Substances Control Act
vPvB	very persistent, very bioaccumulative
WGK	Wassergefährdungsklasse

Annex

Attachments to the safety data sheet and/or lists of the identified uses for the listed substances can be downloaded using the internet links below.

2-tert-Butylphenol

http://www.sasolgermany.de/fileadmin/doc/productsafety/Annex/000000000416_EN_01.pdf